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Upper Gastrointestinal Surgery

Clinicopathologic characteristics of mixed epithelial/mesenchymal metaplastic breast carcinoma (carcinosarcoma)

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Introduction: Breast carcinosarcoma is rare and aggressive. Data focusing on breast carcinosarcoma is limited. The objective of the study was to describe the clinicopathological features of breast carcinosarcoma and to evaluate post-surgical outcomes.

Materials and Methods: All cases about breast carcinosarcoma in China were collected from eligible papers published in Chinese core periodicals between 1990 and 2013 with Keywords of breast carcinosarcoma, or breast cancer, or carcinosarcoma, and metaplastic carcinoma. The survival rates, clinical behavior, and pathological characteristics were analyzed.

Results: Mean age of the cohort of 215 patients was 53 years (range, 25–82 years). The tumor size ranged from 2.5 cm to 18 cm. The incidence of pathological confirmed lymph node metastases was 30.81%. The epithelial component in a tumor may be composed of invasive ductal carcinoma (84.21%), squamous cell carcinoma (7.89%), lipid-rich carcinoma (6.58%), or adenocarcinoma (1.31%). Mesenchymal components may contain different elements ranging from fibrosarcoma (63.16%) to chondrosarcoma of bone (19.73%), Osteosarcoma (9.21%), Liposarcoma (3.95%) or Leiomyosarcoma (3.95%). 5-year survival of the breast carcinosarcoma in 149 patients is 62.6% (CI: 54.9%–0.703%).

Conclusions: Breast carcinosarcoma is a rare subtype of metaplastic breast cancer. It is characterized by a large tumor size, higher rates of axillary nodal involvement, higher rates of both local and distant recurrence, and is difficult to diagnose with preoperative core needle biopsies. Adjuvant treatment after surgical operation may improve the 5-year OS of patients with breast carcinosarcoma.

Keywords: breast carcinosarcoma; metaplastic breast carcinoma; breast cancer; clinicopathology; CBMDISK

Comparison of magnetic resonance imaging and transrectal ultrasound in preoperative local staging of rectal cancer

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Purposes: Rectal cancer is a common malignancy and has been a serious threat to human health, with rapidly rising incidence. It is critical to choose appropriate methods for preoperative staging. Our study aimed to compare the value of magnetic resonance imaging (MRI) and transrectal ultrasound (TRUS) in preoperative local staging of rectal cancer.

Methods: From 2013 to 2014, 40 patients including 22 males and 18 females with primary rectal cancer were assessed at the Fourth Hospital of Hebei Medical University for preoperative staging by MRI and TRUS examination. The imaging Results were compared with postoperative pathohistological staging to evaluate the accuracy, sensitivity, specificity and consistency of MRI and TRUS in assessing depth of invasion (T stage) and locoregional lymph node metastasis (N stage) of rectal cancer.

Results: Forty patients with rectal cancer were enrolled in the study. The accuracy of MRI and TRUS in assessing preoperative staging was 65.0 % (kappa consistency test analysis with pathology, (kappa = 0.375). and 65.0 % (kappa = 0.471). In evaluation of lymph node invasion, the diagnostic accuracy of N staging of rectal cancer by MRI and TRUS were 72.5% (kappa = 0.453) and

50.0% ($\kappa = -0.008$), with sensitivity of 68.2% and 57.1%, specificity of 77.8% and 42.1%, respectively.

Conclusions: TRUS was much better than MRI in assessing preoperative T staging of rectal cancer, while MRI has better accuracy than TRUS in assessment of N staging of rectal cancer.

Keywords: magnetic resonance imaging; ultrasound; rectal cancer; tumor staging

Application of R-type jejunal interposition and esophagojejunostomy by delta shaped anastomosis after in totally laparoscopic radical gastrectomy for gastric stump carcinoma

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Objective: To evaluate the short-term efficacy of R-type jejunal interposition and esophagojejunostomy by delta-shaped anastomosis after in totally laparoscopic radical gastrectomy for gastric stump carcinoma.

Methods: Analyzed retrospectively were the data of 10 patients with gastric stump cancer from January 2013 to August 2014. All patients received R-type jejunal interposition and esophagojejunostomy by delta-shaped anastomosis after in totally laparoscopic radical gastrectomy for gastric stump carcinoma in our hospital (laparoscope group). As a control, 13 cases were performed laparotomy (laparotomy group). Comparison intraoperative and postoperative indicators between these two groups. All the patients were followed - up postoperatively from 14 months to 21 months.

Results: The operation was successfully carried out on all 10 patients (laparoscope group) and no one changed to receive open operation. Compared with laparotomy, the mean operative time was (210.0 ± 30.9 vs 283.9 ± 50.9) minutes, and the time of intraoperative blood loss was (90.0 ± 26.7 vs 277.8 ± 79.1) mL, the number of dissected lymph node was (19.0 ± 3.6 vs 18.8 ± 3.7), the time for leaving bed, first liquid food intake, recovery of gastrointestinal function and hospital stays were (17.3 ± 3.6 vs 75.8 ± 15.7) h, (1.6 ± 0.4 vs 5.7 ± 1.3) d, (3.0 ± 0.8 vs 7.2 ± 1.3) d, (7.6 ± 1.2 vs 20.8 ± 3.9) d. No anastomotic stricture, reflux esophagitis, bleeding, leakage, dumping syndrome or intestinal obstruction was detected in laparoscope group. No patients died perioperatively. All of the cases nutrition situation fine with no choking and sophagus burning.

Conclusion: R-type jejunum interposition and Esophagojejunostomy by delta-shaped anastomosis in totally laparoscopic radical total gastrectomy is safe and feasible. The operation can improve the quality of life and obtain the better near-term therapeutic effect. Laparoscopic-assisted radical gastrectomy on gastric stump cancer have the same radical effects with laparotomy.

Keywords: laparoscope, gastric stump carcinoma, Delta-shaped Anastomosis, R-type jejunal interposition

A comparative study of clinical effect on the Da Vinci surgical robot –assisted and laparoscopic-assisted distal subtotal gastrectomy for gastric cancer

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Objective: To evaluate the feasibility, safety and the clinical outcomes of the robotic distal gastrectomy for gastric cancer.

Methods: We retrospectively analyzed the clinical and follow-up data of 113 cases underwent robotic distal gastrectomy from March 2010 to July 2013, and compared with 279 cases after laparoscopy-assisted distal gastrectomy for gastric cancer during the same period in our hospital. The surgical safety, postoperative complications, neutrophil-lymphocyte ratio, survival rate were assessed.

Results: Compared with laparoscopic group, the robotic group had less intraoperative blood loss, more lymph nodes dissection ($P < 0.05$). There was no significant difference in the incidence of postoperative complications and neutrophil-lymphocyte ratio between the two groups. The follow-up data showed that the 1-, 2- and 3-year survival rates were 91.7%, 77.4% and 72.9% in robotic group while they were 91.2%, 76.2% and 70.4% in laparoscopic group, and the difference was not significant.

Conclusion: Robotic distal gastrectomy for gastric cancer is safe and effective, and it has less harm to the patients, with less intraoperative blood loss, more lymph nodes dissection and quicker postoperative recover than laparoscopic surgery, so it is worthy of popularization and application.

Keywords: Da Vinci surgical robot; laparoscope; distal gastric cancer; surgical stress; clinical outcome

The Meta-Analysis Laparoscopy Versus Open Distal Gastrectomy For Advanced Gastric Cancer

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Background: Laparoscopy-assisted distal gastrectomy (LADG) has been accepted in early gastric cancer treatment, however, application of LADG in advanced distal gastric cancer (ADGC) remains a controversial topic. In this study, using meta-analysis, we compared the LADG with open distal gastrectomy (ODG) in the treatment of patients with advanced gastric cancer.

Methods: PubMed and Cochrane library were electronically searched. All papers published between 2005 and 2013 on the

treated of ADGC, including retrospective case-control studies and randomized controlled trails, were collected. The RevMan 5.0 software was used for the meta-analysis.

Results: There were twelve studies available online, including one randomized controlled trail 1–12. These studies consist of 1910 patients, of which 880 (46%) were treated with laparoscopic, and 1030 (54%) were treated with open distal gastrectomy. The meta-analysis indicated that in comparison with patients who underwent open distal gastrectomy, patients who were treated with LADG had shorter hospital stay, less analgesic requirements and blood loss, less overall complications, including intestinal obstruction, earlier time to liquid ingestion, and less wound infections. Nevertheless, there is no significant difference between LADG and ODG in anastomotic hemorrhage, anastomotic stenosis, duodenal stump leakage, tumor margin, lymph node dissection, mortality, pneumonia or reoperation. And in case of long-term survivals, both OS (overall-survival) and DFS (disease-free survival) showed no significant difference between LADG and ODG.

Conclusions: According to this study, LADG is feasible for the treatment of advanced gastric cancer, and provides several advantages. Although LADG may associate with longer operation time, patients underwent ODG treatment were weak due to longer hospital stay and slower recurrence. Taken together, LADG should become an alternative approach for the treatment of ADGC.

Laparoscopy-Assisted Versus Open Gastrectomy for Advanced Gastric Cancer

A Meta-Analysis of Randomized and Nonrandomized Clinical Trials

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Background: Laparoscopy-assisted gastrectomy (LAG) is one of the most accepted procedure for early gastric cancer (EGC). However, currently the utility of the procedure for advanced gastric cancer (AGC) still remain controversial. So, a meta-analysis of high-quality clinical studies was performed to compare LAG and open gastrectomy (OG) for AGC.

Methods: All randomized controlled trials (RCTs) and high-quality retrospective case-control studies published in English from January 1994 to April 2014 that compared LAG and OG were identified through PubMed, EBSCO, Cochrane Library, and the controlled Trials Registry. Meta-analysis was performed using RevMan 5.0 software (Cochrane Library).

Results: Twenty studies were included in final pooled analysis, 2 RCTs and 17 NRCTs, comprising 3409 patients (1640 LAG, 1709 OG). LAG was associated with longer operative time ($P < 0.001$) and lower overall complications ($P = 0.001$), estimated blood loss ($P < 0.001$) and hospital stay ($P < 0.001$). There were no significant differences between two groups in number of lymph node dissection ($P = 0.65$), overall complication ($P = 0.86$), a 5-year overall survival rate ($P = 0.53$) and 5-year recurrence-free survival ($P = 0.07$).

Conclusions: Despite a longer operation time, LAG is a safe technical alternative to OG for AGC with a lower complication rate and enhanced postoperative recovery. Moreover, the oncologic outcomes of LAG for AGC patients were comparable with open approach.

Keywords: advanced gastric cancer; laparoscopic assisted total gastrectomy; open gastrectomy; meta-analysis

Clinical comparison of antrum-preserving double tract reconstruction versus Roux-en-Y reconstruction after gastrectomy for Siewert type II and III adenocarcinoma of the esophagogastric junction

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Background/Aim: As the morbidity of adenocarcinoma of the esophagogastric junction (AEG) is gradually increased, the alimentary canal reconstruction Method of surgical operation has become a controversy over whether the duodenal passage of food is maintained. To investigate the reasonable operational manner of AEG patient, we explored and improved a new Method of digestive tract reconstruction of antrum-preserving double tract reconstruction (ADTR), and that assessed its efficacy and safety for AEG in terms of long-term survival, complication morbidity, and mortality retrospectively.

Methods: 55 cases were retrospectively collected that consisted of 18 cases underdoing antrum-preserving double tract reconstruction (ADTR) method and 37 cases Roux-Y reconstruction (RY) for adenocarcinoma of the esophagogastric junction (Siewert type II, III) at North Sichuan Medical College and divided into two groups. The clinicopathological characteristics, perioperative outcomes, postoperative complications morbidity and overall survival (OS) were compared between the two different reconstruction Methods

Results: Basic characteristics, including sex, age, body mass index, Siewert type, pT status, pN stage, and lymph node metastasis, were similar between the two groups. No significant differences were found between the two groups in term of perioperative outcomes (including postoperative hospital stay, operating time, intraoperative blood loss), postoperative complications (consisting of anastomosis-related complication, wound infection, respiratory infection, pleural effusion, lymphorrhagia, cholelithiasis). For ADTR group, perioperative recovery index, such as first flatus time ($P = 0.002$) and time to resume liquid diet ($P = 0.001$), were faster than that in the RY group. Moreover, the incidence of reflux esophagitis was significantly decreased than RY group ($P = 0.048$). Postoperative morbidities and mortalities, as for overall postoperative complication, tumor recurrence and metastasis were not significantly different between the two groups. Survival curves plotted by Kaplan–Meier method and compared by log-rank test presented a common outcome between ADTR group and RY group. Multivariate analysis about

significantly different factors that presented as covariates into a Cox regression analysis to assess the survival and recurrence among AEG patients shown that age, gender, BMI, pleural effusion, time to resume liquid diet, lymphorrhagia and TNM stage were important prognostic factor for OS of AEG while the selection of surgical method between ADTR and RY developed a common prognostic factor for OS of AEG.

Conclusions: Antrum-preserving double tract reconstructed by jejunal interposition presents a similar tumor recurrence, metastasis and long-term survival to classical Roux-en-Y reconstruction with esophagojejunostomy, and it suggests a considerable near-term quality of life, especially in terms of early recovery and reflux esophagitis, and it is worthy to be recommended as one of the reasonable digestive tract reconstruction method for Siewert II, III type adenocarcinoma of the esophagogastric junction.

Keywords: Adenocarcinoma of the esophagogastric junction; ADTR; total gastrectomy; Roux-Y reconstruction;

Comparative study of clinical outcomes between laparoscopy-assisted proximal gastrectomy (LAPG) and laparoscopy-assisted total gastrectomy (LATG) for proximal gastric cancer

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Background: It has been largely controversial on selecting different laparoscopic surgical strategies for patients with proximal gastric cancer (PGC): laparoscopy-assisted proximal gastrectomy (LAPG) and laparoscopy-assisted total gastrectomy (LATG). The purpose of this study was to assess the feasibility, safety, and surgical and functional outcomes of LAPG and LATG.

Methods: From May 2009 to May 2014, 174 patients with proximal gastric cancer underwent LAPG (n=76) or LATG (n=98) at our department. We reviewed their medical and surgical records from our prospectively collected gastric cancer database. The clinicopathologic characteristics and short-term, long-term, and functional outcomes were compared between the 2 groups.

Results: There was no significant difference in demographics, postoperative recovery, early complications, and overall survival between the two groups. The LAPG group had a shorter mean operative time and lower estimated blood loss than LATG group. Late complications, especially reflux symptoms, were significantly higher in LAPG group.

Conclusions: LAPG and LATG are all good laparoscopic surgical approach for PGC with sufficient lymph node dissection, satisfactory early recovery, and acceptable morbidity. However, esophagogastric anastomosis after LAPG was associated with an increased risk of reflux symptoms. Antireflux procedures should be considered to prevent reflux symptoms after LAPG.

Keywords: Proximal gastric cancer LAPG LATG

Comparison of clinical outcome and prognosis in patients with gastroesophageal junction adenocarcinoma by transthoracic and transabdominal hiatal approaches: a single Chinese Teaching hospital retrospective cohort study

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Objective: To compare the clinical outcome and prognosis in patients with gastroesophageal junction adenocarcinoma (Siewert type II/III) by transthoracic and transabdominal hiatal approaches.

Methods: 334 cases Siewert II/III GEJ adenocarcinomas patients underwent different surgical procedures in Affiliated Hospital of Qingdao University from July 2007 to July 2012 were analysed retrospectively. Of which 140 cases by transthoracic approach, 194 cases by transabdominal hiatal approach mainly underwent radical total and proximal gastrectomy (D2). All the patients were followed up by telephone review or outpatients' reexamination until July 2013. The surgical-related and clinical outcomes were compared using the chi-square test, t test, Fisher's exact test or nonparametric rank sum test according to different dates. The survival curve was drawn by the Kaplan-Meier method and survival analysis used Log-rank test.

Results: The operative time, length of resected esophagus, number of lymph nodes harvested, postoperative pain scores, postoperative hospital stay, time of antibiotics use, postoperative morbidity and costs, transabdominal surgery group was better than that of transthoracic group (202±34 vs 153±48, t=3.126, 4.1±1.1 vs 3.8±1.1, t=2.634, 17±7 vs 22±7, t=5.417, 5.9±1.8 vs 4.8±1.6, t=4.662, 13±6 vs 11±6, t=2.030, 6.8±2.4 vs 2.3±1.1, t=9.384, 27.14% vs 15.46%, $\chi^2=6.841$, 4.7±1.8 vs 4.5±1.5, t=2.398, $P<0.05$). The follow-up rate was 90.42%(302/334) and the median survival time was 38 months in 2-72 months. The overall 5-year survival rate was 35.3% and 40.3% respectively in transthoracic and transabdominal surgery group, there were not statistically differences between them ($\chi^2=2.311$, $P>0.05$). According to TNM staging, stratification analysis showed that that staging III patients' overall survival rates were 25.7% and 37.2% separately, the difference was statistically significant ($\chi^2=4.127$, $P<0.05$).

Conclusion There was no significant differences of 5-year overall survival in TNM stage I and II of Siewert II / III adenocarcinoma patients but improved survival of TNM stage III by transabdominal hiatal compared with transthoracic radical total and proximal gastrectomy. There was more dominant short-term clinical outcomes improving in transabdominal hiatal approach group.

Keywords: gastric neoplasm; esophagogastric junction; Siewert type; surgical approach

Comparison of different alimentary reconstructions after subtotal gastrectomy for cancer

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Objective: To compare the clinical effect of continual interposition for the reconstruction of digestive canal after subtotal gastrectomy in comparison with Billrothi anastomosis and Roux-en-Yanastomosis.

Methods: A total 93 patients, who were received surgery because of gastric cancer, were divided into 3 groups according to digestive reconstruction: Group A (n=30), the digestive continuity was reconstructed by continual jejunal interposition. Group B (n=32), the digestive continuity was reconstructed by Billroth anastomosis. Group C (n=33), the digestive continuity was reconstructed by Roux-en-Yanastomosis. At last, comparison was conducted among the probability of appearing symptom in alimentary canal in six months and one year later, visick ranking index, the amount of plasma-albumin, food-intake, and body weight among group A, group B and group C, and gastric stump and stoma were inspected by gastroscop.

Results: The PNI showed no significant difference among the three groups before operation. The comparisons of complications after operation the amount of plasma-albumin, food-intake, and body weight among group A, group B and group C, in six months and one year later, showed no significant difference. The abdominal distension in group A was less than that of group C, the bile reflux gastritis in group A was less than that of group B.

Conclusion: The continual jejunal interposition of stomach and dodecadactylon is safe, effective. Comparison with I Billroth anastomosis and Roux-en-Yanastomosis, it can enable food to go through dodecadactylon to keep physiological continuity of digestive canal and provide a large pouch and avoid bile regurgitation. So that patients will have a better recovery of digestive function and life quality after operation.

Keywords: Gastric cancer; Reconstruction of Digestive Canal; Continual Jejunal Interposition; Subtotal Gastrectomy

comparison of the clinical effect and learning curve of laparoscopic three- and two dimension radical gastrectomy

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Objective: To investigate the clinical benefit and value of application of three-dimensional (3D) laparoscope by comparing the clinical data of patients undergoing 3D and 2D laparoscopic radical gastrectomy for gastric cancer.

Methods: 80 cases of gastric cancer patients undergoing laparoscopic radical gastrectomy performed by the same team in our hospital from August 2013 to May 2014 were randomly divided into two groups, 3D laparoscopy group and 2D laparoscopy group, with 40 cases in each group, and the two groups were divided into eight groups with 5 cases per group according to the sequence of operation respectively. Using the concept of fast track surgery to treat the perioperative period. The operation time, blood loss, the number of lymph nodes resected, conversion to open surgery, complications, postoperative time to get up of bed, time of bowel function recovery and time to eat semi-liquid diet were compared among the groups. SPSS18.0 software was applied for statistical analysis.

Results: No significant differences were found among the six groups in gender, age, gastrectomy approach, pTNM stages ($P < 0.05$). The average operation duration of 3D group

(174.3±33.2min) was significantly shorter than that of 2D group (205.8±32.1min) ($P = 0.000$). The learning curve of 3D group (15 operations) was significantly shorter than that of 2D group (30 operations). The blood loss was also significantly different between 3D laparoscopy group (153.8±25.5 ml) and 2D laparoscopy group (169.7±15.5 ml). No significant differences were observed between the groups in intraoperative complications, converted to open surgery and the number of lymph nodes resected ($P > 0.05$). Due to the adoption of the concept of fast track surgery for the perioperative management, no significant differences were observed between the groups in the postoperative time to get up of bed, time of bowel function recovery, time to eat semi-liquid diet and postoperative complications ($P < 0.05$). There was no death case.

Conclusion: Three-dimensional laparoscopy has obvious advantage in spatial location and the sense of depth than traditional two-dimensional laparoscopy, with the operation difficulty reduced, the operation precision improved and the learning curve shortened, but it does not increase the economic burden of the patients. Its clinical effect is curative, and absolutely it has a good clinical prospect.

Keywords: three-dimensional laparoscope; two-dimensional laparoscope; laparoscopy; laparoscopic radical gastrectomy

Comparison of the therapeutic effects and complications between D1 and D2 operative Methods in gastric cancer with liver cirrhosis

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Objective: To investigate survival rate and complication after D1 or D2 lymph node dissection for gastric cancer with liver cirrhosis.

Methods: The clinic pathological data of 54 patients in gastric cancer with liver cirrhosis who received radical gastrectomy between March 1994 and March 2006 were analyzed retrospectively.

Results: The 1-, 3- and 5- year survival rates of the 54 patients followed up were 77.8%, 44.4%, 33.3%, of which those of D1 were 81.25%, 37.5%, 25% and those of D2 were 76.3%, 47.4%, 36.8%. There were no significant difference in relation to complication between D1 and D2 in Child-pugh grade A ($P > 0.05$). Complication of hepatonephric function were significantly different between D1 and D2 in Child-pugh grade B or C ($P < 0.05$).

Conclusion: Compared with D1 group, the survival rate of D2 did not significantly increase; we should cautiously perform D2 lymph node dissection for patients of gastric cancer with liver cirrhosis in Child-pugh grade B or C.

Keywords: gastric cancer liver cirrhosis lymph node dissection

Efficacy of activated DC-CIK treatment combined with chemotherapy in patients with advanced colorectal cancer

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Objective: To evaluate the efficacy of activated DC-CIK adjuvant immunotherapy for the advanced colorectal cancer patients.

Methods: The stage IV colorectal cancer patients including 45 patients receiving activated DC-CIK treatment combined with chemotherapy (combined therapy group) and 45 patients receiving chemotherapy alone were added for study.

Results: Compared with chemotherapy group, the 2-year and 3-year OS rate in combined therapy group were significantly improved (67.6% VS 38.3% $P=0.011$, 29.8% VS 18.8% $P=0.020$ respectively). After combined therapy, the mean CD4+ level, CD4+/CD8+ ratio, CD16+CD56+ level increased and the mean CD8+ level decreased compared with before combined therapy and after chemotherapy. We have not observed serious side effect in the 116 course of activated DC-CIK immunotherapy.

Conclusion: Activated DC-CIK adjuvant immunotherapy can serve as effective treatment for advanced colorectal cancer patients and also can change patients' immunosuppressive status.

Keywords: immunotherapy; colorectal cancer; DC-CIK; activated; overall survival

Efficacy of the total gastrectomy and proximal gastrectomy for the upper third gastric cancers in advanced tumor stages

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Background: Compare the efficacy of proximal gastrectomy (PG) with extended D1+ lymphadenectomy and total gastrectomy (TG) with D2 lymphadenectomy for advanced upper third gastric cancers.

Methods: Patients diagnosed as upper third gastric cancer with T2-T4 stages from Jan 2006 to Dec 2011 were retrospectively analyzed. According to the resection patterns, patients were divided into PG group and TG group, and compared clinicopathological characteristics and survival outcomes.

Results: A total of 165 patients were in the PG group, and 60 patients in the TG group accepted analysis in this study. The 5-year overall survival (OS) rates were 59% in the TG group and 47% in the PG group (log-rank test, $P=0.234$). Subgroup analysis showed that patients with pT4 stage in the TG group had higher 5-year OS rate than patients in the PG group (83% vs. 61%, log-rank test, $P=0.208$). The T stages (pT4 vs. pT2-3) and N stages (pN1-3 vs. pN0) were found to be poor prognostic risk factors for the overall survival outcomes by univariate analysis and multivariate analysis.

Conclusion: Total gastrectomy had a high 5-year OS rate than proximal gastrectomy, although there was no statistical difference. Total gastrectomy may be the better option for the advanced

proximal gastric cancers than the proximal gastrectomy, and further large sample size study with long-term follow-up duration is expected to verify it.

Keywords: gastric cancer; total gastrectomy; proximal gastrectomy; lymphadenectomy; prognosis

Evaluating the clinical feasibility: the direct bisulfite genomic sequencing for examination of methylated status of protocadherin10 (PCDH10) promoter to predict the prognosis of gastric cancer

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Objective: To elucidate the clinical significance of the methylated status of CpG site count of PCDH10 promoter in the survival prediction in gastric cancer (GC).

Methods: In our previous study, we demonstrated that the methylated CpG site count was significantly associated with the survival of patients with gastric cancer using the bisulfite genomic sequencing (BGS) in the gastric cancer tissue with five clones per sample. It was so complicated for each patient underwent the BGS detection with clones. In this study, we detected hypermethylated and hypomethylated CpG site count of PCDH10 DNA promoter in samples of 471 GC patients by direct bisulfite genomic sequencing. Moreover, relationships between the methylated status of PCDH10 promoter and overall survival were evaluated.

Results: PCDH10 promoter methylation was found 257 (54.6%) in all patients. Gastric cancer (GC) patients with 5 or more methylated CpG site counts of PCDH10 promoter was significantly associated with poorer survival ($P=0.039$). On the multivariate survival analysis, we found that T stage, N stage and hypermethylated CpG site counts of PCDH10 DNA promoter were the independent predictors of prognosis for GC patients. In addition, the hypermethylated CpG site counts of PCDH10 DNA promoter had smaller Akaike information criterion (AIC) and Bayesian information criterion (BIC) values than the other 2 independent predictors of the survival.

Conclusions: Our present findings suggested that hypermethylated CpG site counts of PCDH10 DNA for evaluating the prognosis of gastric cancer was reasonable by using the direct sequencing.

Keywords: PCDH10; methylation; Direct bisulfite genomic sequencing; Prognosis; Gastric cancer

Expression of EGFR and VEGF and their relationship with prognosis in patients with gastric carcinoma

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Objective: To detect the expression of epidermal growth factor receptor (EGFR) and vascular endothelial growth factor (VEGF) and their relationship with prognosis in patients with gastric carcinoma.

Methods: 88 cases of gastric carcinoma specimens were selected with full clinicopathological data to detect the expression of EGFR and VEGF by using immunohistochemistry, with 40 cases of normal gastric mucosa specimens as the control. And their corresponding clinical data were analyzed retrospectively.

Results: The expression rates of EGFR and VEGF in gastric carcinoma tissue were 43.18% and 52.27%, respectively. There was no correlation with the patient's age, sex and the position of the tumor ($P>0.05$), while their positive expression rates were related to the degree of differentiation, depth of invasion and lymph nodes metastasis ($P<0.05$). There was a stable positive correlation among EGFR and VEGF expressions in gastric carcinoma tissue ($P<0.05$).

Conclusion: The expression of EGFR and VEGF were correlation with the invasion, metastasis process and prognosis of gastric carcinoma. There may be as a guiding in evaluate the biological behaviors and prognosis in the patients with gastric carcinoma.

Keywords: Gastric carcinoma; EGFR; VEGF; Immunohistochemistry

Gastric adenocarcinoma patients with positive retropancreatic lymph nodes had poor prognosis

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Background: In advanced gastric adenocarcinoma, the risk factors and prognostic value of retropancreatic (No.13) lymph nodes were still controversial. In this study, we tried to find out the relationship between prognostic significance and No.13 lymph nodes in gastric adenocarcinoma.

Methods: The patients who undergone curative gastrectomy with No.13 lymph nodes dissection from January 2000 to December 2011 were recruited in our study. Clinicopathological data were compared between patients with positive or negative No.13 lymph nodes.

Results: Patients with positive No.13 lymph nodes seemed to have tumors of higher pathological stage and had more invasive pancreas. In all patients ($P<0.001$) and subpopulation with TNM III stage ($P=0.007$), positive No.13 lymph nodes had significantly worse prognosis than negative group in Kaplan-Meier analysis. Our retrospective research also found out that positive No.13 lymph nodes were significantly correlated with pT stage, pN stage and No.11p lymph nodes.

Conclusion: Positive No.13 lymph nodes may contribute to poor survival especially in TNM III stage gastric adenocarcinoma patients. Dissection of No.13 lymph nodes might be meaningful during gastrectomy although further investigations are needed. And attentions should also be paid to its correlation factors including pT stage, pN stage and No.11p lymph nodes.

Keywords: gastric cancer; retropancreatic lymph nodes; survival; lymphadenectomy

Hand-assisted laparoscopic vs. laparoscopy-assisted D2 radical gastrectomy: a prospective study

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Background: Hand-assisted laparoscopic D2 radical gastrectomy (HALG) is an advance in minimally invasive surgical techniques. Feasibility and safety of HALG has been seldom reported, and also, benefits and outcomes are not defined. To explore its advantages compared with laparoscopy-assisted D2 radical gastrectomy (LAG), this study performed an in-depth prospective study focusing on HALG and LAG.

Methods: In our center, 120 patients received HALG and 113 patients received LAG. The data of both groups was analyzed as follows: general information (age, gender, body mass index, physical status classification, history of abdominal surgery, tumor size, tumor-node-metastasis stage, type of operation); the intraoperative data (operative time, blood loss, incision length, number of lymph nodes recovered, unexpected injury, procedure conversion); postoperative data (postoperative pain score, recovery time of intestinal function, length of postoperative hospital stay, postoperative complications, reoperation rate, 30-day hospital readmission rate).

Results: The general data of HALG and LAG was no significant differences ($p>0.05$). The blood loss and unexpected injury were similar ($p>0.05$); the operative time, the number of lymph nodes recovered and the rate of procedure conversion of Group HALG were prior to that of Group LAG ($P<0.05$); the incision length of Group HALG was longer than that of the LAG group ($P=0.00$); there were no difference for the pain score after day 2, the recovery time of intestinal function, the rate of reoperation, the 30-day hospital and readmission rate; the amount of postoperative complications and the length of postoperative hospital stay of Group HALG were prior to Group LAG ($P=0.00$).

Conclusion: Compared with LAG, HALG had similar features of being minimally invasive and radical in treating gastric cancers, and then, HALG was safer than LAG.

Keywords: Hand-assisted laparoscopic D2 radical gastrectomy, laparoscopy-assisted D2 radical gastrectomy, prospective study

High Expression of PIK3CB as an independent prognostic predictor for gastric adenocarcinoma

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Objective: To analyze the correlation between the expression of Phosphoinositide-3 kinase, catalytic subunit beta (PIK3CB) and the clinicopathologic characteristics in gastric adenocarcinoma tissues.

Methods: Immunohistochemistry was used to determine PIK3CB expression in human gastric adenocarcinoma tissues and matched adjacent tissues. A statistical analysis was used to determine the potential correlation between PIK3CB expression and the patients' clinicopathological characteristics and prognosis.

Results: PIK3CB is highly expressed in gastric adenocarcinoma tissues (positive rate, 63.8%) compared with matched adjacent tissues (positive rate, 45.7%) ($\chi^2=9.139$ ($P=0.003$)), and it was shown that PIK3CB expression is significantly correlated with tumor size ($\chi^2=8.677$ ($P=0.003$)), infiltration ($\chi^2=9.306$ ($P=0.025$)), and clinical stage ($\chi^2=8.242$ ($P=0.041$)); It was also shown that PIK3CB expression had a significant influence on prognosis ($\chi^2=25.644$, $P=0.000$). Multivariate analyses clearly showed that high PIK3CB expression is an independent poor prognostic factor for overall survival (HR=15.785, 95%CI, 1.943–7.805, $P=0.000$)

Conclusion: These results indicate that PIK3CB might act as pro-oncogene and function as an important independent prognostic factor for patients with gastric adenocarcinoma.

Keywords: Stomach neoplasms, Phosphoinositide-3 kinase, Prognosis, Disease-free survival

Impact of No. 14v lymph node dissection on survival after surgery for middle and lower gastric cancer

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Background: D2 lymphadenectomy has been increasingly regarded as standard surgical procedure for advanced gastric cancer (GC), while necessity No. 14v lymph node dissection for distal GC is still controversial.

Methods: A total of 920 distal GC patients receiving at least D1+ (D1+7, 8a, 9) or D2 lymph node dissection in our center were enrolled in this study, of whom, 243 patients also had the No. 14v lymph node dissected. Other 677 patients without No. 14v lymph node dissection were used for comparison.

Results: Forty-five (18.5%) patients had No. 14v lymph node metastasis. There was no significant difference in overall survival (OS) rate between patients with and without No. 14v lymph node dissection. Following stratified analysis, in TNM stages I, II, IIIa and IV, No. 14v lymph node dissection did not affect OS; in contrast, patients with No. 14v lymph node dissection had a significant higher OS than those without in TNM stages IIIb and IIIc. In multivariate analysis, No. 14v lymph node dissection was found to be an independent prognostic factor in patients with TNM stage IIIb/IIIc GC (hazard ratio, 0.670; 95% confidence interval, 0.506–0.886; $P=0.005$).

Conclusion: Adding No. 14v lymph node to D2 lymphadenectomy may be associated improved OS for middle and lower GC staged TNM IIIb/IIIc.

Keywords: gastric carcinoma, No. 14v lymph node, metastasis, dissection, prognosis

Initial discussion of the ratio between negative and positive lymph nodes as an alternative category to N stage of the 7th TNM classification for prediction the prognosis of gastric cancer patients after curative surgery

Running Head: Ratio between negative and positive lymph nodes for gastric cancer

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Conflict of interest: We declare that we have no conflict of interest.

Purpose: To elucidate the prognostic prediction superiority of the ratio between negative and positive lymph nodes (R_{NP}) in gastric cancer, compared to the number of lymph node metastasis (N stage) and the ratio between positive and dissected lymph nodes (R_{PD}).

Experimental Design: Clinicopathological data of 1563 gastric cancer patients who underwent the curative resection between 1997 and 2006 were statistically analyzed for demonstration the prognostic significances of the R_{NP} stage, the N stage and R_{PD} stage. Besides, Tumor- R_{NP} -Metastasis ($TR_{NP}M$) classification system was also evaluated the comparative superiorities of the prognostic prediction of gastric cancer patients, compared to the TNM and Tumor- R_{PD} -Metastasis ($TR_{PD}M$) classification systems.

Results: With the univariate and multivariate analyses, $TR_{NP}M$ classification was identified as the independently prognostic predictor of gastric cancer patients, as were TNM and $TR_{PD}M$ classifications. Furthermore, $TR_{NP}M$ classification was demonstrated to have the smaller Akaike information criterion (AIC) and Bayesian Information Criterion (BIC) values compared with those for TNM and $TR_{PD}M$ classifications. In addition, $TR_{NP}M$ classification had more stage migrations than $TR_{PD}M$ classification, compared with TNM classification.

Conclusion: $TR_{NP}M$ classification should be considered as the optimal clinicopathologic variable for evaluation the prognosis of gastric cancer after curative resection in clinic.

Keywords: stomach; neoplasms; survival; lymph node; metastasis.

Is it feasible and safe for laparoscopic resection for gastric GIST larger than 5cm? Result from a prospective study

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Short title: laparoscopic resection for large GIST

Acknowledgments: None.

Background: Role of laparoscopic resection for large (especially larger than 5cm) gastric GIST is still in debate for the fear of intraoperative tumor rupture.

Methods: To determine the feasibility and safety of laparoscopic approach in treatment of large gastric GIST, a prospective study was carried out between March 2011 and March 2014. Intraoperative tumor rupture was studied as primary outcome. Secondly outcomes were conversion rate, operating time, estimated blood loss, time of tolerate fluid and solid diet, length of postoperative hospital stay and recurrence rate at the end of the follow-up.

Results: Sixteen patients were included in this study with tumor size 7.04 ± 1.53 cm (range, 5.2–10.8cm). No intraoperative tumor rupture occurred. The median duration of operation was 88.1 ± 31.9 min with estimated blood loss 37.1 ± 18.7 ml. No patient needed blood transfusion. The average time until start of oral intake for fluid and solid diet was 1.1 ± 0.6 days and 2.5 ± 0.9 days, respectively. The median time for length of postoperative hospital stay was 5.4 ± 5.8 days. The follow-up period for all the patients was 16.9 ± 11.2 months (range, 2–38months). No local or distant recurrence was observed.

Conclusions: Laparoscopic resection for large gastric GIST is feasible and safe. Laparoscopic surgery should be considered as standard approach in all cases irrespective of tumor size and location.

Laparoscopic extensive esophagogastric devascularization for bleeding varices

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Background: Bleeding from esophageal varices is an important cause of morbidity and mortality in patients with portal hypertension. With meticulous surgical techniques and advanced instruments, laparoscopic splenectomy is becoming a technically feasible, safe, and effective procedure for hypersplenism secondary to cirrhosis and portal hypertension, and contributes to decreased blood loss, shorter hospital stay, and less impairment of liver function. We present the first report of lapa-

roscopic extensive esophagogastric devascularization and splenectomy for bleeding varices with hypersplenism in ten patients.

Methods: Laparoscopic extensive esophagogastric devascularization and splenectomy were performed in ten patients with cirrhosis, bleeding portal hypertension and secondary hypersplenism. The procedure consisted of the laparoscopic splenectomy, devascularization of the lower 10cm esophagus and upper stomach, and esophageal transection and reanastomosis with a circular stapler introduced through an anterior gastrotomy in six patients bleeding from esophageal varices or a running suture was applied with full-thickness bites on the gastric varices in four patients bleeding from gastric varices. The gastrotomy was closed with a straight laparoscopic stapler.

Results: Laparoscopic extensive esophagogastric devascularization and splenectomy were completed in all patients, no conversion from laparoscopic to open surgery was necessary. The operation time ranged 3.5–5.5 hours and the blood loss was 100–600ml. The postoperative hospital stay was 7–12 days. During a postoperative follow-up period 6 months to 5 years in the patients, neither esophagus variceal bleeding nor encephalopathy has recurred.

Conclusions: Laparoscopic extensive esophagogastric devascularization and splenectomy are feasible, effective and safe surgical procedures, and have all the benefits of minimally invasive surgery for patients with bleeding portal hypertension and hypersplenism. Laparoscopic extensive esophagogastric devascularization and splenectomy offer a new operative method for treatment of bleeding portal hypertension with hypersplenism. Comparative trials with larger numbers of patients are still needed.

Keywords: Portal hypertension; Variceal hemorrhage; Devascularization; Splenectomy; Laparoscopy

Laparoscopic surgery VS open gastric resection for gastric GIST

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Objective: To compare the results of laparoscopic and open gastric resection for gastric gastrointestinal stromal tumors (GIST).

Methods: From March 2008 to Dec. 2010, 30 patients with gastric GIST underwent laparoscopic gastric resection, and other 30 gastric GIST patients underwent open surgery. They were retrospectively reviewed and compared with the surgical procedure, operative time, blood loss, exhaust time, post-operative hospital stay, complications, pathology and survey Results.

Results: There was no significant difference in the sexual, age and the measure of the gastric GIST in both groups. The operation time of the laparoscopy group (89.1 ± 19.8 min) was similar to that of the open resection group (85.2 ± 13.0 min) ($P > 0.05$). The blood loss in the laparoscopy group (33.8 ± 21.6 ml) was significantly less than that in the open resection group (62.7 ± 42.6 ml) ($P < 0.01$). The exhaust time and length of post-operation hospital stay in the laparoscopy group were 27.9 ± 5.3 hours and 5.8 ± 1.4 days respectively, which were significantly shorter than those in the open resection group (41.0 ± 7.6 hours and 8.1 ± 4.5 days) ($P < 0.01$). All patients underwent laparoscopic gastric resection successfully without conversion to open surgery. The negative surgical margins were confirmed by both frozen and final pathologic evaluation in both groups. In both groups no severe com-

plications and death case were found. After 53(43–76) months of follow-up, there was no recurrence or metastasis in both groups.

Conclusion: Laparoscopic gastric resection is a safe, effective and minimally invasive surgery for gastric GIST.

Keywords: Gastric GIST; Surgery, laparoscopy; Surgery

Multivariate Logistic Regression Analysis of Postoperative Complications and Risk Model Establishment of Gastrectomy for Gastric Cancer: A Single Center Cohort Report

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Objective: To evaluate the risk factors of postoperative complications and establish logistic regression model in a real life cohort of patients with gastric cancer following gastrectomy.

Background: Reporting of surgical complications is common, but few provide information about the severity and estimate risk factors of complications. If have, but lack of specificity.

Methods: We retrospectively analyzed data on 2795 gastric cancer patients underwent surgical procedure at the Affiliated Hospital of Qingdao University between June 2007 and June 2012, established multivariate logistic regression model to predictive risk factors related to the postoperative complications according to the Clavien-Dindo classification system.

Results: 24 out of 86 variables were identified statistically significant in univariate logistic regression analysis, 11 significant variables entered multivariate analysis were employed to produce the risk model. Liver cirrhosis, diabetes mellitus, Child classification, invasion of neighboring organs, combined resection, intraoperative transfusion, Billroth II anastomosis of reconstruction, malnutrition, surgical volume of surgeons, operating time and age were independent risk factors for postoperative complications after gastrectomy. Based on logistic regression equation, $P = \text{Exp} \sum \text{BiXi} / (1 + \text{Exp} \sum \text{BiXi})$, multivariate logistic regression predictive model that calculated the risk of postoperative morbidity was developed, $P = 1 / (1 + e^{(4.810 - 1.287 \times 1 - 0.504 \times 2 - 0.500 \times 3 - 0.474 \times 4 - 0.405 \times 5 - 0.318 \times 6 - 0.316 \times 7 - 0.305 \times 8 - 0.278 \times 9 - 0.255 \times 10 - 0.138 \times 11)})$. the accuracy, sensitivity and specificity of the model to predict the postoperative complications were 86.7%, 76.2% and 88.6%, respectively.

Conclusions: This risk model based on Clavien-Dindo grading severity of complications system and logistic regression analysis can predict severe morbidity specific to an individual patient's risk factors, estimate patients' risks and benefits of gastric surgery as an accurate decision-making tool and may serve as a template for the development of risk models for other surgical groups.

Keywords: stomach neoplasms; postoperative complications; multivariate analysis; risk factors; model, statistical

Nutritional support in the treatment of early postoperative inflammatory intestinal obstruction

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Objective: To examine the clinical effects of nutritional support in therapy for the early postoperative inflammatory bowel obstruction.

Methods: Aretrospective analysis of 62 patients with early postoperative inflammatory intestinal obstruction from June 2008 to July 2014 was conducted in our department. The usage and the clinical effects of nutritional support were reviewed.

Results: All patients recovered after conservative treatment of which nutritional support as the main way, the average treatment time was 12 ± 3.2 days, with no patients aggravated in nutritional status. The complications during the treatment could be preventable and controllable.

Conclusion: Conservative management with nutritional support as the main way was safe and effective for the patients with early postoperative inflammatory intestinal obstruction.

Keywords: early postoperative inflammatory intestinal obstruction; nutritional support

Prognosis of gastric cancer with liver cirrhosis of 65 patients

Zhang Chi, Hu Xiang

Objective: To investigate prognostic factors of gastric cancer with liver cirrhosis.

Methods: The clinic pathological data of 65 patients of gastric cancer with liver cirrhosis between March 1994 and March 2006 were analyzed retrospectively and the prognostic factors were evaluated.

Results: The 1-, 3- and 5- year survival rates of the 65 patients followed up were 69.2%, 43%, 32.3%. Univariate analysis revealed that age, Borrmann type, pTNM stage, Child-pugh grade, complication, ascites, extent of tumor resection ($P < 0.05$); Multivariate analysis demonstrated that pTNM stage, Child-pugh grade, extent of tumor resection, and age were independent prognosis factors for survival ($P < 0.05$).

Conclusion: pTNM stage is still an important prognostic factor that influences gastric cancer with liver cirrhosis. Reducing Child-pugh grade to A level during the preoperative period is crucial to improve prognosis. Patients over 60 years old showed unfavorable prognosis. Radical surgery is the main method of treatment, and D2 is no better than D1 in improving prognosis. We should emphasize treatment of individualization and choose the extent of operation for the patients of gastric cancer with cirrhosis reasonably.

Keywords: gastric cancer liver cirrhosis prognosis Cox regression analysis

Prognostic factors analysed in 58 patients with GIST

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Objective: to analyses the effect for the prognosis of tumor size and location in GIST patients.

Methods: to collect the clinical data of the 58 GIST case, including the pathologic diagnosis, immunohistochemistry and surgical procedure of patients with GIST (from 2002.2 to 2008.01) and follow up these patients to analyse the effect of tumor size and location on the prognosis. 58 patients include 36 case from stomach, 10 case from small bowel, 7 case from duodenum, 5 case from colon and rectum. We divided them into three groups according the diameter as <5cm, 5~10cm, and >10cm groups. There is 1 recurrence from the 19 of <5cm group, 8 recurrences from the 22 of 5~10cm group, 11 recurrences from the 16 of >10cm group.

Results: There were significant differences for different sizes. There were significant differences for different locations.

Conclusion: 1) Tumor size is an important index of prognosis. 2) Gist from duodenum and stomach recur and metastasize frequently.

Keywords: gastrointestinal stromal tumor; size; primary location; prognosis.

Prognostic importance of metastatic posterior lymph nodes along common hepatic artery in patients with gastric cancer

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Background: The purpose of our study was to assess the prognostic value of metastatic posterior lymph nodes along the common hepatic artery in patients with gastric cancer.

Methods: From August 2002 to December 2011, a total of 284 patients with gastric cancer who had undergone gastrectomy including No.8p LNs dissection were enrolled in this study. We divided these patients into two groups according to the metastatic station of No.8p LNs and made comparisons of clinicopathological features and survival outcomes between the two groups.

Results: Of all the 284 patients, 24 cases (8.5 percent) were found with No.8p LNs metastasis. These patients suffered mor-

phologically larger tumor ($P=0.003$) and more metastatic lymph nodes ($P=0.000$), more advanced T stage ($P=0.024$), N stage ($P=0.000$) and as well as M stage ($P=0.000$) status. The 1- and 2-year survival rate of patients in No.8p-positive group was 59 percent and 27 percent respectively. No difference of cumulative survival rate existed between the No.8p-positive group and stage IV in No.8p-negative group ($P=0.608$). Patients in No.8p-positive group, whether they had distant metastasis or not, shared the similar cumulative survival rate ($P=0.608$).

Conclusions: Status of No.8p LNs was an independent prognostic factor for the poor prognosis as well as T stage and N stage. Metastatic No.8p LNs might be recognized as the distant metastasis rather than regional metastasis.

Keywords: Gastric cancer; lymphadenectomy; No.8p lymph node; distal metastasis; survival outcome.

Quality of Life and Prognosis after Celiac Branch of Vagus Preserving Distal Radical Gastrectomy.

Liang Pin Wang Wei Ge Zhang Chi Bao Quan Hu Xiang

Objective: To explore the quality of life and prognosis after celiac branch of vagus preserving distal radical gastrectomy.

Methods: Between January 2004 and October 2014, 232 patients with distal gastric cancer (T1-T2) received celiac branch of vagus preserving distal radical gastrectomy (group A), while 427 patients with distal gastric cancer (T1-T2) under-went conventional distal radical gastrectomy (group B). The two groups were compared quality of life (appetite, weight loss, postprandial dumping syndrome, reflux esophagitis) and 5-years survival rate.

Results: Decreased appetite compared to normal occurred in group A (7.6%), while occurred in group B (17.1%). There was a significant difference between the two groups ($P=0.012$). There was no significant difference between the two groups in postprandial dumping syndrome. The weight loss more than 5 kilogram occurred in group A (6.3%) lower than that occurred in group B (13.2%), $P=0.003$. The reflux esophagitis occurred in group A (2.6%) lower than group B (6.2%), $P=0.021$. There were no significant differences between groups A (86.2%) and group B (87.1%) in the overall 5-year survival rate, $P=0.872$.

Conclusions: For gastric cancer, the celiac branch of vagus preserving distal radical gastrectomy can maintain a better quality of life and has the same 5-year survival rate as conventional distal gastrectomy. It can be treated as a function preserving cure operation for gastric cancer within a certain range.

Keyword: stomach neoplasms; gastrectomy; vagus nerves; quality of life; 5-years survival rate.

Relationship between Visceral fat area and short-term outcomes of patients who underwent LAG for gastric cancer

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Objective: To explore the influence of visceral fat area on laparoscopic gastric surgical procedures and short-term surgical outcome in patients with gastric carcinoma.

Methods: 202 patients who underwent LAG for gastric cancer who admitted to the Affiliated Hospital of Qingdao University from May 2011 to July 2014 were included. CT, was used to measure the VFA. The relation between obesity and the operative procedures and short-term surgical outcomes of patients with gastric cancer was explored. All data were analyzed using the chi-square test or t test.

Results: The high VFA was observed in 104 patients (51.5%). The incidence of conversion to open surgery of VFA-H group is 9.6%, which is significantly higher than 2.0% of VFA-L group ($\chi^2=5.181$ ($P<0.05$)). In the VFA-L group and VFA-H group operative time, points number of lymph node dissection, blood loss was not significant, respectively, with no significant difference ($t=2.079$, $P<0.05$). The incidence of postoperative complications of VFA-H group is 22.1%, which is significantly higher than 10.2% of VFA-L group ($\chi^2=8.858$, $P<0.005$). The incidence of pancreatic fistula of VFA-H group is 6.7%, which is significantly higher than 1.0% of VFA-L group ($\chi^2=4.258$, $P<0.05$). The incidence of postoperative diarrhea of VFA-H group is 11.5%, which is significantly higher than 1.0% of VFA-L group ($\chi^2=4.258$, $P<0.05$). The total number of days of hospitalization of VFA-H group is (18.58±11.78) d, which is significantly longer than (18.58±11.78) d of VFA-L group ($t=2.079$, $P<0.05$). The number of days in hospital after surgery of VFA-H group is (11.42±7.60) d, which is significantly longer than (9.24±3.28) d of VFA-L group ($t=2.613$, $P<0.05$).

Conclusions: VFA is the main risk factor of postoperative complications. Measuring preoperative VFA can predict technical difficulties during laparoscopic gastric surgery and postoperative complications.

Keywords: Visceral fat areas; Body mass index; Laparoscopic gastrectomy

Risk factors for metastasis to No.14v lymph node and prognostic value of positive 14v lymph node for gastric cancer patients after surgery

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Background: D2 lymphadenectomy has been increasingly regarded as standard surgical procedure for advanced gastric cancer (GC), while necessity No.14v lymph node dissection for lower GC is still controversial.

Methods: A total of 311 GC patients receiving D1+ (D1+7, 8a, 9) or D2 plus No.14v lymph node dissection in our center were enrolled. Patients were categorized into two groups based on No.14v lymph node status: positive group (PG) and negative group (NG). Clinicopathological factors correlated with No.14v lymph node metastasis and prognostic variables were respectively analyzed.

Results: Fifty patients (16.1%) had No.14v lymph node metastasis. Metastasis to No.4d, No.6 lymph node and distant metastasis were independent variables affecting No.14v lymph node metastasis. Patients with positive No.14v lymph node had a significant lower overall survival (OS) rate than those without

(3-year OS: 34.0% vs. 67.0%, $P<0.001$). Multivariable analysis demonstrated that No.14v lymph node status was a significant independent prognostic factor for GC staged TNM III (hazard ratio 1.694, 95%CI: 1.071-2.680, $P=0.024$). The prognosis of No.14v lymph node positive patients correlated with tumor stage, distant metastasis and tumor size in univariate analysis.

Conclusion: GC patients with positive No.4d and No.6 lymph node often metastasis to No.14v lymph node. Status of No.14v lymph node was an independent prognostic factor for GC staged TNM III. Patients with positive No.14v lymph node usually have a poor prognosis, while such patients without distant metastasis may benefit from a curative surgery.

Keywords: gastric carcinoma, No.14v lymph node, metastasis, risk factors, prognosis

Risk factors of postoperative pulmonary complications in gastric cancer patients with gastrectomy

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Background: Facing with the high incidence and the poor outcomes of the postoperative pulmonary complications (PPCs), we sought to evaluate the potential risk factors of developing the PPCs in patients of gastrectomy during the postoperative period.

Methods: This retrospective study was carried out to analyze consecutive gastric cancer patients who underwent preoperative pulmonary function test (PFT) and gastrectomy in the West China Hospital (January, 2000 - April, 2013). Univariate and multivariate analysis was conducted to evaluate the potential risk factors.

Results: Totally one hundred and seventy patients (170/1007, 16.9%) were developed the PPCs after gastrectomy. Univariate analysis showed that age ≥ 70 years ($P<0.001$), FEV1/FVC < 70 ($P<0.001$), history of chronic pulmonary obstruction disease ($P<0.001$), hemoglobin level < 90 g/L ($P=0.034$), serum albumin level < 35 g/L ($P=0.040$), resection patterns ($P=0.001$), combined evisceration ($P=0.027$) were risk factors for the development of the PPCs. Logistic regression modeling identified six risk factors: age ≥ 70 years (OR 1.671; $P=0.015$), FEV1/FVC < 60 (OR 2.047; $P=0.005$), history of chronic pulmonary disease (OR 1.702; $P=0.009$), hemoglobin < 90 g/L (OR 1.610; $P=0.023$), simultaneous organoectomy (OR 1.760; $P=0.047$), proximal gastrectomy (OR 2.207, $P<0.001$). The postoperative hospital stay (days) was significantly longer in the PPCs group than the non-PPCs group (14.4±9.4 vs. 11.2±7.6, $P=0.001$).

Conclusions: In order to reduce/prevent the development of the PPCs, extra attention should be paid to those patients who are older ages, low level of hemoglobin and serum albumin, FEV1/

FVC < 70 or combined with simultaneous organoectomy during the postoperative period.

Keywords: postoperative pulmonary complications; gastric cancer; gastrectomy; pulmonary function test.

Robot-assisted resection for cancer in the remnant stomach: a report of 11 cases

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Funding: This study was supported by Chongqing Scientific Research Plan (cstc2012gg-yyjs10029).

Background: The aim of this study was to investigate the technical feasibility and clinical therapeutic effects of robot-assisted resection for cancer in the remnant stomach (CRS).

Methods: robot-assisted resection was performed on 11 patients with CRS. Patient demographics, operative data and short-term effect were examined and a short-term follow up was also performed.

Results: All operations were performed by an experienced surgeon successfully without intraoperative mortality. D2 radical resection of remnant stomach was performed on 9 patients, and palliative resection was performed on 2 patients. There were 2 cases of conversion from robotic surgery to open surgery. Roux-en-Y esophagojejunostomy was performed in all cases for digestive tract reconstruction. The mean operation time of robot-assisted gastrectomy was 241.2 ± 50.6 min. The mean evaluated blood loss was 150.0 ± 63.2 ml. The mean number of lymph nodes cleared was 18.2 ± 5.6 . The mean time of postoperative liquid diet was 1.7 ± 0.8 days, the mean time for the recovery of intestinal function was 2.4 ± 0.5 days, and the mean hospital stay was 9.5 ± 4.6 days. Postoperative complications occurred in two patients, one is intra-abdominal bleeding and the other is intra-abdominal infection. The follow-up time was 3–24 months, with 1 case of death related to tumor metastasis, 1 case of death due to uncertain reasons and survival for the remaining 9 cases.

Conclusions: Robot-assisted resection of GSC is technically feasible and has good short-term outcomes. The results of long-term follow-up are needed to confirm the feasibility of robotic remnant gastrectomy.

Significance of omental milky spots micrometastasis in screening gastric cancer stem cells and progcells

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Objective: To investigate significance of omental milky spot micrometastasis model in screening cancerstem cells and progenitor cells.

Methods: 1×10^7 MFC cells were ected intraperitoneal. After 72 h of intraperitonealinjection, mice were sacrificed and the omentum was excised and the gastric cancer cells in micrometastasis were observed. The cells were suspended and injected subcutaneously into the right and left flanks of NOD/SCID mice with anesthesia. After 16 weeks all mice were sacrificed, and the tumors were removed and analyzed by histology (HE, CK20and CEA). The cells in the micrometastasis were collected and immunocytochemical staining of the cancer stem cells was carried out as markers related to CD133, GD44, CD24, CD34, and CD324.

Results: Of the 40 mice (dose range: 1×10^7 to 1×10^8) injected with the gastric cancer cells in micrometastasis, one mouse transplanted with 5×10^7 cells generated a tumor, and tumors were consistently generated after injection of 1×10^7 cells. In contrast, one tumor was generated after the injection of 5×10^7 cells in the control group, and tumors were consistently generated after the injection of 5×10^6 cells. The histology of the tumors, as expressed by HE staining, showed the same poor differentiated adenocarcinomas. The immunohistochemical markers CK20 and CEA reveal similar staining patterns in both groups. Gastric cancer cells in the micrometastasis were high in expressing CD133 and CD44, and low in expressing CD324.

Conclusions: Omental milky spots are a highly efficient “natural filter” for screening gastric cancer stem cells. Gastric cancer stem cells in the micrometastasis are high in expressing CD133 and CD44, and low in expressing CD324.

Keywords: Gastric cancer; Gastric cancer stem cells; Omental milky spots

Survival of proper hepatic artery lymph node metastasis in patients with gastric cancer: implications for D2 lymphadenectomy

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Background and aims: There is a discrepancy between the American Joint Committee on Cancer (AJCC) guidelines (7th edition) and the Japanese treatment guidelines (3rd edition) with regard to the extent of D2 lymphadenectomy for gastric cancer. In the AJCC, hepatic artery station (No.12a) lymph node (LN) metastasis is classified as distant metastasis, whereas in the Japanese guidelines, this classified is regional metastasis. This study aimed to evaluate whether it is appropriate to reclassify No.12a LN metastasis as distant metastasis in consideration of survival outcome.

Methods: In this retrospective analysis, data from patients with gastric cancer who underwent regular D2 or greater lymphadenectomy between 1996 and 2006 were evaluated to determine any association between the clinicopathological features of hepatic artery LNs and survival prognosis.

Results: Among the 247 patients with gastric cancer who underwent No.12 LN harvest, 45 (18.2%) were positive for No.12a LN metastasis. No.12a LN metastasis was significantly associated

with poor clinicopathological features, advanced tumor stage, and poor overall survival. The 5-year survival rate of patients with No.12a LN metastasis was significantly better than that of patients with distant metastasis ($P < 0.05$), but was similar to that of patients with LN involvement in the D2 lymphadenectomy region ($P > 0.05$). No.12a LN metastasis was shown to significantly influence survival outcome in univariate analysis, but was not identified as a significant independent predictor in multivariate analysis. In logistic multivariate regression analysis, T stage, N stage, and station No.3, 5, and 6 LN metastasis were independent predictors of No.12a LN involvement.

Conclusions: It is inappropriate to reclassify No.12a LN metastasis as distant metastasis. We propose that this be considered as regional metastasis and be included in the extent of D2 lymphadenectomy to improve survival outcomes in patients with gastric cancer.

Survival Prognosis and Clinicopathological Features of the Lymph Nodes Along the Left Gastric Artery in Gastric Cancer

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Background: According to the 3rd edition of the Japanese Gastric Cancer Treatment Guidelines, the lymph nodes accompanying the left gastric artery (No. 7 station lymph nodes) belong to the D1 range of lymphatic dissection in gastric cancer. This study investigated the clinicopathological characteristics and survival impacts of the No. 7 station lymph node(LN), and the appropriateness of ascribing them to the D1 range of lymphatic dissection.

Methods: We investigated 608 gastric cancer patients who underwent radical resection with No. 7 station LN dissection from January 1997 to June 2008. Patients were divided into four groups: N0: no LN metastasis; D1 group: LN metastasis without No. 7 station LN metastasis in the D1 lymphadenectomy region; No.7 group: No.7 station LN metastasis without LN metastasis in the D2 lymphadenectomy region; D2 group: LN metastasis in the D2 lymphadenectomy region without No.7 station LN metastasis. The clinical parameters and prognostic analysis were conducted.

Results: Among the 608 patients with gastric cancer included, 105 (17.2%) cases were positive for No.7 LN metastasis. No.7 LN metastasis was significantly associated with poor clinicopathological parameters, advanced tumor stage, and poorer overall survival. No.7 LN metastasis was an important independent prognostic factor in our study. The biological behavior of tumors in the No.7 group was similar to that of the D2 group, and it was worse than that of the D1 group in the field of advanced tumor stage. The 5-year survival rate of D1 group, No.7 group and

D2 group was 54.6%, 34.3% and 25.9%, respectively. The 5-year survival rate of patients in No.7 group was significantly worse than that of patients in D1 group ($P < 0.05$), but was similar to that of patients in D2 group ($P > 0.05$). In logistic multivariate regression analysis, No. 3 and No. 9 station LN metastasis as well as node classification and TNM stage were independent risk factors for No. 7 station LN metastasis.

Conclusions: Our results suggest that, No. 7 station LN should be ascribed to the D2 range of lymph node dissection.

The clinicopathological characteristics and the survival outcomes of Siewert type II/III adenocarcinomas

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Background: To analyze the clinicopathological characteristics and survival outcomes in Siewert type II and Siewert type III tumors.

Methods: The clinicopathological characteristics and survival outcomes were analyzed in patients diagnosed with Siewert II/III tumors, who underwent transabdominal gastrectomy from Jan, 2006 to Dec, 2010.

Results: Totally, 321 patients who were diagnosed with Siewert II/III tumors and underwent gastrectomy in this study. Siewert III tumors are larger and have a higher proportion of Borrmann 3-4 types than Siewert II tumors ($P < 0.05$). For Siewert II and the Siewert III tumors, the 3-year overall survival rate was 59.1% vs. 57.1%, respectively, and the median survival time was 46.0 (31.5-60.5) months vs. 46.0 (31.3-60.7) months, respectively. Positive proximal resection margin, large tumor size, Borrmann 3-4 types, poor or undifferentiated degree and advanced T stages and N stages were found to be poor prognostic risk factors for the overall survival outcomes by univariate analysis. Multivariate analysis revealed that the differentiation degree (poor and undifferentiated) and advanced T and N stages were independent prognostic factors for poor overall survival.

Conclusions: Siewert III tumors were larger and had a lower differentiation degree than did Siewert II tumors, whereas there was no difference in the survival outcomes.

Keywords: Adenocarcinomas of esophagogastric junction; Siewert classification; gastrectomy; survival;

The expression of C-Met in gastric carcinoma and their relations to hepatic metastasis

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Objective: To investigate the relationship between high expression of C-Met, and gastric cancer hepatic metastasis. To do something in the early prediction of gastric cancer hepatic metastasis, intensive care and improve the prognosis.

Methods: Collected the clinical pathology data of 78 patients who were gastric cancer hepatic metastasis and 78 patients who were not gastric cancer hepatic metastasis at the same time in the first affiliated hospital of Xinjiang Medical University 2002 to 2008, then analyzed the data retrospectively. Checked the filed paraffin fixed specimen and the pathologic diagnosis at least by 2 pathological attending physicians. We detected the C-Met in gastric cancer specimen using in situ hybridization technique and immunohistochemistry technique in DNA and protein levels. Combining with the clinical pathology data, we progress χ^2 test and Logistic regression to analyze the Risk factor of gastric cancer hepatic metastasis.

Results: The result of single factor analysis of variance to clinical pathology data showed that gastric cancer hepatic metastasis correlated with the TNM stage of gastric cancer, general type, degree of differentiation, depth of infiltration, canal haemalis infiltration, diameter of tumor and lymph node transfusion. The positive rate of C-Met mRNA expressing in gastric cancer were 55.13%, the positive rate of their expressing in gastric cancer hepatic metastasis were 70.50%, comparing with the non-gastric cancer hepatic metastasis, there were significant deviation ($P=0.000$); Meanwhile The expression of C-Met mRNA correlated with canal haemalis infiltration, lymph node transfusion, TNM stage; Of the total, The positive rate of C-Met protein expressing in gastric cancer were 58.97%, the positive rate of their expressing in gastric cancer hepatic metastasis were 67.90%, comparing with the non-gastric cancer hepatic metastasis group, there were significant deviation ($P<0.005$); Meanwhile The expression of C-Met protein correlated with lymph node transfusion, TNM stage; Of the total, The Result of Logistic regression to data of gastric cancer hepatic metastasis showed that the general type (different in its multiple classification $P=0.003$ OR=7.568), canal haemalis infiltration ($P=0.024$ OR=2.841), C-Met mRNA ($P=0.017$ OR=3.196), was the most important influential factor of gastric cancer hepatic metastasis.

Conclusion: The excessive expression of c-Met correlated with infiltration and transfusion, particular with hepatic metastasis, and may provide objective proof for the early prediction of gastric cancer hepatic metastasis

Keywords: stomach neoplasms; Hepatocyte Growth Factor Receptor; hepatic metastasis;

The Expression of EPCAM Correlates with Invasion, Metastasis and Poor Prognosis in Patients with Gastric Cancer

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Objective: The present study investigated the clinical significance of EPCAM in the development, progression and prognosis of gastric cancer.

Methods: Immunohistochemistry was employed to analyze EPCAM expression in 92 non-cancerous human gastric tissue samples and 436 clinics pathologically characterized gastric cancer cases according to the manufactures' instructions (SP-9000).

Results: EPCAM protein was detected in 42 of 92 (45.7%) human non-tumor mucosa samples, and all samples expressed the protein at a low level. High expression of EPCAM protein was detected in 179 (41.1%) tumors, EPCAM was localized mainly in the cytoplasm of primary cancer. The expression of EPCAM correlated with age, tumor location, size of tumors, Lauren's classification, depth of invasion, distant metastases, regional lymph node stage and TNM stage ($P<0.05$). EPCAM expression did not correlate with sex, differentiation, or histological classification ($P>0.05$). In stage I, II and III tumors, the 5-year survival rate in patients with high expression of EPCAM was significantly lower than that in patients with low expression ($P<0.05$). In stage IV tumors, the expression of EPCAM did not correlate with the 5-year survival rate ($P>0.05$). The factors with possible prognostic effects in gastric carcinoma were analyzed by Cox regression analysis. The study revealed that lymph node and distant metastases ($P<0.05$), TNM stage ($P<0.05$), and expression of EPCAM ($P<0.05$) were independent prognostic factors in patients with gastric carcinoma.

Conclusions: Expression of EPCAM in gastric cancer is associated significantly with lymph node and distant metastases, and poor prognosis. EPCAM may be a useful marker for predicting the development, progression and metastasis of gastric cancer.

Keywords: Gastric carcinoma Invasion Metastasis EPCAM Prognosis

The learning curve for hand-assisted laparoscopic D2 radical gastrectomy: only closely related to the operative time of the hand-assisted laparoscopic stage

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Aim: To describe the learning curves of Hand-Assisted Laparoscopic D2 Radical Gastrectomy (HALG) for the treatment of gastric cancer.

Methods: The HALG surgical procedure consists of three stages: surgery under direct vision via the port for hand assistance, hand-assisted laparoscopic surgery, and gastrointestinal tract reconstruction. According to the order of the date of surgery, the patients were divided into the 6 groups, A-F, with 20 cases in each group, and all surgeries were performed by the same group of surgeons. We performed a comprehensive and in-depth retrospective comparative analysis of the clinical data of all patients, and the clinical data included the general patient information, intraoperative and postoperative observation indicators.

Results: There were no differences in the basic information among the patient groups ($P > 0.05$); the operative time of the hand-assisted surgery stage in the Group A was 8–10 min longer than the other groups, and the difference was statistically significant ($P = 0.01$); however, the total operative time in all the groups had no difference ($P = 0.30$); and then, the postoperative intestinal function recovery time in the Group A were longer than that of other groups ($P = 0.02$); however, the lengths of hospital stay, and the surgical quality indicators, such as intraoperative blood loss, numbers of detected lymph nodes, intraoperative side injury, postoperative complications, reoperation rate, and readmission rate 30 days after surgery were not significantly different among the groups ($P > 0.05$).

Conclusions: (1) The HALG learning curve was only closely related to the operative time of the hand-assisted laparoscopic surgery stage and was not related to the surgical quality indicators. (2) The HALG learning curve indicates that HALG is a surgical procedure that can be easily mastered.

Keywords: Learning curve; Gastric cancer; Hand-assisted laparoscopic D2 radical gastrectomy; Operative time; Surgical quality indicators

The lymph node metastasis of gastric cancer is associated with vascularization pattern of celiac artery by CTA

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Major: Surgery

Objective: To investigate the correlation between variety celiac artery CT angio-graphy and lymph node metastasis of gastric cancer, Analysis its value of guidancing the lymph node cleaning in radical gastrectomy.

Methods: Selected 141 cases of distal gastric cancer randomly from the gastroint- estinal surgery of the first Affiliated Hospital of Dalian Medical University from 2011 January to 2012 December, did the celiac artery CTA examination before the operation. The branches of the celiac artery were classified in different groups. After the sur- gery, we analysed the postoperative pathological results of the NO.7, NO.8a, NO.9, NO.11p in different groups. Clear the various types of lymph node metastasis.

Results: ①The types of celiac trunk Type I (three branches, namely the stoma- ch, spleen, liver stem type), 112 cases, accounting for 79.43%; type II (two branches, namely the liver and spleen, liver and stomach, spleen and stomach, with 25 cases, accounting for 17.73%; type III (no stem type, namely the three branches singly from the abdominal artery or superior mesenteric, a total of 0 cases; type IV (has the added artery, such as double left gastric artery, the left phrenic artery, dorsal pancreatic artery, a total of 4 cases, accounting for 2.84%; Compared with postoperative pathol- ogical results we find that: There was no significant difference among the various types celiac artery in NO.8a, 9, 11p lymph node metastasis ($P > 0.05$); The NO.7 met- astasis rate in type IV is higher than other types, $P < 0.05$. ②Hepatic artery anatomy was abnormal in 36 cases, The variation rate was 25.53%, Among them the 11 cases of LHA from LGA (type II); 18 cases of RHA from SMA (type III); RHA from SMA and LHA from LGA at the same time (type IV) was 7 cases There was no significant difference among the various types hepatic artery in NO.7, 8a, 9, 11p lymph node metastasis ($P > 0.05$). ③straight splenic arteries

were found in 39 cases (27.66%), slightly curved splenic arteries in 72 cases (51.06%), and significantly curved splenic arteries in 30 cases (21.28%). There was no significant difference Among the various types in NO.11p lymph node metastasis ($P > 0.05$). ④Left gastric artery: LGA from celiac artery was 130 cases, LGA was abnormal in 11 cases, among them, 4 cases of double LGAs, 3 cases of LGA from the abdominal aorta, 2 cases of LGA from gastro- spleen- ic artery, 2 cases of LGA from splenic artery. There was no signicent difference between the normal and abnoemal types in NO. 7, 8a, 9 lymph node metastasis ($P > 0.05$); The NO.11p metastasis rate in abnoemal types LGA is higher than normal types, $P < 0.05$.

Conclusions: When vascular variation occurred in patients with gastric cancer, lymph node metastasis will have corresponding change. Preoperative CTA examination for gastric cancer patients intraoperative lymph node cleaning, have certain guiding significance.

Keywords: computed tomography angiography (CTA) celiac artery Radical resection of gastric cancer lymphnode metastasis

The relationship between the clinic pathological factors and gastric cancer hepatic metastasis

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Objective: To investigate the relationship between pathological factors and gastric cancer hepatic metastasis. To do something in the early prediction of gastric cancer hepatic metastasis, intensive care and improve the prognosis.

Methods: Collected the clinical pathology data of 78 patients who were gastric cancer hepatic metastasis and 78 patients who were not gastric cancer hepatic metastasis at the same time in the first affiliated hospital of xinjiang medical university 2002 to 2008, then analyzed the data retrospectively. Combining with the clinical pathology data, we progress χ^2 test and Logistic regression to analyze the Risk factor of gastric cancer hepatic metastasis.

Results: The result of single factor analysis of variance to clinical pathology data showed that gastric cancer hepatic metastasis correlated with the TNM stage of gastric cancer, general type, degree of differentiation, depth of infiltration, canalis haemalis infiltration, diameter of tumor and lymph node transfusion. The result of Logistic regression to data of gastric cancer hepatic metastasis showed that the general type (different in its multiple classification $P = 0.003$ OR = 7.568; $P = 0.105$ OR = 4.312), canalis haemalis infiltration ($P = 0.024$ OR = 2.841) were the most important influential factors of gastric cancer hepatic metastasis.

Conclusion: These pathology data general type and canalis haemalis infiltration may affect the formation of hepatic metastasis, and may provide objective proof for the early prediction of gastric cancer hepatic metastasis

Keywords: stomach neoplasms; clinic pathological factors; hepatic metastasis;

The signal peptide peptidase expression in gastric cancer and its significance

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Objective: To explore the expression of signal peptide peptidase (SPP) in gastric carcinoma and the relationship with clinicopathological parameters and prognosis.

Methods: The expression of SPP was detected by immunohistochemistry in paraffin-embedded sections with a total of 90 pairs of gastric cancer tissue specimens and corresponding paraneoplastic tissues. The correlation between clinicopathological parameters and the expression of SPP in gastric carcinoma were also analyzed.

Results: SPP protein was expressed in 97.78% of gastric cancer tissues. SPP expression was decreased in gastric cancer tissues compared to the normal paraneoplastic tissues. SPP expression has significant positive correlation with pathological TNM stage and distant metastasis, but not with age, sex, tumor size, tumor differentiation, gross types, tumor stromal invasion and lymph node status of the tumor. The patients with low SPP expression had significantly worse overall survival (OS) and progress free survival (PFS) than those with high SPP expression.

Conclusion: The low expression of SPP has close relationship with advanced stage and distant metastases of gastric carcinoma. SPP might be a candidate marker of evaluating and new therapeutical target of gastric cancer.

Keywords: gastric cancer; SPP; Neoplasm metastasis; prognosis

The use of delta-shaped anastomosis in the laparoscopic radical total gastrectomy for gastric Cancer

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Objective: To compare the short-term efficacy of delta-shaped esophagojejunostomy with laparoscopy-assisted esophagojejunostomy in the laparoscopic radical total gastrectomy for gastric cancer.

Method: From August 2013 to August 2014, 50 cases of early gastric cancer were performed laparoscopic radical total gastrectomy in the Surgical Oncology of Peace Hospital affiliated to the Changzhi Medical College. 24 cases were performed delta-shaped esophagojejunostomy (delta-shaped group) while 26 cases were performed laparoscopy-assisted esophagojejunostomy (laparoscopy-assisted group), some relevant indicators were compared in the two groups.

Results: 50 operations were all performed successfully. There was no statistical significance in the postoperative complications and adverse reactions between the two groups ($P > 0.05$), there was no statistical significance in the time-consuming of anastomosis ($P > 0.05$), the intraoperative blood loss of delta-shaped

group was lower than the laparoscopy-assisted group and the time of using analgesic pump was shorter ($P < 0.05$), there was no statistical significance in the hospital stay between the two groups ($P > 0.05$), however, the hospital costs of delta-shaped group were higher obviously.

Results: The appliance of delta-shaped anastomosis is safe and feasible in the laparoscopic radical total gastrectomy for gastric cancer, the short-term efficacy is satisfied.

Three-step hand-assisted laparoscopic surgery for radical distal gastrectomy: an effective surgical approach

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Running title: Laparoscopic surgery for radical distal gastrectomy

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Declaration of conflict of interest: None.

Objective: Three-step hand-assisted laparoscopic D2 radical gastrectomy (HALG) is a modified surgical technique based on hand-assisted laparoscopic surgery (HALS) for the treatment of gastric cancer. This surgical approach is particularly easy and convenient for radical distal gastrectomy. In order to thoroughly understand the advantages of applying "three-step HALG" in distal gastrectomy, our center conducted a retrospective study to analyze data from patients who underwent HALG and laparoscopy-assisted D2 radical gastrectomy (LAG) during the corresponding time period.

Methods: The HALG procedure is performed in three steps, namely the operation performed through an auxiliary incision under direct vision, hand-assisted laparoscopic operation, and gastrointestinal tract reconstruction through the auxiliary incision under direct vision. This study performed comprehensive, in-depth comparative analyses on the clinical data of two groups of patients who underwent HALG and LAG.

Results: The auxiliary incision under the xiphoid was maximally utilized in the HALG procedure. The rate of conversion to open surgery in HALG group patients was significantly lower than in the LAG group ($P = 0.03$), and the operating time was significantly shorter in the HALG group than in the LAG group ($P = 0.00$). There was no significant difference in the pain rate score on postoperative day 2 and on the day of discharge between the HALG and LAG groups ($P > 0.05$). No statistically significant difference was found in the time to recovery of bowel function, postoperative hospital stay, or postoperative complications ($P > 0.05$), although the values were all lower in the HALG group than in the LAG group.

Conclusion: "Three-step HALG" is a highly feasible surgical approach for radical distal gastrectomy.

Keywords: hand-assisted laparoscopic surgery; three-step hand-assisted laparoscopic D2 radical gastrectomy; laparoscopic-assisted D2 radical gastrectomy; distal gastrectomy

Uncut jejunal esophageal anastomosis and double jejunal pouch angioplasty: a digestive tract reconstruction Method that improves quality of life after total gastrectomy

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Declaration of conflict of interest: None

Background: Currently, there is no best-recognized surgical procedure for digestive tract reconstruction after total gastrectomy. Our surgical procedure, the uncut jejunal esophageal anastomosis and double jejunal pouch angioplasty(UJEA-DJA), was modified from the classic Roux-en-Y. The postoperative quality of life of patients receiving this procedure was significantly improved. This study was conducted to its advantages.

Methods: Clinical data from gastric cancer patients receiving D2 radical total gastrectomy in our center was collected. Three digestive tract reconstruction Methods, UJEA-DJA, Roux-en-Y, and pouch with Roux-en-Y esophagojejunostomy (P-RY), were employed. An in-depth study was applied to compare the differences among the three surgical procedures.

Results: The time of digestive tract reconstruction, the incidence rates of long-term complications, the postoperative nutritional index, body weight recovery, and the Visick classification of subjective feelings in the UJEA-DJA group were better than those in the Roux-en-Y and P-RY groups ($P < 0.05$).

Conclusion: The UJEA-DJA surgical procedure exerted its advantages of intestinal continuity and double-pouch construction, which can significantly reduce long-term complications, and improve patients' postoperative long-term quality of life.

Keywords: Uncut jejunal esophageal anastomosis and double jejunal pouch angioplasty, digestive tract reconstruction, total gastrectomy, gastric cancer

Vascular endothelial growth factor gene polymorphisms and gastric cancer risk: a meta-analysis

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Short title: VEGF gene polymorphisms on gastric cancer risk.

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Background: Vascular endothelial growth factor (VEGF) plays important roles in the process of tumor growth and metastasis. Although the association between VEGF polymorphisms and gastric cancer risk has been extensively studied, available result remain controversial. To derive a convictive estimation of the relationship, a meta-analysis contained six VEGF (+936C/T, -634G/C, -460T/C, +1612G/A, -2578C/A and -1154G/A) gene polymorphisms was performed.

Methods: We conducted a systematic search of PubMed and Chinese National Knowledge Infrastructure (CNKI) to select relevant articles. Nine available case-control studies with 2, 281 gastric cancer cases and 2, 820 healthy controls met the inclusion criteria. The odds ratio (OR) and 95% confidence interval (95%CI) were used to evaluate the strength of the association.

Results: Our meta-analysis indicated that the VEGF-634 G allele carrier represented a risk factor for gastric cancer (GG + GC versus CC: OR=1.23, 95%CI=1.02-1.49, $P=0.03$). The VEGF +1612G/A polymorphism was associated with the risk of gastric cancer (G allele versus A allele: OR=0.62, 95%CI=0.49-0.79, $P < 0.0001$; GG + GA versus AA: OR=0.16, 95%CI=0.05-0.51, $P=0.002$ and GA + AA versus GG: OR=1.57, 95%CI=1.21-2.04, $P=0.008$). For polymorphisms of VEGF +936C/T, -460C/T, -2578C/A, -1154G/A, no association was found with gastric cancer risk.

Conclusion: Our meta-analysis suggests that VEGF-634 G allele carrier may increase gastric cancer risk, whereas the VEGF +1612 G/A G allele and G allele carrier may decrease the risk. No association between +936C/T, -460C/T, -2578C/A, -1154G/A polymorphisms and susceptibility to gastric cancer was found.

Changes of IFABP in the adhesion of adult strangulated intestinal obstruction and its clinical significance

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Objective: To study the changes of serum intestinal fatty acid binding protein (IFABP) levels in the adhesion of adult strangulated intestinal obstruction and clinical significance

Methods: Analysis of adhesion strangulated intestinal obstruction in our hospital admitted to Department of general surgery and emergency hospital in time after the operation to remove the obstruction (36 cases) correlation in patients with clinical data, and treated with the same period of simple adhesive intestinal obstruction (46 cases) and healthy people (15 cases) as the control. All of the patients at admission extract serum, Strangulated intestinal obstruction patients before and after the first day again venous blood, using double antibody sandwich ELISA (ELISA) analysis of IFABP, results the content of strangulation group IFABP on admission was 858.97 ± 69.21 ; non strangulated group IFABP was 395.98 ± 165.79 in group IFABP for health; 18.87 ± 13.07 . Concentration of strangulation preoperative group IFABP is 1163.85 ± 213.47 ; Strangulation group after the first day

of the content of IFABP was 157.57 ± 58.93 ; SPSS19.0 statistical software was used for analysis of variance revealed between the three groups were statistically significant, $P < 0.05$.

Conclusions: the concentration of IFABP in the adult adhesion strangulated intestinal obstruction in serum increased significantly and simple adhesive intestinal obstruction has the obvious difference, so that the auxiliary diagnosis based on IFABP can be used to judge whether the patients with adhesive ileus strangulation or intestinal necrosis

Keywords: IFABP; intestinal obstruction; Clinical significance

Efficacies of robotic and traditional laparoscopic resection for gastric cancer: a Meta analysis

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Objective: To compare the outcomes of robotic-assisted and laparoscopic radical gastrectomy by meta-analysis.

Methods: Original articles published before November 2013 were searched for in electronic databases (PubMed, Medline, Cochrane, Library, CNKI, Wanfang, VIPetc). According to the inclusion criterion, ten articles were identified which compare the outcomes of robotic-assisted and laparoscopic radical gastrectomy. Using RevMan5.2 software to analyze data, Meta-analysis was performed by fixed or random effects model according to the data heterogeneity.

Results: 9 retrospective studies and One randomized controlled study including 2418 patients with gastric cancer were screened out and there were 1562 patients in the laparoscopic group and 856 patients in the robotic group. Compared with traditional laparoscopic group, longer operation time, less blood loss, shorter length of hospital stay, earlier semifluid diet time and shorter anal exsufflation time, longer length of distal resection margin were observed in the robotic group (WMD = 40.53, 41.41, 0.27, 0.93, 0.28, 0.38, $P < 0.05$); There were no significant differences in the number of lymph node dissected, morbidity, proximal resection margin between the robotic group and the laparoscopic group (WMD = 1.77, OR = 1.77, WMD = 0.07, $P > 0.05$).

Conclusion: compared with laparoscopy, robotic-assisted radical gastrectomy has many advantages such as less injury and quicker bowel function recover. Similar even better radical resection can be achieved compared to laparoscopic gastrectomy. So the robotic gastrectomy is safe and feasible for gastric cancer, it is worthy of popularization and application in clinic.

Risk factors for the degree of differentiation in patients with early gastric cancer

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Objective: This study was designed to investigate the characteristics of patients with early gastric cancer (EGC) that have influenced on differentiation, for providing theoretical basis clinically.

Methods: We collected gastric cancer patients with D2 Lymph node dissection who underwent surgery at first affil-

ated hospital of chongqing medical university your hospital from January 2009 to January 2014. early gastric cancer were 11% (97/852), A total of 97 EGC patients were included in this study, For patients with tumor size, general type, tumor location, depth of invasion, lymph node metastasis, tumor markers, blood line transfer, gender, age and the relationship between differentiation and single factor and multiple factors analysis. In the 97 cases of early gastric cancer, and seventy cases 73% (70 / 97) had undifferentiated carcinoma in all. Results of multiple factors Logistic regression analysis showed that the tumor Female, Younger than 50 years old, A third part under the stomach were highly related to undifferentiated carcinoma ($P < 0.05$), and OR were 4.9, 13.7 and 3.4, respectively.

Results: However, there was no correlation between patients' tumor size, general type, depth of invasion, lymph node metastasis, tumor markers, blood line transfer, and so on with undifferentiated carcinoma.

Conclusions: The degree of differentiation in early gastric cancer has been proved to be mainly correlated with the gender, age, tumor location.

A phase II trial of a combination of intravenous and intra-arterial neo-adjuvant chemotherapy followed by surgery for advanced gastric cancer patients with para-aortic lymph node metastases

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Background: 18%-40% advanced gastric cancer patients are discovered with the para-aortic lymph node metastases (PANM), and will face a high risk for relapse even when they undergo aggressive extended surgery and the prognosis still remains poor. So, we applied neo-chemotherapy include intravenous and intra-arterial, surgery and local radiotherapy, to investigate the feasibility, safety and efficacy on these patients.

Methods: The study was a single-arm phase II trial. Jan 2005 to Jan 2010, 46 gastric cancer patients with PANM (Stations No. 16a2/16b1) received a combination of intravenous 5-Fu (370 mg/m²) and leucovorin (200 mg/m²) on days 1-5, and intra-arterial etoposide (80 mg/m²) and oxaliplatin (80 mg/m²) on days 6 and 20. After two cycles, abdominal computed tomographic scans were repeated to evaluate the response, and surgery was performed at the physician's discretion in patients with sufficient tumor response, followed by chemotherapy with the same regimen to complete a total of six cycles. The primary end point was the response rate of the preoperative chemotherapy. The secondary end points were R0 resection rate, overall survival (OS), 1, 2, 3-year survival and adverse events.

Results: 46 patients completed preoperative chemotherapy. The overall response rate of primary tumor and No.16 were 80.4% (36/46) and 76.1% (35/46), respectively. 32 patients proceeded to D2 surgery (69.5%). Toxicity is moderate, and no chemotherapy-related deaths. The median survival for all patients was 23 months (95%CI, 18.686-27.314), and for nonsurgical and surgical patients were 12 (95%CI, 9.555-14.445) and 29 months (95%CI, 23.624-34.376 $P < 0.001$) respectively. The 1-year, 2-year and 3-year survival rate for the whole group was 84.78%, 70.96% and 35.48% and for surgical patients was 96.875%, 68.75%, and 40.63%.

Conclusion: For gastric cancer patients with PAN involvement, neoadjuvant chemotherapy contains intravenous and intra-arterial ways demonstrated a good response rate, and a sufficient R0 resection rate, with acceptable toxicities. Further study is needed to confirm the effectiveness of this regimen.

Keywords: gastric cancer; para-aortic lymph node metastases; neoadjuvant chemotherapy; intra-arterial chemotherapy

Prognostic Value of Number of Dissected Lymph Nodes in Grade 3 Advanced Gastric Cancer Patients

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Background: and Objective: The poorly differentiated gastric cancer is characteristic of early lymph node metastasis and poor prognosis. In present work, we analyzed prognostic risk factors of poorly differentiated (Grade 3, G3) advanced gastric cancer (AGC) and investigated the importance of dissected lymph nodes number for radical resection.

Patient and Methods: This retrospective analysis is based on the data of 1415 patients with G3 AGC undergone D2 radical resection from Jan 2003 to Dec 2013 in Zhongshan Hospital Fudan University. The prognostic value of age, performance by Gastrointestinal (GI) professionals, depth of invasion, number of LNs dissected, LN metastasis, ratio of metastatic LN, lymphatic vessels involvement concerning overall survival was analyzed. Relationships between the number of lymph nodes (LNs) examined and survival outcomes were analyzed for the clinical stage subgroups characterized by transmural tumor extension (T categories T2, T3, T4).

Results: In multivariate Cox regression models, depth of invasion ($P < 0.001$, RR=1.329), performance by GI professionals ($P = 0.024$, HR=1.397), number of LNs dissected ($P < 0.001$, HR=0.838) and ratio of metastatic lymph node ($P < 0.001$, HR=1.821) were significantly independent prognostic predictor of G3 AGC patients. A cut point analysis yielded the ability to detect significant survival differences for LN number at least 20 (all subgroups: T2, T3, T4). Better 5-year survival were showed in patients with at least 20 LNs dissected ($P < 0.05$).

Conclusions: These results demonstrate that depth of invasion, performance by GI professionals, number of LNs dissected and ratio of metastatic lymph node were prognostic predictors of G3 AGC patients. Gastric radical resection performed by GI professionals and minimum of 20 lymph nodes examined were considered to ensure the quality of lymphadenectomy, which is to improve the prognosis of patients.

Keywords: Stomach neoplasms; poorly differentiated (G3); Lymph Node Excision; Prognosis; GI professional

Impact of the Surgical Safety Checklist on postoperative clinical outcomes in gastrointestinal tumor patients: A single-center cohort study.

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Background: A 19-item Surgical Safety Checklist (SSC) was published by the World Health Organization in 2008 and was proved to reduce postoperative complications. It was issued by the National Health and Family Planning Commission of the People's Republic of China in 2010. To date, however, the impact of SSC implementation in China has not been evaluated. The study was performed to evaluate the impact of the SSC on postoperative clinical outcomes in gastrointestinal tumor patients.

Study Design: Between April 2007 and March 2013, 7209 patients with gastrointestinal tumor who underwent elective surgery at the Affiliated Hospital of Qingdao University were studied. Data on the clinical records and outcomes of 3238 consecutive surgeries prior to SSC implementation were retrospectively collected; data on another 3971 consecutive surgeries performed after implementation of the checklist system were prospectively collected. The clinical outcomes (including mortality, morbidity, readmission, reoperation, unplanned intervention and postoperative hospital stay) occurring within 30 days after operation were compared between the two groups. Univariate and multivariate logistic regression analysis were performed to identify independent factors for postoperative complications.

Results: The rates of morbidity prior to and after checklist implementation were 16.43% and 14.33% ($P = 0.018$), respectively. In-hospital mortality occurred in 0.46% of the patients surveyed at the baseline and in 0.18% of the patients after checklist implementation ($P = 0.028$). Median of postoperative hospital stay before checklist implementation was 1 day longer than that observed afterward ($P < 0.001$). Multivariable analysis demonstrated that the SSC was an independent factor influencing any postoperative complications (odds ratio = 0.860; 95% CI, 0.750–0.988).

Conclusions: Implementation of the SSC could improve the clinical outcomes in gastrointestinal tumor patients undergoing general surgery in China.

Keywords: gastrointestinal neoplasms; general surgery; outcomes assessment; patient; checklist

GASTRIC CANCER TARGETING EFFECT OF PEGYLATED LIPOSOMES MODIFIED WITH ARG-GLY-ASP SEQUENCE

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Background: Previous studies have suggested that the $\alpha_5\beta_1$ integrin-mediated interactions with fibronectin (FN) occurring through the Arg-Gly-Asp (RGD) cell-binding sequence in repeat III10. Indocyanine green (ICG) is a near-infrared (NIR) optical dye that has been approved by the Food and Drug Administration. In this study, we developed a RGD modified PEGylated liposomes-encapsulated ICG (RGD-PLS-ICG) system and were mediated by integrin-encapsulated ICG.

Methods: RGD was conjugated covalently to the distal end of DSPE-PEG2000-NH₂ lipid by amide bond. The characteristic and stability of prepared liposomes were measured. In vitro, the SGC7901 cells with high expression of integrin $\alpha_5\beta_1$, were selected by Polymerase chain reaction (PCR) and western blot. To confirm the targeting efficacies to gastric cancer, coumarin-6 was encapsulated as fluorescent probes for studying in vitro, and the targeting effect of RGD were detected by flow cytometry and confocal microscopy. In vivo, the bio distribution of RGD-PLS-ICG was studied by vivo imaging system in the tumor model.

Results: RGD-PLS-ICG and PLS-ICG have a higher UV absorbance spectrum and stability than free ICG. The confocal microscopy and flow cytometry demonstrated that RGD-PLS-encapsulated coumarin-6 were efficiently associated by SGC7901 cells, while limited interaction was found for other groups. Meanwhile, the in vivo imaging of liposomes indicated that RGD-PLS-ICG achieved more accumulation in tumor compared with PLS-ICG.

Conclusions: The significant in vitro and in vivo results suggest that RGD-PLS-ICG may be a promising fluorescent dye delivery system for targeting gastric cancer cell overexpression of integrin.

Keywords: Gastric Cancer; Liposomes; RGD; targeting; ICG

Preliminary Experience of 3D Laparoscopic Surgery for Gastric Cancer

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Objective: to investigate the safety and feasibility in laparoscopic surgery with three-dimensional system. We also has sum-

marize the preliminary experience of 3D laparoscopic surgery gastric cancer.

Methods: A retrospective analysis was done in 21 cases of 3D laparoscopic gastrectomy for gastric cancer in our hospital from December 2013 to November 2014. The surgical methods included laparoscopic assisted gastrectomy with lymphadenectomy and total laparoscopic gastrectomy with lymphadenectomy for gastric cancer. Among them, there were 2 cases underwent laparoscopic cholecystectomy and one underwent laparoscopic sigmoidectomy also.

Results: There were no conversions to open surgery, intraoperative complications and any operation related death in whole 21 cases. All of them underwent laparoscopic abdominal surgery with 3D system. In this study, the average time of the operation was 240(180–300) min and the mean blood loss was 100 (10–180) ml. The mean postoperative exhaust time was 3 (1–4) days and the average length of postoperative hospital stay was 9(7–15) days. The mean lymph node harvest was 29(10–48).

Conclusions: Compared with the traditional 2D laparoscopic surgery for gastric cancer, the 3D laparoscopic system had shown similarities in operation technique during the surgeries. However, the 3D system could offer better depth description and more accurate spatial location. Our results indicated that 3D laparoscopic surgery had no differences between 2D laparoscopic surgery on short term outcomes in early stage, and this results may can be bound up with the short learning curve of 3D system.

Long term outcomes of laparoscopy-assisted gastrectomy for advanced gastric cancer: a retrospective study of 152 cases in a single center

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Objective: The purpose of this study was to evaluate the feasibility, safety, short-term outcomes, long-term outcomes, and value of laparoscopy-assisted gastrectomy (LAG) with D2 lymph node dissection for advanced gastric cancer.

Methods: Medical records of 152 patients with advanced gastric cancer who underwent laparoscopy-assisted gastrectomy with D2 lymph node dissection from January 2004 to December 2011 were retrospectively reviewed. The following data were observed: operative time, blood loss, number of lymph nodes harvested, tumor margin, time to passage of flatus, time to ingestion, postoperative complications, postoperative hospital stay, and the long-term outcomes. Follow-up (FU) data were collected from review of medical and annual outpatient FU records.

Results: The mean operative time of LAG was 195 (120–375). The estimated blood loss of LAG was 140 (30–1200). The median follow-up time was 46.5 (2–117) months. Five years overall survival (OS) was 57.9%. The OS by pTNM stage was Ib: 89.7%, IIa: 83.9%, IIb: 81.0%, IIIa: 59.3%, IIIb: 27.7% and IIIc: 16.8%.

Five years disease-free survival (DFS) was 59.1%. And five years DFS for stage Ib, IIa, IIb, IIIa, IIIb, and IIIc were 94.7%, 84.6%, 72.8%, 59.2%, 30.9% and 27.5%. There were 102 cases with a pT stage of T4a. The overall survival of them was 45.8%, which was significantly lower than those with T2–3 stage 82.3% ($P < 0.01$). The disease free survival of pT4a patients was 49.3%, which was significantly lower than that of pT2–3 patients (79.8%, $P < 0.01$).

Conclusion: Laparoscopy-assisted gastrectomy for advanced gastric cancer is feasible, safe and as effective as open surgery in oncological clearance, with the benefit of minimally invasiveness, quicker postoperative recovery, and without compromising the oncological long-term outcomes.

Keywords: Laparoscopy; Gastric cancer; Radical surgery; Long-term outcomes

TUMOR INFILTRATING NEUTROPHILS IS PROGNOSTIC AND PREDICTIVE FOR ADJUVANT CHEMOTHERAPY IN PATIENTS WITH GASTRIC CANCER

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Purpose: Tumor infiltrating neutrophils (TINs) presents in various malignant tumors, but its clinical significance in gastric cancer remains obscure. This study was aimed to investigate the prognostic value of TINs and generate a predictive model to refine postoperative risk stratification system for patients with gastric cancer.

Methods: The study enrolled 295 patients with gastric cancer who received standard gastrectomy with lymph node resection between 2004 and 2007 in Zhongshan Hospital of Fudan University. 152 patients received postsurgical chemotherapy. The median follow up time was 77 months. TINs was estimated by immunohistochemical staining of CD66b, and its relationship with clinicopathological features and clinical outcomes were evaluated.

Results: There is no neutrophils infiltration in normal gastric mucosa. The TINs in gastric cancer tissues ranged from zero to 192 cells/HPF. TINs was negatively associated with lymph node classification and tumor stage ($P < 0.05$). Moreover, multivariate analysis identified TINs and TNM stage as two independent prognostic factors for overall survival ($P < 0.05$). Incorporation of TINs into well-established TNM system generated a predictive model that shows better predictive accuracy for overall survival ($P < 0.05$). More importantly, patients with higher TINs were prone to overall survival benefit from postoperative adjuvant chemotherapy ($P < 0.05$).

Conclusion: TINs in gastric cancer was identified as an independent prognostic factor, which could be incorporated into standard TNM staging system to refine risk stratification and predict for overall survival benefit from postoperative chemotherapy in patients with gastric cancer.

EXPERIENCES IN DIAGNOSIS AND TREATMENT FOR PATIENTS WITH HEPATIC BILOMA AFTER GASTRIC CANCER SURGERY

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Purpose: To investigate the causes for postoperative hepatic biloma in patients with gastric cancer after surgical resection and accumulate experiences in diagnosis and treatment.

Methods: 10 patients with hepatic biloma after standard gastric cancer surgery between 2010 and 2014 in Zhongshan Hospital of Fudan University were retrospectively collected and their relation with prognosis, operation mode, combined organ resection, vascular injury and preoperative liver function were analyzed. Among these patients, 5 had radical total gastrectomy, 3 had radical distal gastrectomy and 2 had palliative distal gastrectomy. 8 patients had intraoperative cholecystectomy due to combined cholecystolithiasis or cholesterolcrystallization. 1 patient underwent hepatic artery repair due to intraoperative injury. 4 patients had aberrant hepatic artery ligated. 1 patient was diagnosed with cirrhosis before surgery. 7 patients underwent ultrasound guided hepatic biloma puncture catheter drainage, 3 cases had nasal biliary drainage or bile duct puncture catheter drainage at the same time. Only 1 case underwent aspiration. Finally, 7 patients were cured while the other 3 patients died due to disease progression.

Results: There is contradiction in dealing hepatic vascular when gastric cancer surgery. It is hard to discriminate the benefit of cleaning hepatic artery lymph node with excessive dissection. In order to achieve the purpose of cleaning 12a group lymph node, the surgeon may injury hepatic vascular. In the process of cholecystectomy, it is common to mistaken common hepatic artery as cystic artery due to early branching. Correct exposure during surgery may avoid the aberrant hepatic vascular injury that can prevent the formation of intrahepatic biloma. Once hepatic biloma was formed, early drainage, anti-infection, and adequate nutritional support can promote the healing of hepatic biloma.

Conclusion: Postoperative biloma is a rare complication after gastric cancer surgery. It is important to avoid vascular injury during operation. Early drainage is a safe and effective method for treatment of intrahepatic biloma.

The Safety of Prophylactic hyperthermic intraoperative intraperitoneal chemotherapy at $43 \pm 0.16^\circ\text{C}$ for Resectable Advanced Gastric Cancer after Radical Gastrectomy

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Conflicts of interest: None of the authors have identified a conflict of interest.

Running heading: Safety of Intraoperative intraperitoneal perfusion

Objectives: to investigate the safety of prophylactic hyperthermic intraoperative intraperitoneal chemotherapy (HIPEC) at $43 \pm 0.16^\circ\text{C}$ for resectable advanced gastric cancer.

Methods: A retrospective analysis of a prospectively clinical database for 136 patients was performed. All patients have been treated with radical D2 gastrectomy and were divided into 4 groups. Patients in group 1 received gastrectomy only, patients in group 2 received gastrectomy and hyperthermic intraoperative intraperitoneal perfusion, patients in group 3 received gastrectomy and HIPEC; and patients in group 4 received gastrectomy, HIPEC and systemic chemotherapy. Perfusion was conducted at $43 \pm 0.16^\circ\text{C}$ for 60 minutes intraoperatively. The characteristics of the patients in four groups were collected and evaluated. Adverse effects were analyzed and compared.

Results: Four groups were comparable for all characteristics. Abdominal distention and anal exhaust time after procedure were different among patients in group 1 and other three groups; the total volume of drainage 3 days after the procedure was more in group 1 than that in group 2 or 3. Myelosuppression, nausea and vomiting were more severe in group 3 and 4 than that in group 1. There were no difference in nausea and vomiting between group 2 and 4. No death or major complications occurred. There were no significant differences in intestinal fistula, adhesive ileus and bowel perforation among four groups. The total volume of peritoneal drainage was lessening in group 2, 3 and 4. Peristalsis was recovered in most patients three days after the procedure.

Conclusions: It is safe to perform HIPEC at $43 \pm 0.16^\circ\text{C}$ for patients with advanced gastric cancer after radical gastrectomy, and it is also better for the recovery of peristalsis.

Keywords: Safety; Intraoperative hyperthermic intraperitoneal perfusion; Prophylactic; Gastric cancer; Gastrectomy

Comparisons of stress and humoral immunologic responses early after laparoscopy-assisted distal gastrectomy performed as a component of fast track surgery for gastric cancer

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Short Title: immune responses after LADG and FTS

Objective: The aim is to investigate the stress and humoral immunologic responses early after laparoscopy-assisted distal gastrectomy (LADG) performed as a component of fast-track surgery (FTS) for gastric cancer.

Methods: Eighty-eight eligible patients were randomly assigned into four groups comprising twenty-two patients each: (1) FTS + LADG, underwent LADG and FTS; (2) LADG, underwent LADG with traditional perioperative management; (3) FTS + open distal gastrectomy (ODG), underwent ODG and FTS; and (4) ODG, underwent ODG with traditional perioperative management. The clinical and humoral immunologic variables were compared between them.

Results: Compared with the ODG group, in brief, CRP were lower, C3, C4, IgG and IgA were higher and had less pronounced variations after surgery in the other three groups, especially in the FTS + LADG group. CRP in the FTS + LADG group were lower than in the FTS + ODG group on D4 and D7 and C3 and C4 in the FTS + LADG group were higher than in the ODG group On D1.

Conclusion: FTS and laparoscopic surgery can both individually reduce postoperative inflammatory responses and improve early postoperative humoral immune function. A combination of FTS and LADG does it further, but to a limited degree. FTS with traditional open gastrectomy achieves similar results as laparoscopic surgery for gastric cancer.

Keywords: Gastric cancer; Fast-track surgery; Laparoscopy-assisted surgery; Humoral immune; Stress reaction

Expression and prognostic significance of Ki-67 and p53 in ampullary carcinoma

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Objective: To investigate the expressions of Ki-67 and p53 and their correlations with clinicopathologic characteristics and prognosis in patients with ampullary carcinoma.

Methods: The expressions of Ki-67 and p53 were analyzed by immunohistochemical staining for 40 patients with ampullary carcinoma after pancreaticoduodenectomy (PD), and their correlations with clinicopathologic characteristics were investigated. Meanwhile, we retrospectively analyzed the relationships between them with the survival time of patients.

Results: Of the 40 patients with ampullary carcinoma, the 1-, 3-, 5-year accumulate survival rate were 98%, 67% and 44%. Immunohistochemical results showed that the positive expres-

sions of Ki-67 and p53 in ampullary carcinoma were 92.5% (37/40) and 67.5% (27/40) respectively. The positive expression of Ki-67 was associated with tumor invasion ($P=0.011$). By univariate analysis, overall survival was affected by Ki-67 expression, p53 expression and tumor invasion (respectively, $P=0.006$, 0.021 and 0.024), rather than age, sex, tumor size, tumor differentiation, lymph node metastasis, TNM stage and CA19-9 ($P>0.05$). In multivariate Cox regression analysis, p53 expression ($P=0.015$, $OR=1.717$) was the only independent prognostic factor in ampullary carcinoma.

Conclusions: Ki-67 expression was related in the development and progression of ampullary carcinoma. Overexpression of p53 is a valuable prognostic factor for ampullary carcinoma.

Keywords: Ampullary carcinoma; Ki-67; p53; Prognosis

Treatment of gastroparesis syndrome in patients with radical gastrectomy for gastric cancer by Mosapride compared with Maxolon: a randomized controlled trial

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Objective: To evaluate the effect difference of Mosapride on gastroparesis syndrome in patients with radical gastrectomy for gastric cancer compared with Maxolon.

Methods: From 2009 Jan to 2014 Dec, 72 patients with gastroparesis syndrome after radical gastrectomy in our hospital for gastric cancer were divided into two groups by random number table, therapy group and control group. The therapy group were treated with Mosapride (10mg/po/tid), and the control group were treated with Maxolon (10mg/po/tid).

Results: There were no statistic difference in recurrence rate ($P=0.62$), valid rate ($P=0.64$), invalid rate ($P=0.18$) and total effective rate ($P=0.18$) between therapy group and control group, but the effective time was faster in therapy group ($4\pm 1d$) compared with control group ($7\pm 2d$, $P<0.01$). Also, there were no statistic difference in diarrhea ($P=0.29$), thirst ($P=0.50$), lethargy ($P=0.18$), headache ($P=0.36$) and lassitude ($P=0.46$) between two groups, but palpitation was more in therapy group compared with control group ($P=0.05$) and extrapyramidal symptoms was less in therapy group compared with control group ($P=0.01$).

Conclusion: Post surgical gastroparesis syndrome can be treated by Mosapride or Maxolon, both two have good effect on gastrointestinal function recovery. But Mosapride has faster effective time and more palpitation, however, extrapyramidal symptoms was less in Mosapride compared with Maxolon.

Keywords: Post surgical gastroparesis syndrome, Mosapride, Maxolon

The Safety of Prophylactic Hyperthermic Intraoperative Intraperitoneal Chemotherapy at $43 \pm 0.16^\circ\text{C}$ for Resectable Advanced Gastric Cancer after Radical Gastrectomy

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Conflicts of interest: None of the authors have identified a conflict of interest.

Objective: This study evaluated the safety of intraoperative Continued Circulatory Hyperthermia Perfusion chemotherapy for resectable gastric cancer through retrospective analysis.

Methods: One hundred and thirty six resectable gastric cancer patients were included in this study. The patients were randomly divided into four groups ($n=34$ each) and given different treatment as follows, cytoreductive surgery (CRS), cytoreductive surgery+Continued Circulatory Hyperthermia Perfusion therapy (CRS+CCHPT), cytoreductive surgery+Continued Circulatory Hyperthermia Perfusion Chemotherapy (CRS+CCHPC), cytoreductive surgery+Continued Circulatory Hyperthermia Perfusion Chemotherapy+Systemic chemotherapy (CRS+CCHPC+SC). Analyze the abdominal cavity drainage volume, temperature, evacuating time and so on.

Results: With a median of 49.9 months of follow-up, the 5-year overall survival in IP+ patients was significantly better than in IP- patients (60.4 vs. 42.9%; $p = 0.001$), and the average progression-free survival in IP+ patients was significantly longer than in IP- patients (60.5 vs. 46.2 months; $p = 0.001$). Relapse rates of peritoneal carcinomatosis, celiac lymph node and hepatic metastasis in the IP+ patients were significantly lower than in the IP- patients. Patients with curative resection, a histological type other than mucinous adenocarcinoma and signet ring cell carcinoma, low and undifferentiated tumor grade, lymph node metastasis, and T3 and T4a benefited from adjuvant IPC. The toxicities were the same except for more patients with leukopenia in the IP+ group ($p = 0.001$). The number of cycles of IPC and the time of IPC start after surgery had an impact on overall and disease-free survival.

Conclusion: Intraoperative Continued Circulatory Hyperthermia Perfusion therapy or chemotherapy for resectable gastric cancer is safe and feasible, with fewer complications. Moreover, it's beneficial to decrease abdominal cavity drainage volume and to promote gastrointestinal function recovery.

The effect and safety of laparoscopic D2 radical gastrectomy for advanced gastric cancer

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Objective: To compare the curative for advanced gastric cancer effect between D2 radical gastrectomy with laparoscope and laparotomy.

Methods: 217 cases of patients with advanced gastric cancer treated in our hospital from March 2011 to March 2014 were selected as research objects. According to surgical method, they were divided into laparoscopy group (103 cases) and laparotomy group (114 cases). Gastric cancer patients in laparoscopy group were given laparoscopic D2 radical gastrectomy, and gastric cancer patients in laparotomy group were given D2 radical gastrectomy with laparotomy. The operation effect, safety, complication and operative cost in two groups were compared.

Results: The length of incision, bleeding volume, postoperative recovery process on patients in laparoscopy group compared with the laparotomy group, the difference were statistically significant ($P < 0.05$). But the operation time, the tumor resection proximal (distal) margin length and the mean number of removal LN in laparoscopy and laparotomy group were not significantly ($P > 0.05$). The operative cost was different significantly between the two groups ($P < 0.05$), while the total treatment cost was indifference.

Conclusion: Two methods of surgical treatment can obtain good clinical effect in advanced gastric cancer treatment. But compared with laparotomy of radical gastrectomy, laparoscopic D2 radical gastrectomy can reduce operation wound and complications, improve postoperative recovery and has higher safety.

Keywords: Advanced gastric cancer; Laparoscopic gastrectomy; D2 Radical gastrectomy

Clinical exploration of duodenum stromal tumor Surgical treatment

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Objective To explore the duodenum stromal tumor preoperative evaluation, surgical treatment and prognosis.

Methods: between November 2008 and January 2014, 34 patients who underwent surgical resection of duodenal GIST in Tianjin medical university general hospital, including pancreaticoduodenectomy and limited resection. surgical outcome, postoperative complications and prognosis were reviewed between LR and PD.

Results: there were 34 GISTs, 26 patients underwent LR and 8 underwent PD for GIST. The average hospitalization time 30.2 days, no perioperative death cases, postoperative complications were 15 cases (14 cases of conservative treatment, 1 cases were cured after second operation); At the same time, 13 patients with GIST in peripapillary duodenum area, Comparison between LR versus PD demonstrated that PD was no statistically significant difference in hospital stays time, but LR was associated with a significantly higher postoperative complications rate ($P = 0.041$, $\chi^2 = 4.162$).

Conclusion Duodenal GIST of operation depends on tumour positions and sizes, when fulfilling proper safe margins, LR is a viable treatment option for GIST involving the duodenum. PD for tumors in peripapillary duodenum Achieve good prognosis.

Keywords: Gastrointestinal stromal tumors; pancreaticoduodenectomy; limited resection; surgical prognosis

Expression of CD157 in gastric cancer and its relationship with clinicopathological characteristics and survival of gastric cancer

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Objective: To investigate the expression of CD157 in gastric cancer and the relationship with clinicopathological parameters and prognosis.

Methods: The expression of CD157 in 90 cases of gastric cancer tissues and corresponding adjacent non-cancerous tissues (ANCT) was detected using immunohistochemistry. The correlation between the expression of CD157 and clinicopathological parameters and prognosis was analyzed statistically.

Results: High expression of CD157 protein was observed in 67% gastric adenocarcinoma compared with that in 12% ANCT ($\chi^2 = 55.84$, $P < 0.01$). The expression of CD157 was correlated with the depth of tumor infiltration ($\chi^2 = 12.503$, $P < 0.01$), lymph node metastasis ($\chi^2 = 8.693$, $P = 0.003$) and distant metastasis ($\chi^2 = 8.693$, $P = 0.003$), but not with age ($\chi^2 = 1.659$, $P = 0.198$), gender ($\chi^2 = 1.431$, $P = 0.232$) or differential grade ($\chi^2 = 0.407$, $P = 0.856$). The patients with high expression of CD157 had less survival (29.0 ± 16.7 months) than those with low expression (46.0 ± 18.2 months) ($\chi^2 = 4.438$, $P = 0.036$).

Conclusion: High expression of CD157 is related to the invasion, metastasis and poor prognosis of gastric cancer.

Keywords: gastric cancer; CD157; neoplasm metastasis; prognosis

Gastrostomy performed by magnetic compression technique combined with magnetic navigation technique: a feasibility study on dogs

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Purposes: The conventional gastrostomy was performed under gastroscopy or open surgery. This study evaluated the feasibility of gastrostomy performed by using magnetic compression technique combined with magnetic navigation technique on dogs.

Methods: The two cylindrical magnets were made of titanium-nitride-plated materials with the height of 10mm and diameter of 10mm. Each magnet has a hole with diameter of 4mm in center. A manicured 14-French gastric tube was inserted through the hole and fixed on the parent magnet with an end reserved. 4 male mongrel dogs were lured to eat the daughter magnet mixed with food; then they were fixed in supine position under general anesthesia. A 2cm long incision was performed in the projection area of the gastric body on the left upper abdomen, through which the subcutaneous tissues and muscle were isolated up to the peritoneum. Then the navigation magnet with the height of 80mm and diameter of 20mm was placed on the upper abdomen to search for the daughter magnet by magnetic force. After that, the daughter magnet was moved to the incision by magnetic traction. Then the parent magnet replaced the navigation magnet and attracted with the daughter magnet together to compress the gastric wall and peritoneum. A needle was inserted through the gastric tube from the end and punctured the tissue in the hole of the magnets repeatedly. After removing the needle, the gastrostomy was completed.

Results: All 4 dogs were finished the gastrostomy successfully. No anastomotic leakage and other complications were noted. The gastric wall and peritoneum were observed with adhesion and well healing.

Conclusions: Gastrostomy performed by using magnetic compression technique combined with magnetic navigation technique is minimally invasive and easy to operate with reliable effects.

Early use of low-molecular heparin to prevent portal thrombosis after splenectomy and gastroesophageal devascularization in patients with portal hypertension

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Objective: To investigate the effect and safety of early use of low-molecular heparin for the prevention of portal thrombosis.

Methods: One hundred and six patients with portal hypertension accepting splenectomy and gastroesophageal devascularization were analyzed. These patients were divided into heparin group (41 cases) and non-heparin group (65 cases). Low-molecular heparin with one dose was used on first day after operation.

Results: The parameters including sex, age, pathogen, Child-Pugh classification, platelet count, D-dimer, portal vein diameter, portal vein flow, portal vein velocity, free portal vein pressure before and after splenectomy with gastroesophageal devascularization had no significant difference between two groups. The ratio of portal vein thrombosis in heparin group was lower significantly comparing with that in non-heparin group (17.07 % vs. 43.07 %, $P = 0.006$). No bleeding on wound surface and upper alimentary tract occurred in heparin group.

Conclusions: In patients with splenectomy and gastroesophageal devascularization, early application of low-molecular heparin could reduce the incidence of portal vein thrombosis significantly without safe problem.

Keywords: low-molecular heparin; portal thrombosis; portal hypertension; splenectomy; gastroesophageal devascularization

MicroRNA-206: Effective Inhibition of Gastric Cancer Progression through the c-Met Pathway

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Background: MicroRNAs are endogenous short chain nucleotide RNAs that regulate gene function by direct binding of target mRNAs. In this study, we investigated the effects of microRNA-206(miR-206) on the development of gastric cancer.

Methods: We first performed expression level analysis of miR-206 in gastric cancer specimens. Ectopic miR-206 was then introduced into the gastric cancer cell line AGS to inhibit cell proliferation. The behavior of transfected AGS cells was analyzed with Transwell assay and in vitro scratch studies. Activation of intracellular target proteins was confirmed with Western blotting. Consequently, in vivo tumor suppression was confirmed via xenograft models.

Results: miR-206 was first confirmed to be downregulated in gastric cancer specimens. Introduction of miR-206 inhibited cellular proliferation and migration by inducing G1 cell cycle arrest. Moreover, important proliferation and/or migration related molecules such as c-Met, CDK4, p-Rb, p-Akt and p-ERK were downregulated. Their expression levels were confirmed to be downregulated by Western blot analysis. Conversely, upregulation of c-Met was confirmed in tissue samples of human gastric cancer, with its level inversely correlated with miR-206 expression. Targeting of c-Met also directly affected AGS cell proliferation and invasion. *In vivo*, miR-206 expressing tumor cells also displayed growth delay in comparison to unaffected tumor cells.

Conclusions: Our results demonstrated that miR-206 suppressed c-Met expression in gastric cancer and could function as a potent tumor suppressor in c-Met overexpressing tumors. Inhibition of miR-206 function could contribute to aberrant cell proliferation and migration, leading to gastric cancer development.

Keywords: Gastric cancer; miR-206; c-MET, oncogenesis

Prognostic Role of MicroRNA-21 in Gastric Cancer: A Meta-Analysis

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Background: Mounting evidence shows that microRNAs may be useful as prognostic biomarkers of gastric cancer. The aim of this meta-analysis was to summarize the predictive role of miR-21 for survival in patients with gastric cancer and to verify the association between expression of miR-21 and clinical characteristics.

Material/Method: All the eligible studies were searched by PubMed and EMBASE and clinical characteristics and survival results were extracted. Then a meta-analysis was carried out to clarify the prognostic role of the miR-21 expression in different subgroups.

Results: We included 8 studies dealing with gastric cancer in this meta-analysis. For overall survival, the pooled hazard ratio of higher miR-21 expression in tumor tissue was 2.00 (95% CI: 1.39–2.88, $P < 0.01$), which could significantly predict poorer survival in gastric cancer patients. Importantly, subgroup analysis suggested that higher expression of miR-21 correlated with tumor differentiation 0.42 (95% CI: 0.25–0.70, $P < 0.01$), lymph node metastasis 6.39 (95% CI: 3.11–13.14, $P < 0.01$), and TNM stage 0.38 (95% CI: 0.21–0.67, $P < 0.01$).

Conclusions: This meta-analysis indicates that miR-21 detection has a prognostic value in patients with gastric cancer. In addition, overexpression of miR-21 is associated with worse tumor differentiation, lymph node metastasis, and TNM stage.

MeSH Keywords: MicroRNAs; Prognosis; Stomach Neoplasms

Mucinous gastric carcinoma: An update of clinicopathologic features and prognostic value from a retrospective review of clinical series

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Running Head: MGC in clinical practice Song et al.

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Object: This study aimed to explore clinical features and prognostic value of mucinous gastric carcinoma (MGC).

Methods: Patients with gastric carcinoma were divided into MGC, other poorly differentiated (PD), and well or moderately differentiated groups.

Results: In all, 68 (6.8%) of 996 patients had MGC, with 599 (60.2%) cases for PD. MGC had older age, more distant and peritoneal metastasis, but less radical gastrectomy than PD. The overall survival rate of MGC declined compared with PD gastric cancer (22.3% vs. 28.8%, $P = 0.032$).

Conclusion: MGC was associated with poorer prognosis than other gastric carcinoma. However, mucinous carcinoma was not an independent predictive factor for survival.

Keywords: gastric cancer; mucinous gastric carcinoma; clinicopathologic; prognosis.

The Prognostic Significance and Mechanism between LGR5 and Regulatory T Cells in Gastric Cancer

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Purpose: Leucine rich repeat containing G protein coupled receptor 5 (LGR5) is a well-established target gene of the Wnt pathway and is known as a potential marker of CSCs. Regulatory T cells (Tregs), a group of immune cells with tumor-promoting effect, exert their function through inhibition of effector T cells and regulation of the tumor microenvironment by producing a series of soluble factors. The present study investigated whether LGR5 expression and Tregs number correlated with clinical outcome in patients with gastric cancer and researched the inductive mechanism of LGR5 expression in cultured gastric cancer cells under the effect of Tregs.

Methods: In total, 100 patients who underwent curative resection between February 2009 and March 2010 in our hospital were enrolled. Immunohistochemistry was used to evaluate the expression of LGR5 and the distribution of FoxP3⁺ Tregs in different microanatomical areas. Cytometric Bead Array was used to detect cytokines of Th1/Th2 in tumor tissues, including IL-2, IL-4, IL-6, IL-10, TNF, IFN- γ . ELISA was used to analyze the expression of TGF- β in tumor tissues. LGR5 and β -catenin in cultured gastric cancer cells were detected by Q-PCR and Western Blot.

Results: The results showed that patients with higher level of LGR5 or Tregs are associated with poor prognosis ($P = 0.004$, 0.039; respectively) and there was a significant positive correlation between Tregs number and LGR5 expression ($P < 0.0001$). Meanwhile, the expression of LGR5 and β -catenin were up-regulated in gastric cancer cells when co-cultured with exogenous TGF- β 1. The expression of LGR5 and β -catenin induced by TGF- β 1 was partially inhibited by the TGF- β 1 receptor antagonist SB431542.

Conclusions: In conclusion, LGR5 may serve as a potential biomarker for survival prognosis in gastric cancer patients and Tregs promote the high expression of LGR5 in gastric cancer cells, most likely through the co-regulation of TGF- β 1 and Wnt signaling pathway.

Clinical comparison of antrum-preserving double tract reconstruction versus Roux-en-Y reconstruction after gastrectomy for Siewert type II and III adenocarcinoma of the esophagogastric junction (AEG)

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Background/Aim: To investigate the reasonable operational manner of AEG patient, we explored and improved a new method of digestive tract reconstruction of antrum-preserving double tract reconstruction (ADTR), and that assessed its efficacy and safety for AEG in terms of long-term survival, complication morbidity, and mortality retrospectively.

Methods: 55 cases were retrospectively collected that consisted of 18 cases underdoing ADTR method and 37 cases Roux-Y reconstruction (RY) for AEG at North Sichuan Medical College and divided into two groups. The clinicopathological characteristics, perioperative outcomes, postoperative complications morbidity and overall survival (OS) were compared between the two different reconstruction Methods.

Results: No significant differences were found between the two groups in term of perioperative outcomes, postoperative complications. For ADTR group, perioperative recovery index, such as first flatus time ($P=0.002$) and time to resume liquid diet ($P=0.001$), were faster than that in the RY group. Moreover, the incidence of reflux esophagitis was significantly decreased than RY group ($P=0.048$). Postoperative morbidities and mortalities, as for overall postoperative complication, tumor recurrence and metastasis were not significantly different between the two groups. Multivariate analysis about significantly different factors that presented as covariates into a Cox regression analysis to assess the survival and recurrence among AEG patients shown that age, gender, BMI, pleural effusion, lymphorrhagia and TNM stage were important prognostic factor for OS of AEG while the selection of surgical method between ADTR and RY developed a common prognostic factor for OS of AEG.

Conclusions: ADTR presents a similar tumor recurrence, metastasis and long-term survival to classical Roux-en-Y reconstruction with esophagojejunostomy, and it suggests a considerable near-term quality of life, especially in terms of early recovery and reflux esophagitis, and it is worthy to be recommended as one of the reasonable digestive tract reconstruction method for Siewert II, III type AEG.

Keywords: Adenocarcinoma of the esophagogastric junction; ADTR; total gastrectomy; Roux-Y reconstruction;

MiR-199a-3p promotes gastric cancer progression by targeting ZHX1

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Background: Accumulating evidence has indicated that microRNAs (miRNAs) act as critical epigenetic regulators in tumor carcinogenesis. Here, we report that miR-199a-3p was significantly upregulated in gastric cancer (GC) cell lines and tissues.

Methods: Functional studies demonstrated that miR-199a-3p dramatically increased cell proliferation and suppressed cell apoptosis both in vitro and in vivo. Furthermore, the transcriptional regulator zinc fingers and homeoboxes 1 (*ZHX1*) was identified as one of the direct downstream targets of miR-

199a-3p, miR-199a-3p bound to the *ZHX1* 3' untranslated region (3'UTR) to regulate *ZHX1* protein expression.

Results: The expression of miR-199a-3p was inversely associated with that of *ZHX1* in GC cell lines. Overexpression of miR-199a-3p in SGC-7901 cells inhibited *ZHX1* expression, while reduction in miR-199a-3p by inhibitors in NCI-N87 cells enhanced *ZHX1* expression. Moreover, restoring *ZHX1* expression in SGC-7901/miR-199a-3p cells inhibited the cell proliferation induced by miR-199a-3p.

Conclusions: Taken together, these findings suggest that miR-199a-3p may function as a novel tumor promoter in GC and its oncogenic activity may involve the direct targeting and inhibition of *ZHX1*.

Keywords: Gastric cancer, miR-199a-3p, Proliferation, Apoptosis, *ZHX1*

Evaluating the clinical feasibility: the direct bisulfite genomic sequencing for examination of methylated status of E3 ubiquitin ligase RNF180 DNA promoter to predict the survival of gastric cancer

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Background: E3 ubiquitin ligase Ring finger protein 180 (RNF180) has been identified as a novel tumor suppressor in gastric cancer and the methylated CpG site count of RNF180 DNA promoter can predict the prognosis for gastric cancer patients.

Methods: At present study, we detected hypermethylated and hypomethylated CpG site count of RNF180 DNA promoter in samples of 480 gastric cancer patients by direct bisulfite sequencing.

Results: We found that patients who possessed seven or less hypermethylated CpG sites of RNF180 DNA promoter had much better survival ($P=0.008$), which was similar to our previous research result by using the BGS with clones. With the multivariate survival analysis, we found that T stage, N stage and hypermethylated CpG site count of RNF180 DNA promoter were the independent predictors of prognosis for gastric cancer patients.

Conclusions: hypermethylated CpG site count of RNF180 DNA promoter for evaluating the prognosis of gastric cancer was reasonable by using the direct bisulfite sequencing.

Keywords: Ring finger protein 180, Methylation, Direct bisulfite genomic sequencing, Prognosis, Gastric cancer.

Fast-track surgery vs standard care in gastrointestinal surgery: a meta-analysis

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Background and aims: Enhanced recovery after surgery protocols have also been implemented in liver surgery, colorectal surgery, gastrectomy and pancreaticoduodenectomy. However, it is still controversial if fast track protocols are beneficial to patients, because of high rate of readmission. The present meta-analysis was performed to evaluate the effects of FTS in gastrointestinal surgery on clinical outcomes after operation.

Methods: PubMed, Embase, Web of Science, and the Cochrane Central Register of Controlled Trials between January 1966 and May 2014 were searched to identify the relevant articles comparing the outcomes of fast track protocols in gastrointestinal surgery with traditional perioperative care. The pooled effect was assessed by either fixed effects model or random effects model, which is based on the heterogeneity.

Results: 36 articles with 5578 patients were selected. Meta analysis identified that compared with traditional perioperative care, there are lower incidence of complications (OR=0.545; 95% CI 0.439-0.676; $P<0.001$), wound infections (OR=0.568; 95% CI 0.439-0.736; $P<0.001$), postoperative ileus (OR=0.433; 95% CI: 0.265-0.708; $P=0.001$) in fast track protocols group. The rates of readmission were significantly higher in fast-track group than in standard care group (OR=1.874; 95% CI: 1.386-2.533; $P<0.001$). The total length of stay was significantly shorter and the hospital costs were significantly less in the fast-track group compared with standard care group (SMD -1.123, 95% CI: -1.366--0.880, $P<0.001$; SMD -0.722, 95% CI: -0.985--0.459, $P<0.001$). Other clinical outcomes such as cardiorespiratory complications, pneumonia and urinary infection were significantly reduced in fast-track group. There was no significant difference between the fast-track group and standard care group (OR=0.696; 95% CI: 0.191-2.530; $P=0.582$).

Conclusions: Fast track programs have shown to be effective in reducing overall postoperative complications, length of hospital stay and hospital charge without compromising patient safety.

Keywords: Fast-track surgery; Meta-analysis; Gastrointestinal surgery

Metformin inhibits the growth of gastric cancer by regulation of chemokine CXCR4

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Objective: To investigate the role of metformin for treatment gastric cancer.

Method: In vitro, the human cancer cells MFC were treated with metformin, the cells proliferation were detected with MTT assay, the CXCR4 gene and protein were detected by PCR and western blot. The 36 mice were divided into experimental group and control group(18 each) and gastric cancer cells were injected by i.p. The control group were underwent saline injection by i.v. The experimental groups were treated metformin with 10mg/kg. The tumor volume was performed

Results: Real-time Quantitative PCR and Western blot results shown that CXCR4 gene and protein expression were significantly suppressed by metformin, which resulted in suppressing the capability of cell proliferation in vitro. And in vivo, metformin inhibits tumor growth.

Conclusion: Our findings suggest that metformin inhibits the tumor growth by decreasing CXCR4 in vitro and vivo.

Analysis for ten cases of AFP-producing gastric cancer

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Objective: Gastric cancer is one of the most common malignant tumors in the world. Its mortality rate occupies one fifth of all tumors. The incidence rate of AFP-producing gastric cancer (AFP-GC) is around 3-15%. Compared with common type of gastric cancer, AFP-GC possesses different clinical and pathological features, more prone to be aggressive, early lymph node metastasis and liver metastases. It can be considered as an independent risk factor for prognosis.

Methods: Retrospective analysis was carried out for 1185 inpatients of gastric cancer.

Results: Of 1185 cases, there is 10 AFP-GC patients at the age of 75.1 ± 7.6 years and their serum AFP level is 1480.2 ± 3072.9 ng/mL. Male and female ratio is equal. Two cases of cardia (20%) and two cases of body (20%) of gastric adenocarcinoma were found, whereas 6 tumors were located in the pylorus (60%). Positive lymph nodes were found among 90% cases and 8 cases (80%) with liver metastases were detected. 7 cases (70%) were at IV stage and three cases (IIIc, IIB, and IB) appeared. Three patients underwent neoadjuvant chemotherapy, radical gastric cancer surgery, and radiofrequency ablation surgery.

Conclusions: Although the highly invasive mechanism of AFP-GC remains obscure, it is related to an increase of VEGF-C, hepatocyte growth factor receptor C (c-Met gene expression) and SALL4 genes expression. Radical gastric cancer surgery is optimal choice for treatment AFP-GC. However, integrative medication combined with chemotherapy may be employed for those unresectable cases.

Total Laparoscopic Gastrectomy for Advanced Distal Gastric Cancer: A Retrospective Analysis of Short-term Outcomes Compared with Laparoscopic-assisted Gastrectomy

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Purpose: The advantages of totally laparoscopic surgery in advanced distal gastric cancer are unproven. This study is to evaluate the safety and feasibility of total laparoscopic gastrectomy (TLG) for treatment of advanced distal gastric cancer compared with laparoscopic-assisted gastrectomy (LAG).

Materials and methods: A retrospective review of 95 patients who underwent either TLG ($n=43$) or LAG ($n=52$) for advanced distal gastric cancer from August 2012 to November 2014 was performed. Surgical efficacies and short-term postoperative outcomes between two groups were compared.

Results: There were no significant differences in complication rates. The length of incision in the TLG group was significantly shorter than that in the LAG group (4.00 ± 1.63 cm vs. 8.14 ± 3.12) ($P=0.000$). The flatus time in the TLG group was 1.0 ± 0.7 days, which was shorter than that in the LAG group (3.6 ± 1.2 days) ($P=0.001$). And the time of resume diet in the patients who underwent TLG was earlier than those who underwent LAG (3.68 ± 1.23 days vs. 4.86 ± 1.68 days) ($P=0.017$). Moreover, the postoperative C-reactive protein (CRP) in TLG group displayed less value than LAG group, especially in the 1, 3 and 5 days after surgery.

Conclusions: TLG for advanced distal gastric cancer is a safe and feasible procedure with sufficient experience and technique. This method may be less hit, faster recovery and may produce a more cosmetic result.

Keywords: Advanced distal gastric cancer, Total laparoscopic gastrectomy, Laparoscopic-assisted gastrectomy

Abdominal Pressurization Therapy for Postoperative Chylous Ascites in Patients with Esophageal or Cardiac Carcinoma

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Objective: To introduce the abdominal pressurization therapy with broad belly band for postoperative chylous ascites. And to explore the indication, advantage and disadvantage of this therapy.

Methods: Data of patients in Thoracic Surgery Department of West China Hospital who received esophageal or cardiac cancer surgery and developed postoperative chylous ascites between 2009 and 2014 were collected. The treatment processes and clinical outcomes of these patients were analyzed.

Results: There were 3859 patients who had undertaken esophageal or cardiac cancer surgeries in this 6 years and 4 patients developed chylous ascites. All the 4 patients received abdominal pressurization therapy with broad belly band. 3 patients cured in 2 weeks, without relapsing in minimal one year follow-up. One patient had sustained leakage of chylous fluid into thoracic cavity after abdominal pressurization which induced unsuccessful treatment. Chylous leakage finally resolved after secondary surgery.

Conclusions: Abdominal pressurization therapy with broad belly band is a noninvasive, effective, Short time and cheap method for postoperative chylous ascites. The main points of this method are as follow: 1. Patient's abdominal cavity must be a

closed interspace to ensure intra-abdominal pressure would not decline because of the leakage of fluids after abdominal pressurization. 2. Enough intra-abdominal pressure. This is the key point to stop the leakage of lymphatic fluid which is a prerequisite for healing of lymphatic crevasse. 3. Enough pressurizing time. Time is need for repairing crevasse after the ceasing of lymphatic fluid leakage. We found two week is enough. More cases are needed to verify whether less pressurizing time could be feasible.

Background: Chylous ascites is a clinical phenomenon referring to the abnormal accumulation of chylous fluid in the abdominal cavity, common causes including tumors, trauma, inflammation and congenital abnormalities [1]. Strictly speaking, post-operative chylous ascites should be classified as traumatic chylous ascites, often occurring as a result of retroperitoneal lymph node dissection, distal splenorenal shunt, abdominal aortic aneurysm repair, and liver transplantation, requiring dissection of Cisterna chyli and its major tributaries. [2-7]. The incidence of postoperative chylous ascites is not high, as the incidence rate reported after major abdominal surgery and retroperitoneal surgery is 0.005% -2% [8, 9]. However, the clinical treatment of chylous ascites is more difficult, the treatment Method can be of the following: fasting / low-fat diet / medium chain triglyceride diet, somatostatin and its analogues, abdominal paracentesis, surgical treatment [10], etc. In addition, lymphatic angiography and lymphatic glue embolization have also been reported in these recent years [9, 11, 12]. Surgeries involving resection of esophageal carcinoma and gastric cardia carcinoma in the department of Thoracic surgery involves dissection of lymph nodes around celiac trunk, occasionally Resulting in postoperative chylous ascites, this is where we will introduce our treatment Method of abdominal pressurization therapy using broad belly band process, and summarize the experience of this new treatment Method for chylous ascites.

Methods: Patients data, from the year 2009 to 2014, of esophageal carcinoma or cardia carcinoma resection were reviewed and data regarding patients with post-operative chylous ascites were collected. Diagnostic criteria for chylous ascites showing different degrees of whiteness, ascites containing amylase and triglyceride concentrations exceeding 110mg / dL [8, 13, 14]. All the patients were regularly followed up for more than one year.

Results: A total of 3859 patients underwent resection of either esophageal carcinoma or cardia carcinoma between 2009-2014, including 4 patients diagnosed with post operative chylous ascites, the incidence rate was 0.10%, treatment of patients for these four cases are as follows.

Notoginsenoside R1 promotes SGC7901 apoptosis by up-regulating the proBDNF signaling pathway

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Objective: To investigate the affect of Notoginsenoside R1 on human gastric cancer cells (SGC7901) and its relationship with precursor brain-derived neurotrophic factor (proBDNF) signal pathway.

Methods: SGC-7901 was cultured in vitro and randomly divided into normal, control and experimental groups, and then, each group was divided into 24, 48 and 72 h groups. The experimental group cells were co-cultured with Notoginsenoside R1 at 2 mg/mL, but saline in control groups, and normal groups had no other treatment. After that, 3-(4, 5-Dimethylthiazol-2-yl) -2, 5-diphenyltetrazolium bromide (MTT) assay was used to detect the cell activity and terminal dextrinucleotidyl transferase (TdT)-mediated dUTP nick end labeling (TUNEL) was used to detect the apoptosis of the cells. Immunofluorescence was used to locate proBDNF, p75 and Sortilin expression, and the proBDNF, p75 and Sortilin mRNA was detected by Real time Polymerase Chain Reaction (PCR), and Western Blotting was used to detect the protein expression.

Results: 1, SGC7901 was successfully cultured. 2, Cell viability in experimental groups was decreased compared with normal or control groups, but the apoptosis was increased. 3, proBDNF, p75 and Sortilin mRNA or protein were up-regulated in experimental groups.

Conclusion: Notoginsenoside R1 can decrease the biological activity and increase the apoptosis of SGC7901, and the mechanism may be by increasing the expression of proBDNF apoptosis signal pathway.

Prognostic Analysis of Group N3 and its Subgroups in Gastric Cancer Patients

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Aim: To determine whether it is reasonable to categorize the N3b patients with the N3a group, but not as stage IV, in the 7th edition of the TNM staging system and to find the prognostic factors of N3 gastric cancer patients.

Methods: We performed a retrospective study of 307 patients who were histologically diagnosed with N3 stage gastric cancer who underwent D2 radical surgery at the Cancer Center and the 6th affiliated hospital of Sun Yat-sen University between January 2003 and December 2012. The follow-up lasted until June 2014. Chi-square tests and the Kaplan-Meier method were employed to compare the clinicopathological variables and prognoses.

Results: The median survival time of the N3a and N3b groups of patients were 31.85 and 24.65 months, respectively ($P=0.046$).

Preoperative serum carcino-embryonic antigen (CEA) ($P=0.036$) and pathological T staging ($P=0.001$) were the independent prognostic factors for the N3 group of gastric cancers. Tumor size ($P=0.039$) and pathological T staging ($P<0.001$) were the independent prognostic factors for the N3a group of gastric cancers. Univariate analysis showed that preoperative CA72-4 ($P=0.016$) and Borrmann type ($P=0.006$) were the significant prognostic factors for the N3b group of gastric cancers, but in multivariate analysis, neither of them was an independent prognostic factor.

Conclusion: It is more reasonable to categorize the N3b group of patients into stage III in the 7th edition of UICC's TNM staging. Many more randomized controlled trials are needed to prove the appropriateness of combining the N3b group of patients with N3a patients.

Keywords: N3; substage; gastric cancer; prognosis.

Analysis of prognostic factors of patients with early gastric cancer

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Objective: To investigate the important factors affecting the prognosis of patients with early gastric cancer.

Methods: We retrospectively observed 416 EGC patients from Jul.2007 to Jul.2012. The clinicopathological and follow-up data were studied by univariate analysis and multivariate regression analysis. The ROC curves was used to select the best candidate factor for affecting the prognosis.

Results: the ratio of Postoperative complications in Early gastric cancer patients was 12%, recurrence rates after gastrectomy was 5.9%, the overall 5-year survival rate was 91%, disease free survival rate was 87.2%. multivariate analysis the number of lymph nodes metastasis, the rate of lymph node metastasis, preoperative nutritional status and the level of CEA was the independent risk factors for EGC ($\chi^2=45.167, 69.789, 16.361, 14.698, P<0.05$)

Conclusions: the metastatic lymph nodes ratio, Lymph node metastasis, Preoperative nutritional status and Carcinoembryonic antigen level were the important factors influencing the prognosis of early gastric cancer, metastatic lymph nodes ratio was the best methods to indicate prognosis.

Keyword: early gastric cancer, prognosis, survival rate, metastatic lymph nodes ratio

Postoperative 4 day Discharge of Robotic Gastrectomy for Gastric Cancer patients applied with ERAS protocol, a prospective clinical trial

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Objective: The aim of this study was to determine the influence and safety of robotic surgery and ERAS protocol in oncological gastrectomy on early outcomes especially for patients discharged from Hospital within 4 days.

Methods: We Prospective analyzed 40 patients (10 female and 30 male) with gastric cancer who underwent robotic gastrectomy with standard D2 lymphnodes resection between Jun 2014 and Dec 2014. Perioperative care was based on ERAS principles. The postoperation complications and Length of hospital stay, postoperative morbidity and mortality were analyzed as well as the 30-days readmission rates. A series of clinical and laboratory examination were also recorded an improvement from postoperation day 1(POD1) to postoperation day 3(POD3), such as the SPO2, Heart Rate(HR), C-reactive protein (CRP), hemoglobin (HB), hemoglobin(ALB), prealbumin(PA), transferrin (TF).and also an comparison was conducted between <4d Group to >4d Group in VAS, sleep time and postoperation walk steps on POD1, POD2 and POD3.

Results: There was no conversion to open surgery in the gastrectomy group. All patients were encouraged to walk on the morning of POD1. Oral glucose fluids were introduced on POD1. Full diet was started on the regain of bowl movement in all patients. No postoperative complication requiring reoperation was noted. Not only is there an improvement from postoperation day 1(POD1) to postoperation day 3(POD3), but also an improvement in the comparison of <4d Group to >4d Group, in laboratory findings and clinical findings such as the SPO2, Heart Rate(HR), C-reactive protein (CRP), hemoglobin (HB), hemoglobin(ALB), prealbumin(PA), transferrin (TF). The <4d Group is of the same quality and safety concerning that the statistics shows no significant difference between in the two group. The <4d Group is of no more risk of postoperative complications or 30 day's re-admission.

Conclusions: The implementation of ERAS protocol to Robotic gastrectomy might result in improved postoperative care quality, shortening of hospital stay, and quicker return to normal activity. It might be a safe way for patients to discharge from hospital no more than 4 days. However, this is only a small study of limited cases, more evidence is needed to prove it.

Does the 7th Edition of the TNM staging system influence the accuracy of EUS for gastric cancer depth invasion

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Objective: Endoscopic ultrasonography (EUS) is one of the most widely used diagnostic method for the locoregional staging of gastric cancer. However, there have been concerns that the reliability of gastric cancer staging might be affected by the changes to the 7th edition of the American Joint Committee on Cancer (AJCC) cancer staging manual. We compared the accuracy of the 6th and 7th eds. of the AJCC gastric cancer staging system for EUS-based evaluations of gastric cancer invasion depth.

Methods: The accuracy of EUS for evaluating the depth of invasion was assessed in 178 consecutive patients who underwent surgery for gastric cancer. The depth of invasion and the histological type of gastric cancer were determined by surgical exploration and examinations of resected specimens according to the 6th and 7th eds. of the AJCC protocol.

Results: The diagnostic precision for stage T by EUS was associated with the location of the tumor in the horizontal axis using both AJCC 6th ed. ($P=0.048$) and AJCC 7th ed. ($P=0.029$). The diagnostic precision of T stage determination was 47% using AJCC 6th ed. ($\kappa=0.268$) and 45% using AJCC 7th ed. ($\kappa=0.266$). The levels of precision in identifying stages T0,

T1, T2, T3, and T4 were 100, 75, 30, 41, and 17%, respectively, using AJCC 6th ed. and 100, 75, 21, 0, 41, and 17%, respectively, using AJCC 7th ed. The degrees of accuracy of the 6th and 7th eds. in distinguishing early gastric cancers (EGCs) from advanced gastric cancers (AGCs) were 73% ($\kappa=0.434$) and 73% ($\kappa=0.434$), respectively.

Conclusions: The result was more accuracy when EUS was used to diagnose tumors in the anterior wall than the posterior wall. The use of the 7th ed. of the AJCC staging system may lower the accuracy slightly of the T stage by EUS compared with the use of the 6th ed. However, it is still an effective method to differentiate EGCs from AGCs.

A Case Report of Gastric Schwannoma with Gastric Cancer Hemorrhage and Perforation

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Purpose: We report a case diagnosed as gastric cancer and gastric schwannoma and performed emergency resection for hemorrhage and perforation.

Materials and Methods: A 72 years old female patient with epigastric discomfort and haematemesis was admitted in November, 2014. A giant primary gastric schwannoma and a primary gastric cancer in antrum were found in CT scan. We perform the whole resection of the primary gastric schwannoma 15cm×12cm×10cm and the gastric cancer.

Results: The patient recovered well and discharged 10 days after surgery. The pathology diagnosis was gastric adenocarcinoma and benign gastric schwannoma.

Conclusions: The resection of the giant primary gastric schwannoma and primary gastric cancer was successful.

A combination of tumor marker to predict survival in gastric cancer patients undergoing neoadjuvant chemotherapy

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Objective: Analyze the prognostic role of tumor marker for locally advanced gastric cancer after neoadjuvant chemotherapy.

Methods: 98 patients with locally advanced gastric cancer (cT2-4N_xM0) who underwent neoadjuvant chemotherapy and R0 resection with D2 lymphadenectomy in Jan. 2003 to Dec. 2010, were included.

Results: The association between the clinical-pathological factors and prognosis was assessed by Kaplan-Meier analysis and Cox proportional hazards regression. Cut-off values of tumor marker were determined using receiver operating characteristic (ROC) curve analyses, and ideal cut-off values were defined using the Youden index (maximum(sensitivity + specificity - 1)).

Conclusions: Multivariate analysis using the 8 clinical characteristics selected by univariate analyses revealed that the combination of CEA, CA19-9 and CA72-4 after neoadjuvant chemotherapy was associated with overall survival along with pathological T stage and N stage. Compare the value of each tumor marker between patient reached median survival time with those didn't, area under the curve (AUC) for CEA and

CA72-4(both after neoadjuvant chemotherapy) reached over 0.7. Youden index shows the ideal cut-off value for CEA and CA72-4 is 4.07 and 1.63. Using combination of CEA and CA72-4, with new cut-off value, the median survival time for none, 1 of them and both elevated is 68month, 47month, and 20month. Multivariate analysis shows the new combination was associated with overall survival($P=0.019$).

SIGNIFICANCE OF NO.10 AND 11 LYMPH NIDES POSTERIOR TO THE SPLENIC ARTERY DISSECTION IN D2 RADICAL TOTAL GASTRECTOMY

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Objective: D2 lymphadenectomy is widely performed for advanced proximal gastric cancer, but No.10 and 11 lymph nodes (LNs) completely dissection is technically challenge, especially for those posterior to the splenic artery. This study aimed to investigate the clinical significance of removing No.10 and 11 lymph nodes posterior to the splenic artery in radical total gastrectomy.

Methods: Between January 2013 and December 2014, 45 patients who underwent spleen-preserving D2 radical total gastrectomy were enrolled. During dissecting No.10 and 11 LNs, we divided them into two parts, namely LNs anterior and posterior to the splenic artery and the pathological data were reviewed.

Results: 15 patients underwent laparoscopy and 30 underwent laparotomy. No mortality was recorded. According to the pathological results, the TNM stages of the tumor were IIA in 11 patients (24.4%), IIB in 4 (8.9%), IIIA in 7 (15.6%), IIIB in 8 (17.8%), IIIC in 15 (33.3%). The mean number of lymph nodes retrieved was 30.4 ± 12.6 . The sum of No.10 and 11 LNs posterior to the splenic artery were 37 detected in 22 patients and the mean number was 0.8 ± 1.1 . One lymph node with metastasis was found in the special 37 regional LNs, so the metastasis rate was 2.2% (1/45).

Conclusion: Our initial analysis suggests that the rate of No.10 and 11 LNs posterior to the splenic artery metastasis was 2.2%, but further studies are needed to reveal its clinical significance in D2 radical total gastrectomy for advanced proximal gastric cancer.

Clinical Meaning of dissection of Superior Mesenteric Vein (14v) Lymph Node in Gastric Cancer Metastasis

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Objective: Through investigate dissection of 14v lymph node of patients with gastric cancer and its metastasis, we try to discuss the influence factors and prognosis of dissection of 14v lymph node.

Methods: Retrospective analyze 120 cases of gastric cancer patients who underwent radical gastrectomy and dissected 14v lymph node since 2004.03 to 2012.03, through histopathological

and immunohistochemical examination to detect the 14v lymph node metastasis and calculation.

Results: In these 120 cases, gastric antrum carcinoma were detected 176 nodes, 29 nodes were metastasis, but there ere none in other places. About TNM classification, 14v lymph node metastasis among patients in stage IV (5 cases) was 50%, in stage IIIC (7 cases) was 33.3%, which were higher than that among patients in other stages($P < 0.01$); About Borrmann classification, 14v lymph node metastasis among patients in borrmann type IV (4 cases) was 80%, III Ⅱ型 (11cases) was 30, 6%, which were higher than other types($P < 0.01$). Among the 18 cases which had 14v lymph node metastasis, 15 cases (83.3%) invaded serosa, invading the surrounding organs. The 5 year rate of 14v group metastasis patients was 7.7%.

Conclusions: Gastric carcinoma tumor size, tumor stage, Borrmann classification, invading the surrounding organs and tissues and metastasis in 14v group lymph node have a certain relationship. Cases which had 14v lymph node metastasis have poor prognosis. 14v lymph node dissection for lately TNM stage gastric tumor has no certain significance.

Keywords: Gastric cancer; 14v group lymph nodes; dissection; metastasis

Antibiotic-associated diarrhea after gastrointestinal surgery

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Objective: To investigate the clinical significance and risk factors of antibiotic-associated diarrhea after gastrointestinal surgery.

Methods: In this study 2547 patients undergoing gastrointestinal surgery between January 2009 and December 2013 were divided into two groups based on diarrhea after gastrointestinal surgery. LOS (Length of stay) and hospitalization expenses were observed. Antibiotic-associated diarrhea was defined as 3 or more loose stools for 2 days or more within 30 days of starting the antibiotic. Factors related with antibiotic-associated diarrhea were selected and t-test, chi-square test were used for univariate analysis. Statistically significant variables was used for multivariate logistic regression analysis.

Results: Of 2547 patients, 168 cases (6.5%) had postoperative antibiotic-associated diarrhea. LOS (Length of stay) was increased ($p < 0.001$). Hospitalization expenses was more expensive than normal ($p < 0.001$). Univariate analysis showed that Functional status (before surgery), transfer status, use of advanced antibiotic, NRS 2002 score, history of abdominal surgery, upper abdominal surgery, surgical approach (open vs laparoscopy), duration of operation, hypertension, coronary heart disease, anemia, diabetes, chronic obstructive pulmonary disease, age over 65 years, the length in hospital before surgery > 7 days, obstruction of gastrointestinal, depression, old myocardial infarction, gastrointestinal reconstruction, ASA classification, preoperative neo-adjuvant chemotherapy and radiotherapy were significant factors ($P < 0.1$). Logistic regression analysis revealed that functions status, transfer status, use of advanced antibiotics, preoperative temporary pacemaker implantation, the length of in hospital before surgery > 7 days, upper abdominal surgery, NRS 2002 score, duration of operation, age over 65 years, the length in hospital before surgery > 7 days, preoperative neo-adjuvant chemotherapy and radio-

therapy were related to postoperative Antibiotic-associated diarrhea ($P < 0.05$).

Conclusions: Antibiotic-associated diarrhea after gastrointestinal surgery increased LOS (Length of stay) and hospitalization expenses, functions status, transfer status, use of advanced antibiotics, preoperative temporary pacemaker implantation, the length of in hospital before surgery > 7 days, upper abdominal surgery, NRS 2002 score, duration of operation, age over 65 years, the length in hospital before surgery > 7 days, preoperative neo-adjuvant chemotherapy and radiotherapy related with postoperative antibiotic-associated diarrhea after gastrointestinal surgery.

Keywords: Antibiotic-associated diarrhea; gastrointestinal surgery; risk factors

Effects of Growth Hormone (rhGH) on axis of Growth Hormone - Insulin-Like Growth Factor of Human Gastric Cancer Cell

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Objective: To study of effects recombinant human growth hormone (rhGH) on growth hormone - insulin-like growth factor - insulin-like growth factor binding protein of human gastric cancer cell *in vivo* in order to reveal part mechanism of growth effects of rhGH on gastric cancer.

Methods: Nude mice was randomly divided control group, cisplatin (DDP) group, recombinant human growth hormone (rhGH) group and DDP+rhGH group after human gastric cancer xenograft model of nude mice was successfully founded and drugs were used for 6 days. We investigated insulin-like growth factor-I (IGF-I) and insulin-like growth factor binding protein (IGFBP) -3 of blood serum of nude mice, IGF-I mRNA, insulin-like growth factor-I receptor (IGF-I R) mRNA and IGFBP-3 mRNA of xenograft of nude mice by Enzyme linked immunosorbent assay (ELISA) and Semiquantitative Reverse transcriptase-polymerase chain reaction (RT-PCR) on the next day of completing use of drugs later.

Results: Examination of blood serum IGF-I and IGFBP-3 of blood serum of nude mice obviously rose, but ratio of IGF-I and IGFBP-3 obviously decreased in rhGH group and DDP+rhGH group compared with control group and DDP group ($P < 0.05$), RT-PCR: Express of IGF-I mRNA and IGF-I R mRNA did not obviously different in all groups. But express of IGFBP-3 mRNA obviously increased in rhGH group, DDP group and DDP+rhGH group compared with control group, meanwhile, express of IGFBP-3 mRNA also obviously increased in DDP+rhGH group compared with control group, DDP group and rhGH group.

Conclusion: Our result indicated that rhGH in short time use raised simultaneously IGF-I and IGFBP-3 of blood serum and increased IGFBP-3 mRNA but degraded ratio of IGF-I and IGFBP-3 of blood serum in human gastric cancer cells, So rhGH didn't improve grow of gastric cancer cells.

Keywords: Human Growth Hormone; Stomach Neoplasm; Insulin-like Growth Factor-; insulin-like growth factor binding protein-3; RT-polymerase chain reaction

The application of Huang's three-step maneuver for laparoscopic spleen-preserving splenic hilus lymphadenectomy for advanced proximal gastric cancer

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Aim: To discuss the feasibility and clinical effects of Huang's three-step maneuver for laparoscopic spleen-preserving splenic hilus lymphadenectomy for advanced proximal gastric cancer.

Methods: From January to December 2013, 122 consecutive patients with advanced proximal gastric cancer underwent Huang's three-step maneuver for laparoscopic spleen-preserving splenic hilus lymphadenectomy. The intraoperative and postoperative outcomes of patients were analyzed.

Results: All of the operations were successful except one underwent splenectomy due to intraoperative splenic artery injury, mean splenic hilus lymph nodes (No.10 LNs) dissection time was (21 ± 7.5) min, mean number of No.10 LNs retrieved was (2.9 ± 2.4). The mean blood loss of No.10 dissection was (15 ± 13) ml. The mean postoperative hospital stay was (12 ± 6.5) d. The mean time of first liquid food, first flatus were (4.9 ± 1.8) d, (4.0 ± 0.83) d, respectively. Postoperative complications occurred in 14 patients, giving a morbidity rate of 11.5% (14/122), and there was no operative death. At a median follow-up time of 8 mo (range 2 to 12 mo), all patients were alive and none had experienced recurrent or metastatic disease.

Conclusions: Huang's three-step simplified the complicated surgical procedure of laparoscopic spleen-preserving No.10 LNs dissection for advanced proximal gastric cancer, making it easy to be mastered and allowing for its widespread adoption.

Keywords: Stomach neoplasm; Laparoscopy; Splenic hilus; Lymphadenectomy

Evaluation of laparoscopic total gastrectomy for advanced gastric cancer: Results of a comparison with laparoscopic distal gastrectomy

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Background: Laparoscopic distal gastrectomy (LDG) in the treatment of patients with local advanced gastric cancer (AGC) is becoming increasingly popular, and there have been several multicenter randomized controlled trials focused on this treatment. However, few reports on the procedure of laparoscopic total gastrectomy (LTG) for AGC exist. The aim of this study was to validate the efficacy and safety of LTG for AGC.

Methods: The data of 976 patients who underwent LTG for middle or upper advanced gastric cancer were retrieved from a prospectively constructed database of 2170 patients who underwent laparoscopic gastrectomy between 2007 and 2013. Surgical outcomes of LTG were investigated and compared with those of patients who underwent LDG.

Results: LTG was associated with significantly longer operation time, number of dissected lymph nodes (LNs), and time of resume soft diet; but was similar to LDG with regard to conversion patients, blood loss, transfused patients, time to ground activities, time to first flatus, and post-operative hospital stay. According to Clavien-Dindo Classification, the morbidity and mortality rates of the LTG group were comparable to those of the LDG group. Multivariate analyses revealed that elder patients, more comorbidities, and longer operation time were the significant independent risk factors determining postoperative complications. The difference in overall survival rates between the two groups was statistically significant ($P < 0.05$). However, a comparative analysis of overall survival showed no statistical significance for any of the stages of cancer between the LTG and LDG groups ($P > 0.05$).

Conclusions: The study findings suggest that LTG is an oncologically safe procedure for AGC yields comparable surgical outcomes. A well-designed phase III trial can be carried out to provide valuable evidence for the oncological safety of LTG for the treatment of AGC.

Keywords: Stomach neoplasm; Laparoscopic total gastrectomy; surgical outcomes; Clavien-Dindo classification

Is all the advanced gastric cancer suitable for laparoscopy-assisted gastrectomy with extended lymphadenectomy? A case-control study using a propensity score method

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Background: The oncologic outcomes of laparoscopy-assisted gastrectomy (LAG) for treatment of patients with local advanced gastric cancer (AGC) have not been evaluated. The aim of this study was to validate the oncologic efficacy of LAG for AGC.

Methods: The data of 605 patients who underwent LAG and 605 treated by open gastrectomy (OG) were selected using the propensity score matching method from a prospectively constructed database of 2187 patients who underwent radical gastrectomy between 2005 and 2011. The therapeutic value of lymph node (LN) dissection and long-term surgical outcomes of these matched groups were compared.

Results: The two groups were well balanced with respect to age, gender, body mass index (BMI), gastrectomy extent, and depth of tumor invasion. There was no significant difference in clinicopathologic characteristics between LAG and OG groups. The total number of dissected LNs did not significantly differ between the two groups, but the number of dissected LNs at stations 11 and 12a were significantly higher in the LAG group. However, the therapeutic index was no significant difference in each LN station between the LAG and OG groups. Although the overall survival curve at total and each UICC stage were no statistical difference between the two groups ($P > 0.05$), there was an increased overall survival rate for patients with pT4aN3bM0 treated via OG group ($P < 0.05$). Stratified analysis shows the overall survival was inferior for LAG with experience less than 40 cases and similar after performing more than 40 cases compared to those result from open surgery.

Conclusions: Although LAG yields comparable oncological outcomes for local AGC, patients with pT4aN3bM0 gastric cancer may not suitable for laparoscopic surgery, especially for surgeons with primary experience.

Keywords: Stomach neoplasm; Laparoscopic total gastrectomy; Propensity score method; surgical outcomes

Surgical outcomes of 2041 consecutive laparoscopic gastrectomy procedures for gastric cancer: A large-scale case control study

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Background: Laparoscopic gastrectomy (LG) for gastric cancer has increased in popularity due to advances in surgical techniques. The aim of this study is to validate the efficacy and safety of laparoscopic gastrectomy for gastric cancer comprised with open gastrectomy (OG).

Methods: The study comprised 3580 patients who were treated with curative intent either by laparoscopic gastrectomy (2041 patients) or open gastrectomy (1539 patients) Between January 2005 and October 2013. The surgical outcomes were comprised between the two groups.

Results: Laparoscopic gastrectomy was associated with significantly less blood loss, transfused patient number, time to ground activities, and post-operative hospital stay, but with similar operation time, time to first flatus, and time to resumption of diet, compared with the open gastrectomy. No significant difference in the number of lymph nodes dissected was observed between these two groups. The morbidity and mortality rates of the LG group were comparable to those of the OG group (13.6% vs. 14.4%, $P = 0.526$, and 0.3% vs. 0.2%, $P = 0.740$). The 3-year disease-free and overall survival rates between the two groups were statistically significant ($P < 0.05$). While, according to the UICC TNM classification of gastric cancer, the 3-year disease-free and overall survival rates were not statistically different at each stage.

Conclusions: Our single-center study of a large patient series revealed that LG for gastric cancer yields comparable surgical outcomes. This result was also true of local advanced gastric cancer (AGC). A well-designed randomized controlled trial comparing surgical outcomes between LG and OG in a larger number of patients for AGC can be carried out.

Keywords: Laparoscopic gastrectomy, stomach neoplasm, lymph node dissection, surgical outcomes

Small-volume Chylous Ascites after Laparoscopic Radical Gastrectomy for Gastric Cancer: results from a large population-based sample

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Aim: Postoperative chylous ascites following abdominal surgery is uncommon. In the field of laparoscopic radical gastrectomy (LAG), no large studies have been conducted that have focused on postoperative small-volume chylous ascites (SVCA).

The aim of this study was to report the incidence and potential risk factors of SVCA following LAG.

Methods: A total of 1366 consecutive gastric cancer patients who underwent LAG from January 2008 to June 2011 were enrolled in this study. We analyzed the patients based on the development or absence of SVCA.

Results: SVCA was detected in 57 (4.17%) patients, as determined by small-volume drainage (range, 30–100 mL/24h) of triglyceride-rich fluid. Both univariate and multivariate analyses revealed that the total number of resected lymph nodes (LNs), No.8 or No.9 LN metastasis and N stage were independent risk factors for SVCA following LAG ($P < 0.05$). Regarding hospital stays, there were significant differences between the groups with and without SVCA ($P < 0.001$). The 3-year disease-free and overall survival rates of the patients with SVCA were 47.4 and 56.1%, respectively, which were similar to those of the patients without SVCA ($P > 0.05$).

Conclusions: SVCA following LAG developed significantly more frequently in the patients with ≥ 32 harvested LNs, ≥ 3 metastatic LNs, or No.8 or No.9 LNs metastasis. SVCA, which was successfully treated with conservative management, was associated with a prolonged hospital stay but was not associated with the prognosis.

Keywords: Gastric Cancer, Laparoscopic Gastrectomy, Small Volume, Chylous Ascites

Major perioperative complications in laparoscopic spleen-preserving total gastrectomy for gastric cancer: perspectives from a high-volume center

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Background: Laparoscopic spleen-preserving total gastrectomy (LSPTG) for gastric cancer is only performed at a few specialized institutions and carries the risk of major perioperative complications (MPCs) that may require reoperation and impair recovery. However, the predictors of such events remain largely unknown.

Objective: To clarify the characteristics and risk factors of MPCs after LSPTG and to propose a clinically useful scoring system to predict MPC risk.

Design: Prospectively collected data from 325 consecutive patients undergoing LSPTG at a single institution from June 2011 to February 2014 were analyzed to determine the preoperative factors that correlated with MPCs. The rates of MPCs were assessed, and a score model was developed to identify preoperative variables associated with MPC.

Results: Of the 325 LSPTG cases, the following types of MPCs were observed in 15 (4.6%) patients: intraoperative splenic hilar vascular injury ($n = 1$); intraoperative splenic parenchymal injury ($n = 5$); intraoperative splenic infarction ($n = 1$); intraabdominal abscess that required radiologic intervention (not under general anesthesia ($n = 2$); intra-abdominal bleeding that required reoperation under general anesthesia ($n = 2$); anastomotic hemorrhage that required reoperation under general anesthesia ($n = 2$); and death ($n = 2$). Three independent variables were correlated with MPCs in the multivariate analysis: body mass index (BMI) ≥ 25 kg/m² (odds ratio [OR] 3.992, 95% confidence interval [CI]

1.210–13.175), tumor located at the greater curvature (OR 3.922, 95% CI 1.194–12.880), and No.10 LN metastases (OR 4.418, 95% CI 1.250–13.770). A risk score consisting of 1 point for each preoperative risk factor (BMI ≥ 25 kg/m² or tumor location in the greater curvature), resulting in an overall score of 0–2 points for each patient, predicted an increased risk of MPCs.

Conclusions: BMI, tumor location, and No.10 LN metastases were significantly associated with increased rates of MPCs. A simple, clinically relevant scoring system based on two preoperative variables was clinically useful in predicting MPC risk in patients undergoing LSPTG.

Keywords: Major complications, Laparoscopic spleen-preserving total gastrectomy, Scoring system, Gastric cancer

Prognostic Value of Tumor Size in Patients with Remnant Gastric Cancer: Is the Seventh UICC Stage Sufficient for Predicting Prognosis?

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Background: The 7th UICC N stage may be unsuitable for remnant gastric cancer (RGC) because the original disease and previous operation usually cause abnormal lymphatic drainage. However, the prognostic significance of the current TNM staging system in RGC has not been studied.

Methods: Prospective data from 153 RGC patients who underwent curative gastrectomy from Jan 1995 to Aug 2009 were reviewed. All patients were classified according to tumor size (≤ 3 cm as N0; > 3 and ≤ 5 cm as N1; > 5 and ≤ 7 cm as N2; and > 7 cm as N3). The overall survival was estimated using the Kaplan-Meier method, and hazard ratios (HRs) were calculated using the Cox proportional hazard model.

Results: Tumor sizes ranged from 1.0 to 15.0 cm (median 5.0 cm). Tumor size, depth of invasion and lymph node (LN) metastasis were significant prognostic factors based on both the univariate and multivariate analyses ($P < 0.05$). In the survival analysis, the seventh edition UICC-TNM classification provided a detailed classification; however, some subgroups of the UICC-TNM classification did not have significantly different survival rates. The combination of the seventh edition T classification and the suggested N classification, with ideal relative risk (RR) results and P value, was distinctive for subgrouping the survival rates except for the IA versus IB and II A versus IIB. A modified staging system based on tumor size, predicted survival more accurately than the conventional TNM staging system.

Conclusions: In RGCs, tumor size is an independent prognostic factor and a modified TNM system based on tumor size accurately predicts survival.

Keywords: Tumor size; Remnant gastric cancer; Prognosis; TNM stage

Clinical Values of A New Anatomic Classification for Common Hepatic Artery Absence during Laparoscopic Radical Resections for Gastric Cancer: A Single-Center Large-Scale Study

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Background: When the common hepatic artery (CHA) is absent, the vascular injury risk increases. The aim of this study was to explore the new anatomic classification for CHA absence during laparoscopic gastrectomy.

Study Design: The clinical data were collected prospectively and analyzed retrospectively from 2,170 gastric cancer patients.

Results: CHA absence was found in 38 cases (1.8%), and was classified into 6 types: type I [the replaced CHA (RCHA) from the superior mesenteric artery (SMA) with retropancreatic course, 28], type II (the RCHA from the SMA with circumambulated course, 1), type III [the RCHA from the aortic artery, 1], type IV [the replaced left hepatic artery (RLHA) from the left gastric artery (LGA) and the replaced right hepatic artery (RRHA) from the SMA, 5], type V [the RLHA from the LGA and the RRHA from the celiac artery, 2], and type VI [the RLHA from the aberrant gastroduodenal artery and the RRHA from the SMA, 1]. The vascular injury rate was significantly higher in patients with different RLHA and RRHA origins than with same origins [87.5% vs. 3.3%, $P=0.005$], as well as the ALT and AST values on postoperative days 1, 3, and 5 and the TBIL values on postoperative day 3 ($P<0.05$, each).

Conclusions: A 6-type anatomic classification can demonstrate in detail the variation in features resulting from CHA absence. Knowing the anatomic variations, especially those with different RLHA and RRHA origins, is helpful for surgeons to reduce vascular injury and liver function damage.

Keywords: Common hepatic artery absence; Laparoscopic; Gastric cancer; Lymphadenectomy; Vascular injury

Why the proximal splenic artery approach is the ideal approach for laparoscopic suprapancreatic lymph node dissection in advanced gastric cancer? a large-scale vascular-anatomical-based study

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Purpose: To explore the anatomical basis of the proximal splenic artery (SA) approach for laparoscopic suprapancreatic lymph node (LN) dissection and its application in advanced gastric cancer.

Methods: Laparoscopic suprapancreatic LN dissections were performed in 1551 consecutive advanced gastric cancer patients between June 2007 and November 2013. A total of 994 consecutive patients since January 2011 were selected to compare the clinicopathological characteristics and surgical outcomes between the conventional approach group (330) and the proximal SA approach group (664).

In the proximal SA approach, the No. 11p LNs are dissected first.

Results: In the suprapancreatic arteries, the proximal SA had the lowest anatomic variation rate ($P<0.05$, each) and maximum diameter ($P<0.05$, each) compared with the common hepatic artery (CHA), left gastric artery, right gastric artery, and gastroduodenal artery. In addition, the proximal SA was located closer to the suprapancreatic border than the CHA ($P=0.000$). The No. 11p lymph nodes metastasis rate (LMR) was lower than the No. 9, No. 7, No. 8a, No. 5 and No. 12a LMR ($P<0.01$, each). Compared with the conventional approach, the proximal SA approach was associated with less blood loss ($P<0.05$), significantly more retrieved total LNs and suprapancreatic LNs ($P<0.01$, each).

Conclusions: The proximal SA exhibits the most constant and maximum diameter is located closer to the suprapancreatic border and exhibits the lowest LMR; therefore, the proximal SA approach is the ideal approach for laparoscopic suprapancreatic LN dissection in advanced gastric cancer.

Keywords: advanced gastric cancer; laparoscopic suprapancreatic lymph node dissection; the proximal splenic artery approach; vascular anatomy

A scoring system to predict the risk of postoperative complications after laparoscopic gastrectomy for gastric cancer based on a large-scale retrospective study

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Objectives: To investigate the risk factors for postoperative complications following laparoscopic gastrectomy for gastric cancer and to use the risk factors to develop a predictive scoring system.

Background: Few studies have been designed to develop scoring systems to predict complications after laparoscopic gastrectomy for gastric cancer.

Methods: We analyzed records of 2170 patients who underwent a laparoscopic gastrectomy for gastric cancer. A logistic regression model was used to identify the determinant variables and develop a predictive score.

Results: There were 2170 patients, of whom 299 (13.8%) developed overall complications and 78 (3.6%) developed major complications. A multivariate analysis showed the following adverse risk factors for overall complications: age ≥ 65 years, BMI ≥ 28 kg/m², tumor with pyloric obstruction, tumor with bleeding and intraoperative blood loss ≥ 75 ml; age ≥ 65 years, a Charlson co-morbidity score ≥ 3 , tumor with bleeding and intraoperative blood loss ≥ 75 ml were identified as independent risk factors for major complications. Based on these factors, the authors developed the following predictive score: low risk (no risk factors), intermediate risk (1 risk factor), and high risk (≥ 2 risk factors). The overall complication rates were 8.3%, 15.6% and 29.9% for the low-, intermediate-, and high-risk categories, respectively ($P<0.001$); the major complication rates in the 3 respective groups were 1.2%, 4.7% and 10.0% ($P<0.001$).

Conclusions: This simple scoring system could accurately predict the risk of postoperative complications after laparoscopic gastrectomy for gastric cancer. The score might be helpful in the selection of risk-adapted interventions to improve surgical safety.

Keywords: Stomach cancer; Laparoscopy; Gastrectomy; Complications; Scoring system

The splenic hilar vascular anatomy and the influence of splenic artery type in laparoscopic total gastrectomy with spleen-preserving splenic lymph node dissection for gastric cancer

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Background: The objective of this study was to investigate the splenic hilar vascular anatomy and the influence of splenic artery (SpA) type in laparoscopic total gastrectomy with spleen-preserving splenic lymph node (LN) dissection for gastric cancer.

Methods: The clinical anatomy data of 317 patients with upper- or middle-third gastric cancer who underwent laparoscopic spleen-preserving splenic hilar LN dissection from January 2011 to December 2013 were analyzed. The terminal branches of the SpA were classified as concentrated type or distributed type based on the distance between the artery's furcation and the splenic hilar region. We selected 2 cm as the cut-off value; the concentrated type was < 2 cm, and the distributed type was \geq 2 cm. The patients were divided into two groups (concentrated group vs. distributed group). The patient clinicopathologic characteristics and both the intraoperative and postoperative variables were compared between the groups.

Results: In this study, there were 205 patients with concentrated type (64.7%) and 112 patients were distributed type (35.3%) SpA. The splenic lobial vessels of all the patients were anatomically classified into 4 types. There were cases with a single branch of splenic lobial vessels in 22 patients (6.9%), 2 branches in 250 patients (78.9%), 3 branches in 43 patients (13.6%) and multiple branches in 2 patients (0.6%). The types of splenic artery trunk included 87 patients (27.4%) with type I, 211 patients (66.6%) with type II, 13 (4.1%) patients with type III and 6 (1.9%) with type IV. There were no significant differences in clinicopathologic characteristics between the groups ($P > 0.05$). The mean surgical time, blood loss, and number of vascular clamps used at the splenic hilum were significantly lower in the concentrated group than in the distributed group ($P < 0.05$). However, the mean total surgical time, mean total blood loss, and the mean number of harvested splenic hilar LNswere similar in both groups ($P > 0.05$). There were no significant differences in the duration of hospital stay, time to first flatus, time to fluid diet, time to soft diet, or morbidity between groups ($P > 0.05$).

Conclusions: It is valuable for surgeons to know the splenic hilar vascular anatomy when performing laparoscopic total gastrectomy with spleen-preserving splenic lymph node dissection. The patients with concentrated type SpA could be used in training new surgeons.

Keywords: Stomach neoplasms; Spleen-preservation; Laparoscopy; Lymph node dissection; Vascular anatomy; Splenic artery type

Laparoscopic Nissen Fundoplication combined with Greater Curvature Plication for treatment of morbid obesity accompanied by gastroesophageal reflux disease (GERD): an 18-month therapeutic evaluation

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Objectives: The aim of this study was to evaluate the outcome of laparoscopic Nissen fundoplication combined with greater curvature plication for morbidly obese patients with typical symptoms of gastroesophageal reflux (GERD) retrospectively.

Methods: Six morbidly obese patients that had been admitted to Huashan Hospital Fudan University from March 2012 to March 2013 with typical symptoms of GERD and were retrospectively studied. Laparoscopic Nissen fundoplication and greater curvature plication were performed when clinical assessment suggested adequate esophageal motility and length. Outcome measures included assessment of the relief of the gastroesophageal reflux symptom, the evaluation of excess body weight loss percentage (EWL%) and remission of other complications.

Results: Laparoscopic surgery, without conversion to laparotomy, was successfully completed in all the patients. Perioperative gastric wall perforation at the suture site was found in one case postoperatively, and we were not able to follow up his condition after reoperation and hospital discharge. However, the remaining five patients are still being followed up. The mean operative duration was 145 (118–170) minutes, and the mean postoperative hospital stay was 3.8 (3–5) days. The percentage of excess weight loss (EWL%) at 1, 3, 6, 12, and 18 months postoperatively were 26.8%, 49.1%, 64.3%, 64%, and 61%, respectively. The postoperative 18-month average body mass index (BMI) was 26.3 (23.2–28.4), and the postoperative 18-month average weight loss was 17.5 kg. Five patients had diabetes, but their fasting plasma glucose and glycosylated hemoglobin levels were well controlled after surgery (three cases gained complete remission, and two cases gained partial remission). Patients with hyperlipidemia and hyperuricemia achieved complete remission. Relief of the gastroesophageal reflux symptoms was achieved in all the 5 patients at the 18-month follow-up and anti-acid drugs were discontinued. Only 1 patient had occasionally mild acid reflux but did not require medical therapy. No other postoperative complications were found. There were no deaths.

Conclusions: Laparoscopic Nissen fundoplication combined with greater curvature plication provides an excellent symptomatic and physiologic outcome in patients with morbid obesity accompanied with gastroesophageal reflux.

Keywords: Morbid obesity, Nissen fundoplication, the greater curvature plication, gastroesophageal reflux (GERD)

Small Intestinal Tumors

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Background: Small intestine is the longest part of the gastrointestinal tract. It represents 75% of its length and 90% of the

mucosal surface. Benign tumors are observed at 3–6%, malignant - 1–3% of all GI malignancies.

Methods: 23 patients with small intestinal tumors between 2001 and 2013 were admitted in Second Department of surgery. They were comparable in age, location and tumor characteristics. Reasons for hospitalization of patients were following symptoms: bowel obstruction, abdominal pain, GI bleeding, anemia.

Results: The diagnosis was based on the clinical presentation, performance status and imaging procedures (CT and MRI). The histological types of the tumor were adenocarcinoma -56, 5%, GIST - 17, 4%, sarcoma - 9, 3% NET - 8, 7%, and lymphoma - 8, 1%. Surgery included tumor resection, followed by side-to-side or end-to-end anastomosis. Postoperative morbidity - one patient GI - bleeding (4, 3%), in two patients (8, 6%) - wound infection; no postoperative mortality was registered.

Conclusion: Small intestinal tumors are characterized by a low frequency. Diagnosis is made in advanced stage of disease because lack of symptoms and difficult determination of clinical presentation. Surgery is the only method that allows radical treatment.

Keywords: Small intestine tumors, Small bowel malignancy, GI bleeding, Abdominal Pain, Intussusception.

INTESTINAL INTUSSUSCEPTION IN ADULTS SECONDARY TO MECKEL DIVERTICULUM

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Background: Meckel diverticulum is rare congenital anomaly of the gastrointestinal tract, occurring in 2–3% of the population. Common complications include hemorrhage, small bowel obstruction and diverticulitis. It may invaginate or invert into the lumen of the small intestine. Once inverted, the diverticulum may serve as lead point for an ileoileal or ileocolic intussusception. Intussusception is invagination of a proximal segment of bowel into the lumen of the adjacent distal segment. While intussusception is relatively common in the childhood, it is infrequently seen in adults.

Methods: This is a literature search with search data in PUB-MED site, looking for articles published from January 2005 to December 2014. He used “adult intussusception” and “meckel diverticulum” as a keyword for search. We found 11 articles and all being selected.

Results: The disease may have symptoms such as abdominal pain, bleeding, diarrhea and vomiting. A diagnostic certainty is based in findings surgical. However, image examinations may be useful. Plain radiography and ultrasonography may be helpful; however the standard diagnostic procedure is the computed tomography. The literature works are unanimous about the fact that laparotomy is the treatment of choice and size resection is chosen from some questions, size as the affected area, trying as much as possible to preserve healthy areas.

Conclusion: The intussusception in adults secondary to Meckel Diverticulum is a condition that challenges the surgeon, both in terms of diagnosis, as the appropriate approach. With the constant advancement of imaging methods, more cases have been diagnosed before the surgical indication.

Evaluation of the Effect and Usefulness of Minimally-invasive Laparoscopic Surgical Correction of Hepatoportal Blood Circulation in Patients with Gastro-esophageal Bleeding.

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Bleeding from esophageal varices is a major problem in portal hypertensive cirrhosis and is associated with a high risk of death that relates to liver failure. 75% of patients die with Child-Pugh grade C disease; 50–60% with grade B and 30% with grade A.

Summary: experience of laparoscopically-assisted treatment of 51 patients with gastro-esophageal bleeding combined with other portal hypertension complications was summarized.

Aim: To investigate the efficacy of minimally-invasive laparoscopic surgical correction of hepatoportal blood circulation, choice of optimal surgical amount of portoazogous disconnection in patients with liver cirrhosis and with esophageal variceal hemorrhage.

Methods: and materials. The study involved 51 patients with cirrhosis who were hospitalized with esophageal variceal bleeding and upon whom were performed laparoscopically-assisted splenic artery ligations combined with upper gastric devascularization procedures (ligation of the left gastric artery and vein, the short gastric vessels, and the left gastroepiploic artery), stapler esophageal transection and fundoplication procedures.

Liver function tests were measured on 51 liver cirrhosis patients (2 in Child-Pugh grade A, 20 in Child-Pugh grade B and 29 in grade C disease). Other complications included hypersplenism (45), ascites (47) pleuritis (3). The ages ranged from 16–70 years (mean $48 \pm 12,8$ years) in 27 male and 24 female patients.

Results: Our carefully-studied surgical approach allowed us to achieve the following: good and satisfactory control of re-bleeding was achieved in 38 (74, 5% of patients); correction of hypersplenism in 30 (58, 8%); correction of ascites in 31 (60, 7%); complete correction of pleuritis in two, partial in another. Five patients died postoperatively (9, 8%) and 9 had recurrent variceal hemorrhage (17, 6%).

Conclusion: Laparoscopic-assisted splenic artery ligation combined with portoazogous disconnection procedures are effective method to reduce recurrent bleeding from esophageal varices due to portal hypertension and may be considered as an alternative options for the patient who is unable to undergo safe liver transplantation, transjugular intrahepatic portosystemic shunt or surgical shunt placement.

INTESTINAL INTUSSUSCEPTION IN ADULTS SECONDARY TO MECKEL DIVERTICULUM

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Background: Meckel diverticulum is rare congenital anomaly of the gastrointestinal tract, occurring in 2–3% of the population. Common complications include hemorrhage, small bowel obstruction and diverticulitis. It may invaginate or invert into the lumen of the small intestine. Once inverted, the diverticu-

lum may serve as lead point for an ileoileal or ileocolic intussusception. Intussusception is invagination of a proximal segment of bowel into the lumen of the adjacent distal segment. While intussusception is relatively common in the childhood, it is infrequently seen in adults.

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Conclusion: The intussusception in adults secondary to Meckel Diverticulum is a condition that challenges the surgeon, both in terms of diagnosis, as the appropriate approach. With the constant advancement of imaging methods, more cases have been diagnosed before the surgical indication.

PREDICTION OF OPERATION TIME OF LAPAROSCOPIC DISTAL GASTRECTOMY

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Purpose: Operation time of laparoscopic distal gastrectomy have shortened due to recent advances of the operative techniques and equipments and is comparable to that of open distal gastrectomy. However, there are still difficult operations which take longer operation time. In this study we evaluated the relationship between patient's characteristics and operation time.

Methods: From January 2013 to February 2014, 112 patients with gastric cancer underwent laparoscopic distal gastrectomy at Kyungpook National University Medical Center. Correlation between operation time and preoperative and intraoperative patients' conditions. Body composition was assessed by bioelectrical impedance analysis.

Results: There were 59 men and 40 women. Mean age was 60.7 ± 11.9 years, mean operation time was 184 ± 30.8 minutes and mean body mass index was 23.9 ± 2.9 kg/m². Gender, reconstruction methods, co-morbidity, and previous abdominal surgery were not correlated with operation time significantly. Multiple regression analysis of all the patients revealed that body mass index significantly correlated with operation time ($p < 0.001$). In female patients, only body mass index was significantly correlated with operation time ($P = 0.001$), but in male patients, height ($P = 0.046$) and visceral fat area ($P = 0.039$) were significantly correlated with operation time.

Conclusions: Body mass index was effective to predict operation time which may be a surrogate for operative difficulty, especially for women. But in male patients, height and visceral fat area affected operation time. And the data obtained from bioelectrical impedance analysis can help predicting operative difficulty.

Original Method: for drainage of abdominal cavity

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Objective of the Study: Developing method of intraabdominal absorption-transmembrane dialysis (IATD) in order to prolong sanitation of abdominal cavity in patients with generalised peritonitis (GP).

Methods: To develop In develop IATD in patients with GP, we proceed with following provisions. Area of artificial semipermeable membrane and volume of dialysis solution should be sufficient to ensure adequate removal of low molecular and middle molecular toxic substances from the peritoneal exudate (due to absorption and diffusion).

Results: As artificial semipermeable membrane we used tubular membrane with viscose pulp lumen diameter $30, 0 \pm 2, 0$ mm and a wall thickness of 0.2 mm. Dialyzer consists of a tubular semipermeable membrane length of 40 cm and PVC tube 50 cm long and 0.5 cm in diameter. For the dialysis we injected silica sorbent suspension in dialyser. Postoperatively, dialysis was performed continuously, stopped after the appearance of objective clinical signs of GP elimination. As a dialysis solution for this proposed method we used nanodispersible silica sorbent suspension in amount of 0.2 g / kg / day on an average for 10 days. This method for IATD used continuously through out the early postoperative period, and if necessary replace dialyzers at each successive operation and dialysis solution - after 12 hours.

Conclusion: In the comprehensive surgical treatment of patients with generalised peritonitis to reduce these verity of endotoxemia it is advisable to use intra-abdominal absorption-transmembrane dialysis in the early postoperative period. To this goal it has been installed four dialyzer in abdominal cavity, all owing for more efficient absorption.

Nowadays Techniques Which Helps In Oncological Treatment: Outcomes Of Radiofrequency Ablation And Combined Resection / Ablation for Liver Metastases In Colorectal Malignancy

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Background & Aims: Colorectal cancer (CC) is the mostly seen malign tumour in the world. Therefore percentages of metastases and late diagnosis rates increases nowadays. Also Liver metastases from colorectal cancer are the leading cause of cancer-related morbidity and mortality in the world. The large proportion of patients with colorectal liver metastases shows with late inoperable disease. Postoperative patient management enable safe resection of up to %70 of the functional liver parenchyma with a minimal mortality in advanced centers. When complete resection of all metastases is not possible, a number of tumor ablation techniques have been explored. Recently, the most widely used tumor ablative technique for treatment of colorectal liver metastasis is radiofrequency ablation (RFA), which

has been shown to be safe and applicable in patients with unresectable hepatic tumors. The objective of this study was to review the role of radiofrequency ablation (RFA) in the treatment of liver metastases in colorectal malignancy.

Methods: Data of 78 patients with colorectal liver metastases treated for cure with hepatic resection ± RFA between January 2009 and August 2014, was performed retrospectively

Results: Of 78 patients treated, 32 (%41) underwent resection only, 24 RFA + resection (%31), 14 RFA only (%18), and 8 laparotomy with biopsy (% 8). RFA was used in operative candidates who could not undergo complete resection of disease. Overall survival rate was highest after resection (%52), RFA + resection(%63) and RFA only were (%24) respectively. Survival for “unresectable” patients treated with RFA + resection or RFA only was greater than patients who applied chemotherapy only.

Conclusion: These data provide evidence that when complete resection cannot be achieved, selective use of RFA can keep a modest survival benefit over chemotherapy solo for patients with colorectal metastases limited to the liver. Although patient selection for RFA was based on known risk factors, potential morbidity and patient BMI for survival is the most important factors for surgical process.

Gastrointestinal Stromal Tumours (GIST) presenting as Gastrointestinal haemorrhages

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Background: To highlight the need to suspect a GIST in patients presenting acutely with gastrointestinal (GI) haemorrhages and anaemia. GISTs are the most frequent mesenchymal neoplastic lesions and affect mostly the stomach (60%) and the small bowel (20%).

Methods: this is a case series of patients presenting to an Accident and Emergency Department following GI haemorrhage and anaemia.

Results: Two female and one male patients, across all age ranges will be presented. All presented with acute haemorrhage, anaemia and fatigue. Esophageal and gastric endoscopy was not conclusive for diagnosis, however CT and histology allowed a correct diagnosis. Two cases were treated with laparoscopic surgery, whilst the third was treated using open surgery due to the size of the tumour. On histological exam two of the three patients had non-aggressive tumours (<=5/50 HPFs). Immunoassays showed that all three were positive to CD117 and CD34.

Conclusions: Although GISTs are uncommon and often asymptomatic, and present with non-specific symptoms, which correlate to tumour size. Incidentalomas are common. The prognostic factors of survival in these neoplastic lesions are tumor size and mitotic index expressed as mitoses per high-magnification field.

GISTs should be considered as a differential diagnosis in patients with acute or chronic GI haemorrhage, given that GI bleeding is the most common presenting symptom due to ulceration of the mucosa for tumor growing.

ESOPHAGEAL STENTING BY SELF EXPANDING METALLIC STENTS

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Background: Esophageal stents are utilized to treat malignant or benign esophageal strictures, fistulas, perforations, and anastomotic leaks. Stent placement usually requires both endoscopic and fluoroscopic guidances. Most stents are placed distally and across the gastroesophageal junction.

Materials and Methods: Esophageal stenting was performed in 26 patients with different pathologies of the esophagus: In 22 cases due to irresectable esophageal cancer and proximal gastric malignancies. In 15 cases from those 22 - carcinoma was located in the middle and distal portions of the esophagus without cardiac involvement. In 7 cases cancer spread involved as the esophagus as stomach. Stenting was utilized for closure of: leaks (2 patients after B-2 gastrectomy and sleeve gastrectomy); bronchoesophageal fistula (1); duodenal fistula (1 - after gunshot wound). In all cases covered stents were used (Wilson-Cook Z-stent or ELLA HV Plus, Hanaro stents and Danish seal for fistula closure. Antireflux valve stents for prevention of after stenting GERD). All interventions were performed under i.v or general anesthesia.

Results: no complications. In 1 case stent migrated into the stomach which was fixed on the other day by special stent-extractor device. All fistulas were closed in 2-12 week period.

Conclusion: Esophageal stenting by covered stents should be considered as an effective mini invasive method of choice in the treatment of esophageal malignant and benign strictures and perforation.

Condition of mucous membrane in periulcer area and endocrine system in patients suffering from hemorrhaging gastric duodenal ulcer.

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Materials and Methods of study: Complex research of 35 patients suffering from hemorrhaging ulcer of stomach and duodenum has been carried out in the Center of Stomach-Intestinal Hemorrhages in Dnipropetrovsk Clinical Unit of Ambulance of Dnipropetrovsk Regional Hall.

Result and discussions: Profound clinical, microbiological, immunohistochemical and chromatic mass spectrographic examination of patients with hemorrhaging stomach and duodenum has been carried out. In these patients increased activity of NO-synthase has been determined along increase of catecholamine and serotonin levels in blood serum. These changes are most expressed in cases of severe blood loss, unstable local endoscopic hemostasis with high risk level of relapsing hemorrhage. The received data enable to predict character of the course of a pathological process and improvement of the treatment program.

Conclusions: The manifested increase in catecholamine level is observed in cases of severe blood loss, endoscopic picture of unstable local hemostasis with high risk level of relapsing hemorrhage (in the area of defect clotted vessel is determined).

Linear dependence between i-NOS activity level in periulcer area and level of serotonin in blood serum is revealed - in case

of manifested activity from 39.5 ± 16.3 nmol/l at arrival at the inpatient department to 48.8 ± 15.3 nmol/l on the third day of treatment ($P < 0.05$).

The provided data enable to predict the course of pathological process and improve treatment program for patients suffering from hemorrhaging gastric-duodenal ulcer.

Keywords: ulcer of stomach and duodenum, relapse of gastric-duodenal hemorrhage, periulcer area.

Outcomes of balloon dilatation applying in the therapy of patients who have achalasia disease

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Background & Aims: The diagnosis of achalasia has been vague for hundred years. Also there has been dark in the etiology of this illness. The symptomatic evaluation of patients who have been achalasia focuses on frequency of regurgitation, dysphagia, weight loss, retrosternal pain and pressure. Achalasia is treated by either forceful balloon dilatation or surgical myotomy. Esophageal dilatation for achalasia involves the forceful disruption of the lower esophageal sphincter (LES). This is usually completed between 30- 40 mm diameter pneumatic balloon dilators. Balloon dilatation is the classical approach to the achalasia inceptation treatment. Different and new types of dilatation is also applied to rise in efficacy. We want to declare the outcomes of dilatation applying in achalasia patients.

Methods: Of 7 Patients who were diagnosed and underwent balloon dilatation over 2 years period were determined retrospectively. Dormicum has performed by intravenously for pre-medication before the application, Dilatation was performed according to the verge value of pain, while positioning of dilator has done in endoscopic control.

Results: We evaluated retrospectively the data of 7 patients with Achalasia during the years between March 2012 to August 2014. The mean age was 41.7 years (range 18 to 68). There were 4 (%57) males and 3 (% 43) female patients were diagnosed in this period. Better results were detected in 5 (%71) patients, however of 2(%29) patients lower result detected because of low tolerance rate and severe stenosis. There was no difference in dilatation efficacy regarding gender of the patients, however the results were better in the patients upper 40 years old. None of the patients had complicated. We have performed upper gastrointestinal system endoscopy repeated in 3 patients therefore healing and evaluation of width lumen. There have been no mortality determined in our cases.

Conclusions: Treatment of achalasia disease has various methods. Dilatation is one of the most effective processes therein. Balloon dilatation can be suggested for inceptation method due to high potency, feasible, shorter time stay in hospital after the process in advance clinics.

Which of your choice Laparoscopic or open surgery?: Comparison of outcomes in gastrectomy procedures

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Background: Gastric cancer, it remains a major health problem as the fifth most seen malignancy in today's world. Surgery is main objective in the treatment of gastric malignancy. Laparoscopic gastrectomy (LG) is feasible and applicable method for gastric surgery. The aim of our study was to evaluate the patients who had operated by laparoscopically gastrectomy retrospectively.

Methods: Of 25 patients were operated with gastric cancer laparoscopically between the years April 2012 to January 2015, of 11 (%44) patients operated by laparoscopy radical gastrectomy (LG) while 14 patients with conventional open gastrectomy also (OG) of 21 patients have performed with D2 dissection (DG). Endpoints are included by quality of oncological resection with regard to lymph nodes dissection, postoperative complications and mortality. We evaluated the society of patients by the criteria of morbidity, length of stay in hospital, operation time, bleeding blood volume and complications.

Results: There were 25 patients operated due to gastric cancer, gender of the patients were of 15 patients (%60) male and of 9 patients (%40) female. The mean age was 48.3 (range 26 to 82). When we compared the OG and LG groups operation period, bleeding volume are similar in both groups. The difference between the groups were especially in morbidity, length of stay in hospital and complications. In the OG group, these criteria rates were higher than the LG group because of long staying time and more exposure to infectious organism. Also in the group of DG morbidity rates were higher than the other groups due to width of dissection sites and precision. The number of lymph nodes of the OG group and LG group was similar (range 28 to 35) vs (range 31 to 38), and the difference was not significant ($P < 0.05$). There were some post-operative complications happened in the OG group like wound site infection, hernia, seroma on the other hand in LG group only port site infection has seen in the postoperative period. The individual rate of recurrence, metastasis and mortality of the LG group and OG group were evaluated by which the differences were not significant ($P < 0.05$).

Conclusion: Compared with open versus laparoscopic gastrectomy is safe and feasible with minimal incision site, less bleeding and better amelioration time. The rate of recurrence, metastasis and mortality are not remarkable increase in a short period.

A RARE AND PREMALIGNANT PATHOLOGY OF ESOPHAGUS: ESOPHAGEAL MELANOCYTOSIS

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Background: Esophageal melanocytosis (EM) is characterised by melanocytic cell proliferation and melanine cumulation at esophageal mucosa. Its etiology could not be fully cleared yet. In general, it is accepted as benign. Some authors reported them as precursor lesions of primary esophageal melanomas. They are rare and they are determined on 0.07% to 2% of gastrointestinal endoscopies. This presentation emphasizes cases with EM and the importance of the endoscopic follow-up of EM cases since they could be precursor lesions of esophageal melanomas.

Methods: EM diagnosed patients were evaluated retrospectively.

Results: Our first patient was 54 years old. In her endoscopy, linear melanosis regions between 20–30 cm on esophagus, reflow esophagitis, alkaline reflow pangastritis, duodenitis were determined. Our second patient was 53 years old. In her endoscopy, linear multiple melanosis regions between 25–30 cm on esophagus, reflow esophagitis, pangastritis, duodenitis were determined. In both cases, *Helicobacter pylori* urease test was (+). Biochemical and radiologic examinations were normal. EM was determined in histopathological examination. Treatment was given to the patients. In the control endoscopy after one year of the patients being followed, EM is determined to be continuing unchanged.

Conclusions: EM is a rare pathological incident seen on esophagus. It is diagnosed by endoscopic and pathologic examination. Although it is accepted as a benign case, in various publications it is indicated as a precursor lesion of primary esophageal melanomas. When such a pathology is met, regular endoscopic controls of the patients should be performed because of the possibility of malignity.

BRUNNERS GLAND HYPERPLASIA: OUR CASES AND FEATURES

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Background: Brunner's glands are located in the duodenum. Brunner glands' proliferations are defined under various names like Brunner gland hamartoma, Brunner gland hyperplasia (BGH), Brunner gland adenoma or Brunneroma. They were defined in 1935 by Cruveilhier for the first time. BGH is determined in 0.008% of all surgical operations and autopsies. Its etiology is not known exactly. But, it is thought to be created with gastric hyperacidity, local irritation. In this presentation, our cases in our clinic with the diagnosis BGH are reported.

Methods: Nine cases (4 male, 5 female) subjected to endoscopy and diagnosed with BGH between 2010–2014 have been evaluated retrospectively.

Results: Age range of the patients was 53.5 (aged between 30–85). The most frequent symptoms were abdomen ache, heartburn, nausea. Reflux esophagitis, chronic gastritis were found in

the endoscopy by all patients. Two patients had alkaline reflux gastritis, one patient had chronic atrophic gastritis. *Helicobacter pylori* in the stomach was (+) by seven patients. BGH was determined by five patients at duodenal bulb, by three patients at duodenum part II, by one patient both at bulb and part II. Glandular adenoma in form of polyp was determined by six patients, limited nodular hyperplasias by two patients and diffuse nodular hyperplasias by one patient.

Conclusions: BGH is rare and its symptoms are not specific. For treatment, endoscopic polypectomy can be applied to polypoid formed ones, antacid treatment may be given. Usually it is accepted as benign. Should be monitored with regard to the progress of the illness.

COOCCURENCE OF BENIGN GASTRIC EPITHELIAL POLYPS WITH HELICOBACTER PYLORI AND ALKALINE REFLUX GASTRITIS

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Background: Benign gastric epithelial polyps (BGEP) are determined by 2–6% of patients subjected to gastroscopy. BGEP are of hyperplastic (regenerative), adenomatous, hamartomatous, inflammatory and heterotopic types. Patients with BGEP diagnosis in our clinic and the characteristics of the polyps are presented in this study.

Methods: From the records in Surgical Endoscopy Unit between July 2011–December 2014, patients diagnosed with gastric polyp have been investigated retrospectively.

Results: BGEP was determined in 34 out of 1075 patients (3, 2 %) who were subjected to gastroscopy. Half of the patients were male and half female. Their average age was 54 and 29 of the patients (85 %) had a single polyp, 5 (15 %) had multiple polyps. The lesions were observed mostly in the antrum (22 patients, 65 %), fewest in the cardia (2 patients, 6 %). All of the patients had chronic gastritis. Atrophic gastritis was diagnosed by two of the patients, incomplete metaplasia by three of them. One of the polyps was pedunculated, the others were sessile. Patients 65 % were diagnosed with regenerative foveolar hyperplasia, 29 % with hyperplastic polyp, 9 % with hamartomatous fundic gland polyp, 53 % of the patients had *Helicobacter pylori* (HP), 44 % of them had alkaline reflux gastritis (ARG). For curing, polypectomy, HP and ARG treatments were applied.

Conclusions: In the publications it is reported that there is a relationship between HP infection and ARG and polyp development. Since it bears a risk of malignity, its monitoring and treatments are important.

Our patients by whom we determined benign sporadic non-ampullary duodenal polyp and their characteristics

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Background: Benign non-ampullary duodenal sporadic polyps (BNDSP) are determined by 0, 3–4, 6% of patients subjected to upper gastrointestinal endoscopy. They are thought to be created as a regenerative response to mucosal damage. BNDSP are of hyperplastic, adenomatous, hamartomatous, inflammatory and heterotopic types. Patients with a BNDSP diagnosis in our clinic and the characteristics of the polyps are presented in this study.

Methods: From the records in Surgical Endoscopy Unit between 2010–2014, patients diagnosed with BNDSP polyp have been investigated retrospectively.

Results: BNDSP was determined in 12 out of 1075 patients (1, 1%) who were subjected to endoscopy. Half of the patients were male and half female. Their average age was 55. Most were single polyps (67 %). The lesions were observed mostly in the bulbous (58%). Three of the polyps were pedunculated, the others were sessile. The largest polyp diameter was 25 mm the smallest polyp diameter was 2mm. Nine of the patients (75%) were diagnosed with brunner gland hyperplasia, two with adenomatous polyp, one with hyperplastic polyp. Six (50 %) of the patients had helicobacter pylori (HP), three (25%) of them had alkaline reflux gastritis (ARG). Focal dysplasia areas were determined on the polyp by two patients (17%). For curing, polypectomy, HP and ARG treatments were applied.

Conclusion: Endoscopic examination should be carried out by patients with dyspeptic symptoms, especially having the age over fifty. Since they bear risk of malignancy at varying rates, monitoring and treatment of duodenal polyps are important.

Relationship between Brunner Gland Hyperplasia and Helicobacter Pylori Infection

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Background: Brunner gland hyperplasia (BGH) was defined in 1935 by Cruveilhier for the first time. It is rare and constitutes 10.6 % of benign duodenal tumors. Generally, it is benign, however malign cases were also reported. Generally, it is resident at bulbous. Its etiology is not known exactly. But, it is thought that hyperchlorhydria and chronic local irritation is created. It is related with helicobacter pylori (HP) infection, chronic pancreatitis and chronic renal insufficiency. In this presentation, the relationship between BGH and HP determined in our clinic is investigated.

Methods: Between 2010–2014, 9 cases (4 male, 5 female) subjected to endoscopy and diagnosed with BGH have been investigated retrospectively.

Results: Age range of the patients was 53, 5. The most frequent symptoms were upper stomach ache, heartburn, nausea. Reflux esophagitis, chronic gastritis were found in the endoscopy by all patients. Two patients had alkaline reflux gastritis, one patient had chronic atrophic gastritis. BGH was determined by five patients at duodenal bulbous, by three patients at duodenum part II, by one patient both at bulbous and part II. In 78% of patients with HP (+) was found. Eradication treatment was given to the patients. The patients were followed.

Conclusions: BGH is rare and its symptoms are not specific. Mostly it is found out during endoscopy accidentally. Our result makes one think that simultaneous HP infection is common by patients with BGH. However, the role of HP infection in the BGH pathogenesis is still not known. More comprehensive studies are needed.

Surgical treatment and outcome in GISTs

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Background: GISTs represent almost 80% of all mesenchymal GI tumors. Generally they originate from GIT and are located in stomach (60%) or small intestine (30%); duodenum (4–5%), colon and rectum (4–6%), and in retroperitoneum as an exception. Both benign and malignant types are recognized.

Material and Results: Retrospective study on GISTs was performed - 41 patients with GIST who were surgically treated for the period of 2003 – 2014; male - 23 and female - 18; median age - 59. The tumor size varied between 3, 0 to 15, 0 cm., most commonly presented clinically with GI bleeding.

Surgery remains the standard treatment for GISTs. Complete en bloc surgical resection is the cornerstone of therapy, but rates of recurrence are significant - 5% in primary disease and 90% in locally advanced disease. Outcome was strongly dependent on tumor size and mitotic activity.

Incomplete surgical resection and metastatic disease indicate a dismal prognosis in the majority of patients.

Conclusion: The prognosis of patients with GISTs remains rather limited - small tumor size, low-grade mitotic index and stomach location are factors associated with a more favorable prognosis.

Five-year survival following surgical resection varies between 35% and 65% on the basis of several published studies.

A rare cause of chronic dysphagia: eosinophilic esophagitis

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Background: Eosinophilic esophagitis (EE) is attributable to environmental factors, allergens and several immunological causes. The most typical symptoms include dysphagia and sensation of food impingement in the retrosternal area. Although its clinical features resemble those of gastroesophageal reflux, proton pump inhibitors are not effective for its treatment. The diagnosis of EE is dependent on the pathological detection of eosinophilic infiltration in esophageal mucosa.

Methods: In this study, EE diagnosis of a patient were evaluated.

Results: We evaluated a patient who applied to our clinic with complaints of long-term difficulty in swallowing, sensation of food sticking while eating and weight loss the patient was diagnosed with EE, following biochemical, radiological, endoscopic and pathological assessments and was treated with steroids.

Conclusion: The result show that EE should be considered in the differential diagnosis of patients with dysphagia and food impingement in the retrosternal area, and the diagnosis should be confirmed through multiple esophageal biopsies.

Colorectal Surgery

Curcumin reversal multidrug resistance by reducing P-glycoprotein expression in colorectal cancer cell lines resistant to oxaliplatin

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Objective: To investigate the reversal multidrug resistance effects of curcumin on human colorectal cancer cell lines resistant to oxaliplatin and whether its mechanism is involved in downregulation of the expression of P-glycoprotein (P-gp).

Methods: The IC₅₀ values (50% cell growth inhibitory concentrations) of curcumin to the two colorectal cancer cell lines resistant to oxaliplatin (SW480/OxR and SW620/OxR) were obtained by WST-1 reagent, which is one kind of cell proliferation assay. Later experiments included in the experimental group and the control group. In the experimental group, the two kinds of drug-resistant cells were exposed to the previous experiment IC₅₀ concentrations of curcumin plus 2 μ M oxaliplatin for 48h, while in the control group, the two kinds of drug-resistant cells

were cultured in medium containing in 2 μ M oxaliplatin. In the two groups of the two kinds of drug-resistant cells: apoptosis was detected by flow cytometry; the mRNA expression levels of MDR-1 were detected by real-time PCR and the percentage of P-gp positive cells was disclosed by indirect method of flow cytometry.

Results: In the control group, the apoptosis rate of SW480/OxR and SW620/OxR cells were respectively (4.23 \pm 1.65) % and (5.08 \pm 1.82) %, while the apoptosis rate of the two drug-resistant cells in their experimental group respectively rose to (32.15 \pm 3.98) % and (30.69 \pm 2.94) %. The apoptosis rate of two drug-resistant cells in the experimental group were significantly higher than that of their control group (P <0.05). In the experimental groups, the mRNA expression of MDR-1 of the two drug-resistant cells decreased more than 50% (P <0.05), and the percentage of positive cells of P-gp protein were significantly decreased (P <0.05), when compared with that in their control group.

Conclusions: Curcumin can reverse drug resistance in colorectal cancer cell lines resistant to oxaliplatin, its effect may be associated with lowered P-gp expression.

Keywords: colorectal cancer; multi-drug resistance; curcumin; P-glycoprotein

Da vinci robotic resection of rectal cancer without incision

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Background: Conventional rectal cancer resection requires a incision for taking out the tumor, which can bring incision pain, incisional hernia, incision infection, incision metastasis. We performed an innovative technique, Da Vinci robotic without incision radical resection of rectal cancer. This study investigated the feasibility and safety of this technique.

Methods: From October 2013 to October 2014, 10 rectal cancer cases were performed with Da Vinci robotic surgery without incision. The stapler was placed into peritoneal cavity via trocar and into the intestine through the notch on the predetermined part of the sigmoid colon. The tumor and Distal colon were pulled out via the anus, then cut off. The stump was put back into the abdominal cavity for the anastomosis.

Results: Da Vinci robotic resection of rectal cancer without incision was completed successfully in all the cases without conversion. The surgery time was 208 \pm 48.7 min. Intraoperative blood lost was 121 \pm 45.8 ml. Postoperative exhaust time was 38.7 \pm 16.0h. Postoperative hospital stay was 6 to 26d with a mean of 10d. The follow up time was from 2 to 13 months. No local recurrence and distant metastasis were found.

Conclusions: Da Vinci robotic resection of rectal cancer without incision is safe and effective, and is worth to recommend and spread.

Ligation of intersphincteric fistula tract (LIFT) versus LIFT-plug procedure in patients with transsphincteric anal fistula: a multicenter prospective randomized trial

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Purpose: There are various surgical techniques used to treat anal fistulas. Ligation of the intersphincteric fistula tract (LIFT) is a recently reported procedure that has shown improved outcomes of transsphincteric anal fistula. Ligation of the intersphincteric fistula tract plus a bioprosthetic anal fistula plug (LIFT-plug) is also an effective and useful alternative in the management of anal fistula. The purpose of this study was to compare the LIFT with LIFT-plug in the treatment of transsphincteric anal fistulas.

Methods: We designed a prospective, randomized, multicenter, controlled trial (NCT01478139) to compare LIFT versus LIFT-plug in patients with transsphincteric anal fistula at 5 centers in China. The primary outcome measured was the primary healing rate at six months postoperatively and healing time. Secondary outcomes included recurrence rate, post-operative pain, and incontinence rate.

Results: A total of 235 patients were randomly assigned to undergo LIFT (118 patients) or LIFT-plug (117 patients) between March 2011 and April 2013. The mean age was 36.2 years in the LIFT group versus 35.88 in the LIFT-plug group ($P=0.81$). The mean intraoperative blood loss was 11.83 ± 10.21 ml in the LIFT group and 11.83 ± 11.36 ml in the LIFT-plug group ($P=0.99$). The mean operating time was significantly longer in the LIFT-plug group than in the LIFT group (28.46 vs 26.71, $P=0.0281$). Median healing time was 22 days in the LIFT-plug group and 30 days in the LIFT group ($P<0.001$). The primary healing rate was significantly higher in the LIFT-plug group than in the LIFT group (96.43% vs 84.11%, $P<0.001$) at 180 days postoperatively (Figure 1). The visual analogue scale (VAS) pain score was significantly lower in the LIFT-plug group than in the LIFT group at 2 days (2.77 vs 3.19, $P=0.02$) and 3 days (2.20 vs 2.65, $P=0.01$) postoperatively, and no differences were found from 4 days to 180 days postoperatively. There was no difference in the Wexner score between the two groups. No recurrence was found within the follow-up period of 180 days.

Conclusions: In patients with transsphincteric anal fistulas, both LIFT and LIFT-plug have high healing rates and a similar continence. However, LIFT-plug has the advantage of higher healing rate, less healing time, and lower early postoperative VAS pain score.

Regulation of Vascular Endothelial Growth Factor (VEGF) Production and Malignancy by miR-1 in Colorectal Cancer Cell Lines

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Purpose: The VEGF family, a family of important regulators of angiogenesis, mediates the growth and migration of carcinomas in a paracrine/autocrine manner. miR-1, associated with various human malignancies, is predicted to target VEGF. The aim of this study is to test the hypothesis that the VEGF pathway is regulated by miR-1 and whether miR-1 could modulate the biological behaviors of colorectal cancer cells.

Methods: We measured the expression of miR-1 in 111 colorectal cancer cases and their paired normal tissues by quantitative real-time PCR, and evaluated the correlation between miR-1 expression and clinical characteristics of colorectal cancer. Bioinformatics analysis, RT-PCR and ELISA were carried out to confirm that VEGF is a direct target of miR-1. Functional effects of miR-1 on colorectal cancer cells were also studied by migration assay, invasion assay, CCK-8 assay, cell growth curve, and flow cytometry.

Results: miR-1 was significantly down-regulated in both colorectal cancer tissues and cells. ($P<0.001$). The expression level of miR-1 was inversely correlated with tumor size, differentiation, lymph node metastasis, and TNM stage. Overexpression of miR-1 inhibits colorectal cancer cell migration and invasion, reduces cell proliferation and limits the percentage of cells in S and G2 phases. miR-1 downregulation of VEGF expression was also confirmed in vivo and in vitro. We also confirmed the previous finding that VEGF was overexpressed in colorectal cancer tissues.

Conclusions: Our results indicate that miR-1 plays an oncogenic role in colorectal cancer, and concomitant downregulation of miR-1 and increase of VEGF contribute to the metastasis and proliferation of colorectal cancer.

Keywords: Colorectal cancer; miR-1; VEGF; Oncosuppressive

Short-term outcome of tumor-specific extralevator abdominoperineal excision (TS-ELAPE) for rectal cancer

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Purpose: Extralevator abdominoperineal excision (ELAPE) has become increasingly used due to some evidence of improved oncological outcome. The procedure may however, increase postoperative morbidity, such as chronic perineal pain, perineal wound infection, urinary retention, perineal herniation and sexual dysfunction. The introduction of tumor-specific ELAPE (TS-ELAPE) might minimize the operative trauma and the damage to the nerves of the genital organs. The purpose of this study is to evaluate the safety and efficacy of TS-ELAPE for locally advanced low rectal cancer.

Methods: The TS-ELAPE surgical procedure was performed according to individual tumor conditions. For the rectal tumors

suitable for ELAPE, most were circular or nearly circular infiltrating tumors. Patients with these rectal tumors should receive conventional ELAPE resection. In those rectal tumors not involving the levator muscle, the dissection plane may continue close to the external anal sphincter and the levator muscle, leaving the ischioanal fat and the terminal branches of the pudendal nerve intact. If the tumor penetrates into the levator muscle, the dissection should include the fat of the ischioanal fossa to achieve a clear CRM (Fig. 1A). If the tumor has only penetrated into one side of the levator muscle, the dissection might include the levator ani muscle and the fat of the ischioanal fossa on the side of the tumor to achieve a clear CRM, whereas the ischioanal fat and levator ani muscle on the other side of the tumor may be left (Fig. 1B).

Results: From June 2011 to May 2013, 21 patients with locally advanced low rectal cancer underwent TS-ELAPE. There were 13 male and 8 female, aged from 32 to 76 years with a median of 60 years. During the study, 14 patients were treated with one side levator muscle totally or partially reserved, 5 patients with sacrococcyx reserved, and 2 patients with dissection close to the anterior rectal wall. The median operating time was 210 (150–300) min, and median intraoperative blood loss was 150 (100–600) ml. The common complications included sexual dysfunction (3/18, 16.7%), perineal complications (3/21, 14.3%), urinary retention (2/21, 9.5%), and chronic perineal pain (3/21, 14.3%). A positive circumferential margin was demonstrated in 2 (9.5%) patients, and intraoperative perforations occurred in 1 (4.8%) patient. The local recurrence was 4.9% at a median follow-up of 31 months (range, 18–38 months).

Conclusions: TS-ELAPE is a relatively safe approach with acceptable circumferential resection margin involvement, intraoperative perforations, and local recurrences. It has the potential to reduce the risk of complications without influencing the radical effect for the treatment of low rectal cancer.

Study on the correlation between expressions of EpCAM and wnt/ β -catenin pathways in human colon cancers and its mechanism

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Objective: To explore the correlation between expressions of EpCAM and wnt / β -catenin pathways in human colon cancers and its clinical significance in prognosis evaluation.

Methods: 50 samples separately from colon cancer tissues, para-carcinoma tissues or benign intestinal tissues and 20 samples from normal intestinal mucosal tissues were collected from the pathology department. The immunohistochemical techniques were used to detect the expression levels of EpCAM and β -catenin in these tissues. The patients were followed up and their prognoses were evaluated. On this basis, the corresponding *in vitro* experiments on mechanisms were carried out to observe the regulatory effect of EpCAM expression in the silenced human colon cancer cell line on the wnt / β -catenin pathway.

Results: Expressions of EpCAM and β -catenin were higher in cancer tissues compared with other tissues. The prognostic anal-

ysis showed that the higher the expressions of EpCAM and wnt / β -catenin were, the worse the prognoses of the patients were. The further study of cellular mechanisms confirmed that the silencing of EpCAM can lead to decreased expression of wnt/ β -catenin, and thus reduce the proliferative activities and increase the apoptosis ratio.

Conclusion: The expressions of EpCAM and wnt/ β -catenin in colon cancers were positively correlated. Suppression of EpCAM might be a new target for treating colon cancer.

Keywords: EpCAM wnt/ β -catenin, colon cancer

The Influence of Anastomotic Leakage on long-term Survival after Resection for Rectal Cancer

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Objective: The aim of the study was to analyze the correlation between anastomotic leakage (AL) and long-term survival after resection for rectal cancer.

Methods: This study is a retrospective analysis of 653 cases of R0 resection surgical treatment for rectal cancer in the department of Colorectal Surgery in Fujian Medical University Union Hospital from January 2007 to December 2011.

Results: A total of 653 patients underwent curative rectal cancer resections. The total number of patients was 40 with AL, and 613 without AL. 5 year disease-free survival, 5 year distant metastasis, 5 year local recurrence have no significant difference between patients with and without AL [74.5% vs 78.1% ($P=0.808$), 20.1% vs 14.2% ($P=0.965$) and 8.4% vs 4.2% ($P=0.309$)]. Multivariate analysis showed AL isn't an independent factor of 5 year disease-free survival. There are 507 cases needed postoperative adjuvant chemotherapy. AL prolonged the interval between operation and the first time postoperative chemotherapy (38.17 ± 15.404 d vs 29.55 ± 9.824 d, $P < 0.001$), but only 4 cases exceed 56 d. The rates of the patients finishing postoperative chemotherapy between the two groups were not significant (79.4% vs 76.3%, $P=0.681$).

Conclusions: AL is not an independent predictor of long-term survival for rectal cancer. Actively treating for AL and performing postoperative chemotherapy in time may potentially avoid poor prognosis of AL after resection of rectal cancer.

Keywords: rectal cancer; anastomotic leakage; postoperative adjuvant chemotherapy; prognostic

Prognostic analysis of extracapsular spread of lymph node for colorectal liver metastasis

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Objective: To evaluate prognosis of extracapsular spread (ECS) of lymph node for metastatic colorectal cancer (CRC) following liver resection.

Methods: Retrospective analysis of 75 patients with CRC following liver resection from the first affiliated hospital of Xin-

jiang medical university between January 2002 and December 2012, All of those preoperative, intraoperative and postoperative data were retrospectively reviewed. All resected lymph nodes from primary CRC were re-examined to assess ECS. Associations between clinicopathologic factors and survival, affecting the prognosis for single factor and multiple factors analysis through the long-rank test and Cox model related factors.

Results: (1) In 78 colorectal cancer with liver metastasis after liver resection patients, 39 cases with external invasion, lymph node capsule, 21 cases with multiple liver metastases, 30 cases of liver metastases diameter ≥ 2 cm, 34 cases of liver resection range of cutting edge ≥ 1 cm, there was no statistically significant difference between lymph node metastasis positive and negative. (2) 39 cases outside invasion lymph node capsule, the sex ratio of 1.05: 1, 26 cases occurred in the colon, 21 cases of liver metastasis at the same time, the outside invasion and lymph node capsule of gender, age, primary focal site, size, infiltration depth, the degree of liver metastasis, liver metastases diameter has nothing to do, but the time with liver metastasis ($P=0.037$), the number of lymph node metastasis ($P=0.001$), the number of liver metastases ($P=0.000$). (3) The median survival time of colorectal liver metastases after liver resection in patients is 16(4-84) months, lymph node metastasis negative patients is 54(22-84) months, external transfer negative lymph node capsule is 19(16-22) months, outside transfer with positive lymph node capsule is 11(4-22) months, three groups are statistically significant difference ($\chi^2=98.699$, $P<0.01$). (4) Numbers of lymph nodes ($P=0.021$), lymph node capsule invasion ($P=0.002$), preoperative adjuvant chemotherapy after surgery ($P=0.000$) statistically significant difference ($P<0.05$) as the important prognostic factors. Number of lymph nodes outside invasion, lymph node capsule are independent factors influencing prognosis of liver metastases resection

Conclusion: ECS in regional lymph node is a poor prognostic factors after liver resection for CRC.

Keywords: Colorectal cancer; extracapsular spread of lymph node ;prognostic analysis

The optimization of establish a colon cancer xenograft model

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Objective: To establish a colon cancer xenograft model through the packet filtering optimum conditions.

Methods: According to different cell media and the injection site, the HT29 human colon cancer cell lines were washed with PBS and resuspended in serum-free medium after injection in BALB / C mice armpit and neck skin, build first-generation xenograft model, as a xenograft source, using interpolation block method, and homogenized enzymatic method, a second-generation xenograft model, choose the most preferred method of screening after the establishment of the third generation of subcutaneous xenograft model, by observing tumor growth conditions and metastasis, histopathology, immunohistochemistry, flow cytometry to detect transplanted tumor.

Results: The success of established operability, high repeatability colon cancer xenograft model. Observed tumor biopsy showed that the tumor was adenocarcinoma I ~ II grade. Immu-

nohistochemistry showed positive expression of CK19 and P53. Flow cytometry analysis of DNA ploidy check aneuploid.

Conclusion: In this study, we successfully established a proper screening and colon cancer xenograft model use human colon cancer cell line HT29 with BALB/C mice, and provides a good technical platform for the next step in the biological research of colon cancer metastasis model.

Keywords: colon cancer; HT29; xenograft; animal model

Analysis of the comparison of the efficacy between 2D and 3D laparoscopic treatment of rectal cancer

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Objective: Compare the applications of three-dimensional imaging system (3D) and two-dimensional imaging system (2D) in laparoscopic rectal cancer surgery, explore the efficacy of 3D laparoscopic in the treatment of rectal cancer.

Methods: A retrospective analysis between clinical data of the 47 patients who underwent 3D laparoscopic radical resection of rectal cancer (Dikson) and 50 patients who underwent traditional 2D laparoscopic radical resection of rectal cancer (Dikson), from May 2014 to December 2014 in the Department of General Surgery, the China Japan Union Hospital of Jilin University. Compare the time to complete lymph node dissection (deep lymph nodes), the total number of deep lymph nodes, the total time of operation, the bleeding though the deep lymph node dissection, the average length of stay, and postoperative survival between two groups.

Results: Both groups successfully completed the laparoscopic colorectal cancer resection without any laparotomy. The total operation time: 3D group 215 ± 35 min VS 2D group 231.5 ± 36.5 min ($P<0.05$); deep lymph node dissection time: 3D group 24.5 ± 2.5 min VS 2D group 26.0 ± 3.0 min ($P<0.05$); the total number of lymph node dissection: 3D group of 23 ± 5 VS 2D group 21 ± 8 ($P<0.05$); the bleeding though the deep lymph node dissection: 3D group 14.5 ± 1.5 ml VS 2D group 16.5 ± 2.5 ml ($P<0.05$); after more than 2 years of follow-up, 4 cases of 3D group and 7 cases of 2D group had no tumor recurrence and death.

Conclusion: 3D laparoscopic rectal cancer surgery can shorten the time and reduce blood loss, tissue damage, and more conducive to doing the deep lymph node dissection.

Keywords: 3D; 2D; laparoscopic; rectal cancer resection

Anterior resection yields better clinical outcomes than abdominoperineal resection in patients with rectal cancer – a study based on T stage and lymph nodes metastatic status

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Objective: To compare clinicopathological and survival parameters between rectal cancer patients underwent APR (abdominoperineal resection) procedure and AR (anterior resection) procedure, explore the crucial factors affecting the prognosis.

Methods: 309 cases of rectal cancer were collected retrospectively in Peking University People's Hospital from January of 1998 to December of 2012. Operating time, blood loss, surgery and non-surgery related complication, lymph nodes harvested, evacuation time, defecation time, first eating time and draining volume were compared between APR group and AR group; local recurrence, overall survival (OS) and progression free survival (PFS) were also investigated between two groups, subgroup analysis were performed further based on T stage, N stage, distance from the anus verge and BMI.

Results: The operating time ($P=0.005$), blood loss ($P=0.001$), drainage volume ($P=0.002$) of APR group were significantly longer than that of AR group. There was no statistical difference of local recurrence between two groups, but the local recurrence rate of T3-T4 patients underwent APR procedure was higher than that of AR group ($P=0.038$), especially in the patients of tumor located at 5-6cm from the anus verge. There was no difference of OS ($P=0.273$) and PFS ($P=0.589$) between two groups, but both OS and PFS of T3-T4 patients with BMI \geq 24 underwent APR procedure were significantly worse than those of patients underwent AR procedure.

Conclusion: Tumor located at 4-6cm from the anus verge, T3-T4 stage, obese might play an important role in the worse prognosis of the patients underwent APR procedure.

Assessing new prognostic preoperative significance of carcinoembryonic antigen in colorectal cancer: more than positive and negative

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Purposes: Evaluating the prognostic significance of CEA for colorectal patient (CRC) survival with new cutoff levels.

Methods: 370 cases of CRC patients receiving tumor resection from the 1st affiliated hospital of Sun Yat-sen University were retrospectively investigated as training cohort between 2000 and 2008. Preoperative CEA levels were categorized into quintiles for Kaplan-Meier analysis and multivariable Cox proportional hazards regression models. Validation of the quintile cut points was performed in 1164 cases CRC patients from the 6st affiliated hospital of Sun Yat-sen University between 2007 and 2013.

Results: CEA were categorized into quintiles with the cut points of (1-1.5) ng/ml, (1, 5-2.3) ng/ml, (2.3-3.98) ng/ml, (3.98-8.02) ng/ml, (8.02-Maximim) ng/ml. In CRC patients from training cohort, progressively worse outcomes were observed in each increasing quintile of CEA in term of overall survival (Log-rank Test: $P<0.0001$, Log-rank Test for Trend: $P<0.0001$) and progression free survival (Log-rank Test: $P=0.0002$, Log-rank Test for Trend: $P<0.0001$). CEA quintiles was associated with overall survival (HR: 1.368, 95%CI: 1.187-1.577, $P<0.001$) and progression free survival (HR: 1.238, 95%CI: 1.067-1.436, $P=0.005$). Validation analysis also showed increasing CEA quintiles possesses unfavorable overall survival (Log-rank Test: $P<0.0001$, Log-rank

Test for Trend: $P<0.0001$) and progression free survival (Log-rank Test: $P<0.0001$, Log-rank Test for Trend: $P<0.0001$). CEA quintiles was associated with overall survival (HR: 1.556, 95%CI: 1.340-1.808, $P<0.001$) and progression free survival (HR: 1.369, 95%CI: 1.233-1.520, $P<0.001$).

Conclusions: Preoperative CEA quintile is an independent predictor of unfavorable prognosis in CRC. Even within normal range with low levels, CEA quintiles may impact prognosis outcomes of CRC.

Association between IGFBP7 gene polymorphisms and risk of colorectal cancer

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Objective: To discuss the correlation of single nucleotide polymorphisms (SNPs) of IGFBP7 gene rs11133472 and rs1718848 with the onset of colorectal cancer (Colorectal Cancer, CRC) in a Chinese case-control collection.

Methods: The primary study consisted of 343 subjects, including 132 controls of healthy people, 143 cases of colorectal cancer patients, and 60 cases with colon cancer patients. Genomic DNA was extracted from venous blood leukocytes. Two SNPs loci alleles and genotypes of IGFBP7 gene rs11133472 and rs1718848 were analyzed by The Polymerase Chain Reaction-ligase detection Reaction (PCR-LDR) method.

Results: Genotype distribution frequency of IGFBP7-rs11133472A/G and IGFBP7-rs1718848A/G obeyed the Hardy-Weinberg equilibrium in the control group ($P>0.05$). In colorectal cancer group compared with the control group, there was statistically significant of rs11133472 locus A/G, G/G and G/A genotypes ($P<0.05$). In colon cancer group compared with the control group, there was statistically significant of rs1718848 locus A/G, G/G and G/A genotypes ($P<0.05$).

Conclusions: It found significant evidence of SNPs of IGFBP7 gene rs11133472 and rs1718848 association with risk of CRC. The genotypes of rs11133472A/G and rs1718848A/G may increase the risk of colorectal cancer compared with the genotypes of rs11133472G/G and rs1718848G/G. IGFBP7 gene rs11133472 and rs1718848 may be new biomarkers of colorectal cancer susceptibility.

Totally laparoscopic middle rectum resection with transanal specimen extraction: a technique like NOTES

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Purposes: To evaluate the feasibility, safety and short-term outcomes from technical aspects of transanal specimen extraction in middle rectum resections.

Methods: Sixteen consecutive patients with rectal tumor underwent laparoscopic rectectomy and transanal specimen extraction over a period of one-year. All the patients were satisfied with inclusion criteria of this approach. Intraoperative data as well as short-term outcomes were evaluated respectively.

Results: The laparoscopic rectum resection with transanal specimen extraction was successfully carried out in all of the sixteen patients without intraoperative conversion and additional access. Mean operation time was 185 min (range 130–255 min), mean blood loss was 26.4 ml (range 5–120 ml), Mean postoperative exhaust time was 33.4 hours (range 16–60 hours), mean length of hospital stay was 9.6 days (range 8–19 days). One patient was detected anastomotic leakage postoperatively which was dealt with antibiotic course and daily pelvic cavity flush. No infection-related complications and anal incontinence were observed. Mean size of the tumor was 2.0 cm (range from 1.6–3.2 cm), mean number of harvested lymph nodes was 17.7 (range 6–31), mean follow-up time was 6.5 months (range 2–10 months). No signs of recurrence of all these patients were found till to the last follow-up.

Conclusion: The combination of standard laparoscopic rectectomy and transanal specimen extraction could be a well-established strategy and may be considered as an alternative procedure of conventional laparoscopic rectectomy.

Keywords: Transanal specimen extraction, Laparoscopic rectum resection, NOTES (natural-orifice transluminal endoscopic surgery)

Surgical management of radiation-induced rectovaginal fistula: a single institution experience

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Background: Radiation-induced rectovaginal fistula (RVF) represents a therapeutic challenge, few of the previous studies have reported the effect of different approaches on patient satisfaction and quality of life (QOL). The aim of this study was to review our experience, which consists of pull-through resection with coloanal anastomosis (modified Parks' operation) and diversion alone.

Methods: A retrospective analysis was performed of women with radiation-induced RVF who were surgically treated between July 2007 and October 2013. Telephone follow-up was conducted to establish satisfaction and quality of life (assessed by the EORTC QLQ-C30).

Results: Fecal diversion alone was performed in 14 patients, with modified Parks' operation in 8. The mean follow-up was 20.0 months (3.0–44.0) and 17.5 months (3.0–59.0), respectively. For the Parks group, one patient (12.5%) developed an anastomotic leakage (AL) and retrorectal abscess, and another patient (12.5%) developed asymptomatic AL. Three patients (37.5%) developed benign anastomotic stricture. Based on the QLQ-C30, both

groups had significant improvement in global health, physical, role, emotional and social functional domains, fatigue and appetite loss symptomatic domains. However, only patients undergoing modified Parks' operation showed significant improvement in pain. The patient satisfaction rate was 12.5%, 71.4%, 100%, 100% at Month 3, 6, 12, 24 respectively for Parks group, and 80%, 80%, 66.7% and 33.3% for diversion alone group.

Conclusions: In the selected group of patients, modified Parks' operation is a safe procedure to provide patients with a good quality of life and offer freedom from symptoms which cannot be eliminated completely by fecal diversion alone.

Keywords: radiation induced intestinal injury, rectovaginal fistula, surgical management, diversion, quality of life.

Therapeutic effect observation of abdominal administration of pseudomonas aeruginosa preparation during the operation of colorectal cancer

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Objective: Investigate the safety of abdominal local administration of pseudomonas aeruginosa preparation during operation of colorectal cancer. And observe the therapeutic effect after operation.

Methods: 119 patients with colorectal cancer taking operation alone in our hospital were selected as control. 96 patients which were treated by pseudomonas aeruginosa preparation in abdominal cavity during operation were chosen as the intervention group. Investigate the change of body temperature, recovery rate of the intestinal functions, peritoneal drainage volume after operation. Chose the patients in Dukes C and Dukes D stage among the two groups to follow up and took retrospective analysis.

Results: Observed and recorded the incidence of adverse reaction within 3 days after operation. Incidence rate of body temperature over 37.5 °C: control group was 54.62 % while the intervention group was 56.25 % ($P > 0.05$). Recovery of the intestinal functions: control group was 49.59 % and the treated group was 51.04 %. Volume of peritoneal drainage more than 50 ml: control group was 18.49 % compared with treated group was 16.67 %. Growth of white blood cell: control group was 26.05 % and treated group was 26.04 %. Survival curve analysis showed that median survival time of the treatment group was higher than control group ($P > 0.05$) for stage III, IV patients. For patients in stage III, 3 year-survival-rate and 5-year-survival-rate of treatment group were 68.3 %/39.0 % compared with control group which were 51.1 %/25.5 % ($P > 0.05$). For patients in stage IV, there was no significantly difference between the two groups in survival rates.

Conclusion: The treatment of pseudomonas aeruginosa preparation administered in abdominal cavity is safe and feasible. But it does not have significant effect on long-term survival rate.

Keyword: Colorectal cancer, Abdominal cavity, Pseudomonas aeruginosa preparation

A comparative surgical study of hand-assisted laparoscopic and laparoscopic in recently clinical therapeutic of colorectal neoplasms

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Objective: To compare the recently clinical therapeutic effect of hand-assisted laparoscopic and pure laparoscopic surgery in colorectal tumors. Otherwise we evaluated the safety of hand-assisted laparoscopic in curing the colorectal tumors.

Methods: Retrospectively chose 79 patients with colorectal tumors from November 2011 to April 2014 in Second Affiliated Hospital of Harbin Medical University. The number of patients who received the Abdominal laparoscopic colectomy is 41, the number of hand-assisted laparoscopic colectomy is 38. According to two kinds of surgical procedures into Abdominal laparoscopic group (LAC group) and hand-assisted laparoscopic group (HALS group). By retrospective analysis, compared the general information of two groups of patients including age, sex, tumor location, tumor histological type, stage, ASA grade, BMI index; surgery information, including operative time, anesthesia time, blood loss, laparotomy rate, specimens incision length, Trocar numbers, etc; postoperative data including exhaust after the first time, postoperative hospital stay, cost of hospitalization, postoperative complications, etc.

Results: there is a difference between HALS group and LAC group in operative time, anesthesia time, blood loss, Trocar used numbers, specimens incision length ($P < 0.05$). But the difference of postoperative hospital stay, cost of hospitalization, postoperative complications have no significant ($P > 0.05$).

Conclusion: The result of comparing the two types of surgical procedures in colorectal tumors, hand-assisted laparoscopic and pure Abdominal laparoscopic, HALS has many advantages like the shorter operative time, less invasive, quick recovery, hand-assisted laparoscopic is a safe, effective and reliable technology.

Keywords: Hand-assisted laparoscopic; Colorectal neoplasms; Minimally Invasive Surgery; retrospectively analysis

Significance of CEA and CA19-9 Combination as a Prognostic Indicator in Patients with Stage II Colorectal Cancer

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Background: Object: The purpose of this study was to evaluate the significance of the combination of the carcinoembryonic antigen (CEA) and carbohydrate antigen 19-9 (CA19-9) levels as a prognostic indicator after potentially curative surgery for patients with stage II colorectal cancer.

Patients and Methods: A total of 285 patients with stage II colorectal cancer who underwent potentially curative surgery were enrolled in the study. A high CEA level was defined as a level exceeding 5ng/ml and a high CA19-9 level was defined as a level exceeding 37U/ml.

Results: Out of these 285 patients, 99 (42.60%) patients had high CEA levels, 25 (8.77%) patients had high CA19-9 levels and 12 (4.21%) patients had both high CEA and CA19-9 levels. The overall survival rates were significantly worse in patients with both a high CEA level and high CA19-9 level.

Conclusion: The combination of preoperative CEA and CA19-9 levels was useful for predicting the prognosis after potentially curative surgery in patients with stage II colorectal cancer.

Keywords: CEA; CA19-9; Stage II; colorectal cancer; prognosis

Assessments of 100 cases of radical resection of rectal cancer with outside transverse inner longitudinal incision

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Object: With lower abdominal external transverse inner longitudinal incision for radical resection of rectal cancer, explore the approach for radical resection of rectal cancer of safety, effectiveness, advantages, limitations, the operability and extensibility.

Methods: 100 cases of abdominal external transverse inner longitudinal incision radical resection of rectal cancer patients and longitudinal incision into the abdomen of radical resection of rectal cancer of 100 patients as control group. Evaluation of operation time, blood loss, length of incision, the number of lymph node dissection and wound complications and lower extremity venous embolism and hypostatic pneumonia incidence rate of postoperative complications, classification of NRS method for evaluation of postoperative pain, SPSS13.0 statistical analysis software to compare the difference between the two groups.

Results: There were no statistical differences in the lower abdomen outer transverse longitudinal incision for radical resection of rectal cancer and longitudinal incision in comparison with the number of lymph node dissection, operation time, blood loss, postoperative anastomotic leakage and other aspects; the total outer transverse inner longitudinal incision related complications rate was 5% lower than the longitudinal incision occurred in 21% ($P < 0.05$); external transverse internal longitudinal incision in patients with postoperative ambulation time (16.4 ± 1.1) h earlier than the longitudinal incision (23.5 ± 1.3) h; length of incision, the outer transverse inner longitudinal incision for an average of (10.8 ± 0.8) cm is shorter than the longitudinal incision (17.5 ± 1.2) cm ($P < 0.01$), the outer transverse inner longitudinal incision after the pain NRS score was (4.5 ± 0.9) lighter than the longitudinal incision (7.8 ± 0.7).

Conclusion: Abdominal external transverse inner longitudinal incision for radical resection of rectal cancer reached the open operation of minimally invasive, cosmetic and functional, individualized treatment effect, lower abdominal external transverse inner longitudinal incision in radical resection of rectal cancer and strong operability, worthy of popularization and development, has a good application prospect.

Keywords: Outside transverse inner longitudinal incision, Rectal cancer, Radical resection

The application of superior rectal artery “vascular bridge” technology in rectal cancer radical resection Operation

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Objective: Discuss the feasibility and application value of “the superior rectal artery vascular bridge” technique in radical resection of rectal cancer in.

Methods: Select 3 cases with length limited identification of digestive tract reconstruction bowel intraoperative. Dissection of lymph nodes method is adopted when the inferior mesenteric artery vascular sheath in ligation. Superior rectal artery was naked to sigmoid artery bifurcation ligation above the superior rectal artery, so that the retention of rectum artery and its subordinate vascular arch and the sigmoid colon anastomosis to bow to the edge, with superior rectal artery “vascular bridging” purposes, in order to ensure the bowel proximal to the anastomosis of blood supply.

Results: 3 cases of radical resection of rectal carcinoma were successful application of superior rectal artery “vascular bridge” in the operation without anastomotic leakage.

Conclusion: Superior rectal artery bridging technology in radical operation of rectal cancer is feasible and safe in operation, which can effectively solve the mesenteric blood vessel edge bow discontinuous risk of anastomotic blood supply disorder of digestive tract reconstruction, increase the rate of anal preserving operation.

Keywords: The superior rectal artery; vascular bridging; radical resection of rectal carcinoma

knockout CRMP-4 inhibits the proliferation of SW480 cells

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Objective: This experiment is to study CRMP-4 expression in the colon cancer, and by using lentivirus-mediated knockout CRMP-4 transfect SW480 cells and then transduct into nude mice, to clarify their relationship and provide new ideas for the diagnosis and treatment of colon cancer.

Methods: Collecting clinical specimens of colon cancer, using western blot (WB) and immunohistochemistry (IHC) to detect CRMP-4 expression; Building lentivirus vector CRMP-4 knockout SW480 cell lines, using WB and RT-PCR detect the inhibition effectiveness, using methylase thiazole blue colorimetry (examined by MTT) and BrdU incorporation of colorimetry to detect cell proliferation; Planting the stable interference tumor cell lines into nude mice, observe the tumor growth.

Results: CRMP-4 is obviously up-regulated in cancerous tissue, compare to noncancerous tissue; the stable knockout CRMP-4 can clearly inhibit SW480 cells proliferation; It also can significantly inhibit tumor growth.

Conclusions: CRMP-4 expression is associated with colon cancer, plays an important role in the development of the occurrence of colon cancer, it may be a potential site of targeting therapy.

Keywords: colon cancer; CRMP-4; SW480 cells; proliferation

Clinical Analysis of Hartmann's Procedure in the Treatment of Colorectal cancer

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Objective: To investigate the clinical effects of Hartmann's surgical treatment of colorectal cancer.

Methods: 63 cases colorectal cancer with the treatment of Hartmann operation from June 2006 to December 2013 were retrospectively analyzed to assess the clinical effects of Hartmann's procedure in the treatment of colorectal cancer.

Results: 63 patients were successfully performed Hartmann's operation, 50 as an elective and 13 as an emergency procedure. The average operative time was 170 min, the average volume of intra-operative blood loss was 90ml, the average hospitalization time was 16d. Postoperative complications within 30 days occurred in 17 cases (26.98%), where 6 cases (9.52%) the surgical infection, 1 case (1.59%) stoma infection, 1 case (1.59%) colon stump infection, 3 cases (4.76%) arrhythmia, 1 case (1.59%) delirium, 1 case (1.59%) heart failure, 1 case (1.59%) renal insufficiency, 1 case (1.59%) diabetic ketoacidosis, 2 cases (3.17%) adhesive ileus. 42 cases were followed for an average follow-up time from 8 to 66 months, and 4 patients survived more than 5 years, 5-year survival rate was 28.6%.

Conclusion: Hartmann's procedure is still a safe and effective surgical procedure for the treatment of colorectal cancer. It can effectively improve the quality of life and prolong survival time of patients.

Keywords: Hartmann's procedure; colorectal cancer; clinical effects

Clinicopathological features of colorectal cancer in patients over 75 years of age

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Objective: The aim was to identify the clinical factors and tumor characteristics that improve our knowledge of the diagnosis and treatment in patients older than 75 years with colorectal cancer.

Methods: 268 cases of patients over 75 years of age with colorectal cancers in First Affiliated Hospital of Dalian Medical University from 2003 to 2012. All of them had received surgery treatment and pathologically confirmed. Retrospectively analyze the patients clinical data include: age, gender, relevant auxiliary examination, surgical approach, postoperative pathology, complication and so on. Their clinical variables were analyzed by χ^2 test or Fisher test.

Results: 268 cases of patients accounted for 26.04% of the patients with colorectal cancer over the same period. There were no significant difference of gender between the age groups. Clinical manifestation in the 268 older patients was mainly per-

formed as hematochezia /mucous bloody stools(53.36%).There were difference of clinical manifestation between the age groups. The incidence rate of hematochezia /mucous bloody stools and abdominal pain are significantly higher in the young group than in the old group, while the incidence rate of abdominal mass in the young group is significantly lower than in the old group. There were no significant difference of disease site between the age groups. Gender was difference of disease site between the age groups ($P < 0.05$). TNM stage, tumor size, macroscopic type were no significant difference of age groups. Every age groups are mainly in II stage of TNM stage (44.78%), tumor size are mainly in 2-5cm(55.60%), macroscopic type are mainly in ulcerative(59.33%). Histological grade was difference between the age groups ($P < 0.05$), the incidence rate of middle differentiated in the young group was significantly higher than the old group, the better differentiated in the old group was significantly higher than the young group. Lymph node metastasis, complication, surgical approach were no significant difference of age groups. We found that elderly patients with colorectal cancer had more non-specific complications, The higher incidence rate of complications was incisions infection (8.96%), secondary was anastomotic leakage and bleeding, post-operative mortality being associated with the presence of postoperative complications.

Conclusion: 1. Elderly patients with colorectal cancer symptoms are not typical, early diagnosis is low, and has a better histological differentiation, Lymph node metastasis is low, Preoperative complications and postoperative complications relatively more occurred. 2. Age is not a major factor limiting surgery. These result suggest that surgery is feasible and can be safe for older patients, but it needs much more evaluation of comorbidities, pre-and post-operative intensive care to avoid post-operative non-specific complications, that improve survival and quality of life of elderly patients.

Keywords: Colorectal cancer Older Clinical pathology

Comparison of short-term efficacy of laparoscopy-assisted abdominoperineal excision(LAPE) and sacral abdominal rectosigmoidectomy (SAR)for low rectal cancer.

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Objective: The aim of this study is to evaluate the short-term therapeutic results of laparoscopy-assisted abdominoperineal excision(LAPE) combined Jack-knife position.

Methods: From October 2012 to October 2014, 72 patients of low rectal cancer were performed in the First Affiliated Hospital of Dalian Medical University, which included 34 LAPE and 38 SAR, the clinicopathologic data, the operative and postoperative measures and follow-up results were analyzed.

Results: the operation time, the blood loss, the number of resected lymph node, circumferential resection margin, did not differ between the two groups ($p > 0.05$). Which the time to first flatus, days in hospital were significantly less in LAPE group than those in SAR group ($P < 0.05$). the postoperative complication rate of LAPE group was significantly lower than SAR group ($P < 0.05$). incidence rate of infection of incisional wound, sexual dysfunction was significantly less in LAPE group than SAR group ($P < 0.05$).

Conclusion: LAPE has comparative short-term efficacy efficacy compared with SAR.

Keywords: low rectal cancer; laparoscopy; abdominoperineal excision; sacral abdominal rectosigmoidectomy; Jack-knife position

Effect of ketogenic diet on growth of human colon cancer cells in nude mice

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Objective: To observe the effect of ketogenic diet on the growth of human colon cancer cells in nude mice and to determine its possible mechanisms.

Methods: A total of 24 male BALB/C nude mice were injected subcutaneously with the tumor cells of the colon cancer cell line HCT116. These animals were randomized into two feeding groups. One group was fed with a ketogenic diet (KD group; $n = 12$), and the other group was given a standard diet (SD group; $n = 12$) ad libitum. Experiments were completed upon attaining a target tumor volume of 600 mm³ to 700 mm³. The two diets were compared based on body weight, serum glucose, ketone body, insulin, tumor growth, and survival time, which is the interval between tumor cell injection and attainment of target tumor volume.

Results: The tumor growth was significantly more delayed in the KD group than in the SD group. Tumors in the KD and SD groups reached the target tumor volume at 33.8 ± 6.7 days and 24.8 ± 3.1 days, respectively. The ketone body in the KD group was elevated with a slight reduction in serum insulin, and the difference in serum glucose in the two groups was insignificant. Importantly, the KD group had significantly larger necrotic areas and less vessel density than the SD group.

Conclusion: The application of an unrestricted ketogenic diet delayed tumor growth in a mouse xenograft model. Further studies are needed to address the mechanism of this diet intervention and its effect on other tumor-relevant functions, such as invasive growth and metastasis.

Keywords: ketogenic diet, colon cancer, carbohydrate, fat, ketone body.

Efficacy of Surgery and Adjuvant therapy in Older Patients with Colorectal Cancer

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Running title: Prognosis of older patients with CRC.

Abbreviations: CRC=colorectal cancer; CI=confidence interval; DFS=disease-free survival; HR=hazard ratio; OS=overall survival; OR=odds ratio; RT=radiotherapy.

Objective: To assess the efficacy of surgery and adjuvant therapy in older patients (age ≥ 70 years) with colorectal cancer (CRC).

Background: Older CRC patients are under-represented in available clinical trials, and therefore their outcomes after receiving surgery and adjuvant therapy are unclear.

Methods: From two prospective Swedish databases, we assessed a cohort of 1021 patients who underwent curative surgery for stage I, II or III primary CRC, with or without adjuvant chemotherapy/radiotherapy.

Results: Of the patients with colon cancer ($n=467$), 182 (39%) were aged < 70 years, 162 (35%) aged 70–80 years, and 123 (26%) were aged ≥ 80 years. Of rectal cancer patients ($n=554$), 264 (48%) were aged < 70 years, 234 (42%) aged 70–80 years, and 56 (10%) aged ≥ 80 years. Older patients with either colon or rectal cancer had higher comorbidity than did younger patients. Older patients with colon cancer had equivalent postoperative morbidity and 30-day mortality to younger patients. Rectal cancer patients aged ≥ 80 years had a higher 30-day mortality than did younger patients (odds ratio [OR], 2.37; 95% confidence interval [CI], 1.6–4.55; $P=0.03$). For either colon or rectal cancer, adjuvant chemotherapy compromised the 5-year overall survival (OS) of older patients with stage II disease and had no effect on those with stage III disease. Receiving adjuvant chemotherapy was a poor factor of OS for older patients with either colon (HR 1.88, 95% CI: 1.20–4.35, $P=0.03$) or rectal cancer (HR 1.72, 95% CI: 1.05–2.26, $P=0.004$). Preoperative short-course radiotherapy improved both OS and local control for older patients with stage III rectal cancer while had no effect on those with stage II disease. Radiotherapy was a favorable factor for the OS of the older patients with rectal cancer (HR 0.42, 95% CI: 0.21–3.57, $P=0.01$).

Conclusions: Older CRC patients had equal safety of surgery as younger patients, except rectal cancer patients aged ≥ 80 years that had a higher mortality. Adjuvant 5FU-based chemotherapy didn't benefit older CRC patient, while neoadjuvant radiotherapy improved the prognosis of older patients with stage III rectal cancer.

Keywords: colorectal neoplasm; surgery; adjuvant chemotherapy; neoadjuvant radiotherapy; survival; recurrence

Explore the molecular mechanism of programmed necrosis process regulated by receptor interacting protein kinase 1 (RIPK1) in HT-29 human colon cancer cells

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Objective: To examine the effects of receptor interacting protein kinase 1 (RIPK1) during programmed necrotic cell death in HT-29 human colon cancer cells and to explore the potential

regulating mechanism of E3 ubiquitin ligase Trim 16 during the process.

Methods: We use Annexin V-FITC/PI double staining method to observe the necrosis-inducing effects of tumor necrosis factor alpha (TNF α) in human colon cancer HT-29 cells. Western blot analysis and qRT-PCR were applied to detect RIPK1 expression level. We generated a HT-29 stable cell line expressing Flag-tagged RIPK1. Combining Flag-tagged pulldown and mass spectrometry detection we were able to find new proteins interacting with RIPK1. Ni-NTA pulldown assay was used to explore the possible regulation effects of new interacting E3 ubiquitin ligase.

Results: HT-29 cells demonstrated significantly increased RIPK1, RIPK3, MLKL expression in response to TNF α plus z-VAD treatment, which was accompanied by drastically increased IL1 α and IL6 expression. Flag-tagged pulldown and mass spectrometry discovered a new RIPK1 interacting protein tripartite domain containing protein 16 (Trim16) which was also an E3 ubiquitin ligase. In vitro experiments indicated that Trim16 could enhance the ubiquitination of RIPK1, which may function as a regulating mechanism during programmed necrosis.

Conclusion: We discovered that mechanically RIPK1 had a fundamental role during programmed necrosis promoted by TNF α plus z-VAD, in which E3 ligase Trim16 may have a potential major regulating effects.

Keywords: receptor interacting protein kinase 1 (RIPK1), human colon cancer cell, programmed necrosis, E3 ubiquitin ligase, tripartite domain containing protein 16 (Trim16)

Expression of PIAS3 in colonic neoplasm tissue and cells and the effect of the colon cancer cell line on proliferation and apoptosis

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Objective: To study the expression of PIAS3 in colonic neoplasm and evaluate the role of PIAS3 in tumor genesis and progress of colon adenocarcinoma.

Methods: The expression of PIAS3 protein was detected by immunohistochemistry in 60 cases of colonic neoplasm tissue and normal colon tissue, PIAS3 protein and mRNA were detected by qRT-PCR and Western blot in SW480, SW620, and COLO205 cells. Plasmids include PIAS3-shRNA and scrambled control sequence were transfected into COLO205 cells. Observed the proliferation of COLO205 cells. The apoptosis and cycle of the cells were detected by FACS.

Results: 1. The expression level of PIAS3 protein was significantly higher in colonic neoplasm tissue than in its adjacent non-tumor tissues ($P < 0.01$), and had a close relation with tumor differentiation and clinical stage ($P < 0.01$). 2. The positive expression of PIAS3 was observed in SW480, SW620 and COLO205 cells, the level of expression in COLO205 cells was higher than the others ($P < 0.01$). 3. Compared with the control groups, the expressions of PIAS3 protein and mRNA in PIAS3-shRNA transfected group were decreased ($P < 0.01$), the proliferation of COLO205 cells was increased ($P < 0.05$), there was a sharply decreased of the COLO205 cells in G0/G1 phase ($P < 0.01$), and most of the cells arrested in S phase ($P < 0.01$), the apoptosis rate significantly decreased ($P < 0.01$).

Conclusions: The expression of PIAS3 is related to the occurrence and development of colonic neoplasm. PIAS3 may become a new biomarker or target in diagnosis and treatment of colon cancer.

Subject words: PIAS3; Colonic neoplasm; COLO205 cell; Cell cycle; Apoptosis

Factors associated with complication after sacral abdominal resectosigmoidectomy for low rectal cancer

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Objective: to investigate factors associated with postoperative complication after sacral abdominal resectosigmoidectomy in low rectal cancer.

Methods: the clinical data of 298 patients with low rectal cancer performed sacral abdominal resectosigmoidectomy from January 2008 to January 2014 in the First Affiliated hospital of dalian medical university were analyzed by the t test, chi-square test, Fisher exact probability or logistic regression model.

Results: postoperative complication occurred in 32 patients (10.7%). On univariate analysis, postoperative complication was associated with gender, age, preoperative comorbidity, TNM staging, operative time and surgeon experience ($P < 0.05$). logistic regression analysis revealed that preoperative comorbidity, TNM staging and surgeon experience were independent risk factors for postoperative complication ($P < 0.05$). Follow up were available in 252 patients (84.6%) with a median followup of 46 months (range, 8–84 months). differences in survival and recurrence rate between patients with and without postoperative complication were of no statistical significance ($p > 0.05$).

Conclusion: Preoperative comorbidity TNM staging and surgeon experience were independent risk factors for postoperative complication in sacral abdominal resectosigmoidectomy in low rectal cancer.

Keywords: low rectal cancer; sacral abdominal resectosigmoidectomy; complication

Lack of Effects of HER-2/neu on Prognosis in Colorectal Cancer: a Meta-analysis

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Objective: The prognostic value of human epidermal growth factor receptor-2 (HER-2/neu) for survival of patients with colorectal cancer (CRC) is still ambiguous. We performed a meta-analysis to evaluate the prognostic significance of HER-2/neu in patients with CRC.

Methods: We searched the MEDLINE and EMBASE databases for published literatures investigating the associations between HER-2/neu status and overall survival of patients with CRC. A meta-analysis was performed using a DerSimonian-Laird model and publication bias was investigated by Begg's test and

Egger's test. Subgroup analysis was also conducted according to the study design type, study quality score, cut-off value for HER-2/neu overexpression, publication region, patients' number and publication year.

Results: A total of 17 eligible studies involving 2347 patients were identified for this meta-analysis. The combined hazard ratio (HR) was 1.31 (95% confidence interval (CI) : 0.96–1.79), suggesting that HER-2/neu overexpression was not significantly associated with overall survival of patients with CRC. However, subgroup analysis revealed that HER-2/neu overexpression had an unfavorable impact on survival when the analysis was restricted to subgroups of study quality score ≤ 5 (HR = 1.56, 95% CI 1.17–2.10), Asian patients (HR = 1.74, 95% CI 1.22–2.49), patients' number ≤ 106 (HR = 1.57, 95% CI 1.01–2.44), publication year before 2003 (HR = 1.59, 95% CI 1.02–2.49), and prospectively designed study (HR = 3.62, 95% CI 1.42–9.24), respectively. But its effect disappeared in subgroups of study quality scores > 5 (HR = 0.69, 95% CI 0.33–1.44), non Asian patients (HR = 1.14, 95% CI 0.77–1.70), patients' number > 106 (HR = 1.07, 95% CI 0.67–1.72), publication year after 2003 (HR = 1.13, 95% CI 0.76–1.69), and retrospectively designed study (HR = 1.22, 95% CI 0.89–1.67), respectively.

Conclusion: Our meta-analysis suggests that HER-2/neu overexpression might not be a significantly prognostic indicator for patients with CRC. Further studies are required to confirm these results.

Liver metastasis from colorectal cancer in the elderly: is surgery justified?

Type of study: Meta-analysis

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Background: The elderly population with liver metastasis from colorectal cancer has been increasing. As the potentially curative treatment, the role of liver resection in the elderly remains undetermined.

Aims: This study provides a meta-analysis on the outcome of liver resection of colorectal liver metastasis in patients aged over 70.

Methods: PubMed, Embase, Ovid, Web of Science, and Cochrane databases from the years 1966 to 2013 were searched for eligible studies. Data on perioperative mortality, postoperative complications, and survival were collected.

Results: Twelve retrospective studies with a total of 11,795 patients (2,581 elderly patients and 9,214 younger patients) were identified. The elderly (>70 years old) were associated with a similar overall complication rate (30.9% vs. 28.3%; OR=1.13; 95% CI: 0.99–1.29; $P=0.07$) and a higher 30-day mortality (OR: 1.93; 95% CI: 1.13–3.28; $P=0.02$) after liver resection of colorectal liver metastasis (CRLM). The overall survival showed a significant difference in favor of the younger patients (HR: 0.81; 95% CI: 0.71–0.94; $P=0.004$), while the heterogeneity was significant ($I^2=0.81$, $P<0.001$). However, with regard to disease-free survival, there was no significant difference between elderly and younger patients (HR: 0.93; 95% CI: 0.81–1.07; $P=0.30$).

Conclusion: Liver resection of CRLM is relatively safe in carefully selected elderly patients. Liver resection should be offered to selected elderly patients with CRLM.

Keywords: colorectal cancer; liver metastasis; liver resection; elderly.

Low PPP1R12A copy number is associated with unfavorable outcome in stage III CRC patients receiving oxaliplatin-based regimen post-operation

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Aim: To investigate the correlation between PPP1R12A gene copy number and clinical outcomes of oxaliplatin-based regimen in stage III colorectal cancer (CRC).

Methods: A total of 142 paraffin-embedded tissue samples of stage III CRC patients who received oxaliplatin-based treatment after radical surgery were recruited. Genomic DNA was extracted and purified from paraffin-embedded sections. Quantitative PCR method were used to detect the relative copy number (RCN) of PPP1R12A.

Results: Statistical analysis demonstrated that low PPP1R12A RCN was associated with OS (HR=2, 781, 95%CI: 1.530–5.052; $P=0.0004$) and RFS (HR=2, 251; 95%CI: 1.325–3.824; $P=0.002$). Additionally, when patients were stratified according to subgroup of stage III and tumor location, poor OS and RFS were also observed in the low RCN group with significance (OS: IIIB $P=0.0005$, HR=3.515; IIIC $P=0.049$, HR=2.662; rectum $P=0.0016$, HR=4.186. RFS: IIIB $P=0.0005$, HR=3.103; IIIC $P=0.033$, HR=2.708; colon $P=0.0217$, HR=2.283).

Conclusion: The result of our study show that the copy number of PPP1R12A could independently predict clinical outcomes

of stage III colorectal cancer patients receiving oxaliplatin-based adjuvant chemotherapy.

Keywords: PPP1R12A, copy number, colorectal cancer, chemotherapy

Long-term outcome of neoadjuvant chemoradiotherapy based on depth of invasion in mrT3 low rectal cancer

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Objective: To investigate the prognosis of cT3 and the subgroups of low rectal cancer who underwent neoadjuvant chemoradiotherapy (CRT), whether all patients with cT3 low rectal cancer undergo CRT.

Methods: Retrospective analysis of 223 patients with cT3 low rectal cancer who were treated in the Department of Colorectal Surgery in Fujian Medical University Union Hospital from January 2008 to December 2012, which was assigned into three subgroups (mrT3a, mrT3b, and mrT3c) according to The Radiologic Society of North America (RSNA) proposal criteria by measuring the depth of mesorectal invasion (DMI) (<5, 5–10, and >10 mm), and according to whether underwent CRT divided into neoadjuvant chemoradiotherapy group (CRT group) (115 cases) and no underwent neoadjuvant chemoradiotherapy group (nCRT group) (108 cases). Compare the prognosis of the two groups and their subgroups (mrT3a mrT3b mrT3c).

Results: The CRT group and the nCRT group revealed no significant differences in 3-year disease-free survival rate and local recurrence rate for the whole mrT3 patients (78.2% vs. 71.9%, $P=0.608$; 4.4% vs. 8.5%, $P=0.120$) and mrT3a patients (82.4% vs. 81.8%, $P=0.837$; 5.8% vs. 5.9%, $P=0.658$). But for the mrT3b patients, the CRT group and the nCRT group revealed significant differences in 3-year disease-free survival rate (84.4% vs. 42.4%, $P=0.032$) and local recurrence rate (0.0% vs. 18.2%, $P=0.014$). For the mrT3b, c patients, the CRT group and the nCRT group a no significant difference in 3-year disease-free survival rate (72.8% vs. 42.4%, $P=0.060$), but revealed a significant difference in local recurrence rate (2.4% vs. 18.2%, $P=0.021$). COX regression analysis was used for 3 year disease-free survival, DMI and circumferential resection margin (CRM) were significant in univariate analysis, and the multivariate analysis indicated CRM is an independent impact factor (OR=2.249, CI 1.067–4.742, $P=0.033$).

Conclusions: CRT can improve the prognosis of patients with mrT3b, c low rectal cancer, but may not significantly influence the prognosis of patients with mrT3a and CRM-negative low rectal cancer, surgical treatment can be performed in these patients without CRT.

Keywords: T3 subgroups, low rectal cancer, neoadjuvant chemoradiotherapy, prognosis

Randomized controlled trial of intraportal chemotherapy combined with adjuvant chemotherapy (mFOLFOX6) for stage II and III colon cancer

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Clinical trial information: NCT01972503, (Otree Study)

Communication: Presented orally at the 14th Annual Meeting of the Japanese Society of Medical Oncology (JSMO), Japan, July 26–28, 2014.

Award: Won the best paper (The First Prize) on 8th Chinese Conference Oncology (CCO); and won the best paper (The Second Prize) on 17th Chinese Society of Clinical Oncology (CSCO) conference; 2014.

Objective: The optimal time from surgery to the start of adjuvant chemotherapy in colon cancer is unknown. We evaluated the impact on survival of intraportal chemotherapy (IPC) administered during surgery plus adjuvant chemotherapy (AC) as a treatment for stage II and III colon cancer.

Methods: Patients with stage II or stage III colon cancer were randomly assigned to receive IPC plus mFOLFOX6 (OCTREE) or mFOLFOX6 alone. The primary endpoint was disease-free survival (DFS). The secondary endpoints included metastasis-free survival (MFS), overall survival (OS) and safety.

Results: The intent-to-treat population comprised 237 patients. After a median follow-up period of 44 months, the 3-year DFS rate was 85.2% (95% CI 81.9 to 88.4) with OCTREE and 75.6% (95% CI 71.7 to 79.4) with mFOLFOX6 alone ($P = .030$). The hazard ratio (OCTREE versus mFOLFOX6) was 0.66 (95% CI, 0.43 to 0.90, $P = .016$). The 3-year MFS rates were 87.6% versus 78.0% for OCTREE and mFOLFOX6, respectively, and the hazard ratio was 0.59 (95% CI, 0.38 to 0.92, $P = .023$). Patients in the OCTREE arm had fewer distant metastatic events (12.7% versus 22.7%; $P = .044$) compared to those in the mFOLFOX6 arm. Grade 3 hepatic toxicity was observed in 1.7% of patients receiving OCTREE within two weeks of surgery. Only one patient died as a result of any cause within 6 months of receiving chemotherapy, with no significant difference between regimens.

Conclusions: Intraoperative intraportal chemotherapy combined with mFOLFOX6 reduced the occurrence of distant metastasis and therefore improved DFS in patients with stage II and stage III colon cancer.

Robot-assisted one stage resection of rectal cancer with liver and lung metastasis: a case report

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Background: The Da Vinci Site robotic surgery platform may help to overcome some of the difficulties of laparoscopy for complicated abdominal surgery. The authors of this article present a case of robotic-assisted one stage radical resection of three tumors, included robotic anterior resection for rectal cancer, segmental hepatectomy for liver metastasis and wedge shaped excision for lung metastasis using this device.

Methods: A 59-year-old male with primary rectal cancer, liver metastasis and lung metastasis was operated on with a one stage radical resection approach using the Da Vinci Surgery device. Resection and anastomosis of rectal cancer were performed extra-corporeally after undocking the robot.

Results: The procedure was successfully completed in 500 min. No surgical complications occurred during the intervention and the post-operative stay and no conversion to laparotomy or additional trocars were required.

Conclusions: To the best of our knowledge, this is the first case of simultaneous resection for rectal cancer with liver metastasis and lung metastasis using the Da Vinci Surgery platform to be reported. The procedure is feasible and safe and its main advantages for patient are avoiding repeated operation and reducing surgical trauma, shorten recovery time, and the early-begin to implement postoperative adjuvant therapy.

Keywords: robotic surgery; minimally invasive colorectal surgery; liver metastasis; lung metastasis; Da Vinci platform

Robotic vs. laparoscopic vs. Open colorectal surgery: a single institution's experience

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Background: The Da Vinci robotic surgical system assisted colorectal radical resection has been widely applied in many countries and regions. The advantages of the Da Vinci robotic surgical system include stable and distinct stereoscopic vision, short learning curve, and convenient operation. We report our experience of a single institution in China, comparing robotic, laparoscopic and open colorectal cancer resection.

Methods: The data of 450 patients who underwent robotic, conventional laparoscopic and open colorectal radical surgery (150 each group) between January 2009 and May 2013 at a single institution were prospectively collected. The preoperative parameters in the three groups were well-matched, including gender, age, tumor site, etc. Operative time, blood loss, conversion rate, time to return of bowel function, length of stay, intra-operative or postoperative complications and cost were studied.

Results: The robotic group did not differ significantly from the laparoscopic and the open group with respect to baseline

characteristics. The robotic group was associated with longer operative time (138 vs. 130 vs. 121 min, $P=0.00$) and a shorter time to bowel function recovery (2.35 vs. 2.51 vs. 2.67 days, $P=0.03$). No differences had been found in the blood loss, conversion rate, number of harvested lymph nodes, margin negativity, length of hospital stay, postoperative morbidity and complications. The robotic group cost more money than the other two groups (US \$ 9,335 vs. \$5,606 vs. \$5,686, $P=0.00$).

Conclusions: Our study demonstrates the equivalence of robotic surgery to laparoscopic and open surgery in colorectal procedures. Robotic colorectal surgery is safe and feasible option, but the high cost is the biggest obstacle for popularization. Future random control trials are needed to finally clarify the prospects and limitations of robotic and laparoscopic surgery.

Keywords: Colorectal Cancer, Robotic, Laparoscopic

Self-expandable metallic stent as a bridge contrast emergency surgery for acute malignant colorectal obstruction

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Objective: The efficacy and safety of self-expandable metallic stent (SEMS) for patients with acute malignant colorectal obstruction (AMCO) are still controversial. We conducted this study to evaluate the safety and efficacy of SEMS for AMCOs.

Methods: From January 2010 to July 2014, a total of 171 patients with AMCOs were retrospectively enrolled in this study: 120 patients received emergency stent placement followed by selective operation as stent group, and 51 patients received emergency operation as emergency-surgery group.

Results: The operation time and hospital stay were significantly shorter in stent group (114.51 ± 28.65 min vs 160.39 ± 58.94 min, $P<0.001$; 8.00 ± 3.97 d vs 12.59 ± 9.07 d, $P<0.001$). Stent placement also significantly reduce the intraoperative blood loss (61.00 ± 43.70 ml vs 121.18 ± 85.90 ml, $P<0.001$). The incidence of postoperative complications in stent group was lower than emergency-surgery group (21.7% vs 52.9%, $P<0.05$). In subgroup analyses, patients received laparoscopic surgery after stent placement had significantly shorter days to first flatus (3.37 ± 1.04 d vs 4.47 ± 1.95 d, $P=0.041$) and postoperative hospital stay (7.10 ± 1.43 d vs 8.47 ± 1.43 d, $P=0.001$) than open surgery. In stent group, the median overall survival time was 48 months, significantly longer than 38.5 months of emergency-surgery group ($P<0.05$).

Conclusion: Stent placement as a bridge followed by selective operation is a safe and feasible procedure, providing significant advantages of short-term outcomes and a favorable prog-

nosis for patients with AMCOs. Laparoscopic surgery could be considered as an optimal treatment after stent placement.

Short-term outcomes of totally robotic abdominoperineal resection for low rectal cancer: a retrospective comparison with laparoscopic and open surgery

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Objectives: Currently, robotic surgery for rectal cancer using da Vinci System was common. However, few studies reported robotic approaches in abdominoperineal resections (APRs). This study compared short-term outcomes of totally robotic, laparoscopic and open APRs for low rectal cancer.

Methods: Between September 2013 and September 2014, a total of 174 consecutive patients received APRs were retrospectively engaged. 45 received totally robotic surgery (TRAP group), 69 received conventional laparoscopic surgery (LAP group), 60 received open surgery (OS group). Short-term outcomes were analyzed, including length of recovery, quality of total mesorectal excision (TME), morbidity and mortality.

Results: The operating time of TRAP group (208.5 min) and LAP group (199.4 min) were almost the same, both longer than OS group (166.6 min, $P<0.05$). TRAP group reduced intraoperative hemorrhage (101.1 ml), compared to LAP group (129.1 ml, $P<0.001$) and OS group (146.2 ml, $P<0.001$). TRAP group (1.2 days) resulted in shorter days to first flatus than LAP group (2.2 days, $P<0.001$) and OS group (2.0 days, $P<0.001$). Also, TRAP group showed advantage in reducing days of retention catheterization after operation (TRAP: 2.3 days; LAP: 3.3 days; OS: 3.4 days; TRAP vs. LAP, $P<0.001$; TRAP vs. OS, $P<0.001$). There was no difference among the three groups in open conversion rate, length of hospital stay, lymph node harvested, positive rate of circumferential resection margin or postoperative mortality. The morbidity rates were 15.6%, 26.1%, and 25.5% in the TRAP, LAP and OS groups respectively, with no significant difference.

Conclusions: Totally robotic APRs were safe, and reproduce the equivalent TME quality of conventional laparoscopic and open surgery. Also, it provided less injury and faster functional recovery.

Study on Jianpijiedu decoction anti colorectal cancer metastasis molecular mechanisms

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Objective: To investigate the molecular mechanism of Jianpi Jiedu Decoction anti colorectal cancer metastasis.

Methods: By adding different Chinese herbal medicine, Jianpi Jiedu Decoction was divided into basic recipe and Qingre Jiedu, Huoxue Huayu, Bupi Yiqi, Buxue Yiqi, Fuzhu Zhengqi recipes according to function. Colorectal cancer HT-29 cells were cultured with the water extract of each recipe in vitro, to observe the change of tumor cell proliferation by light microscopy and detect the cell vitality by four methyl tetrazolium blue colorimetric Method (MTT method). Reverse transcription polymerase chain reaction (RT-PCR) and enzyme linked immunosorbent assay (ELISA) were used to detect matrix metalloproteinase -9 (MMP-9) gene expressions and protein secretion.

Results: After 24 hours of culture, the overall growth condition of traditional Chinese medicine group cells was poor; the morphological abnormalities of cell, cell rupture could be seen. After 48 hours, the Chinese medicine group cells showed obviously sparse, crushing and visible cell death. MTT results showed that each Chinese herbal medicine recipe had different degrees of inhibitory effect on HT-29 cells, and high concentration was stronger than low concentration in the same prescription group. Inhibition rate reached the peak at the concentration of 1000mg/L (46.1%) in Nourishing Yin group, and had significant difference compared with the basic prescription and Qing Li group, $P < 0.05$. MMP-9 gene expression and protein secretion was down regulated in each Chinese medicine groups. The most significant effect was showed in Nourishing Yin group ($P < 0.01$), and had significant difference compared with the basic prescription and Qing Li group, $P < 0.05$.

Conclusion: The water extract of Jianpi Jiedu Decoction can inhibit the proliferation of human colorectal cancer cell line HT-29 cells; the anti-transfer mechanism may be related with the regulation of MMP-9 gene expression and protein secretion.

Keywords: colorectal carcinoma; Jianpijiedu decoction; HT-29; transfer mechanism; experimental study

The Application of Air Leak Test Combined with Methylene Blue Solution Leak Test in Detection of Anastomotic Leakage in Rectal Cancer

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Objective: To investigate the application of air leak test combined with methylene blue solution leak test in the detection of anastomotic leakage in rectal cancer.

Methods: In total of 184 patients with rectal cancer underwent Dixon according to TME in our hospital from Apr.2011 to Nov. 2014 were enrolled. All patients were randomly divided into control group 91cases and air leak + methylene blue solu-

tion leak test group 93cases. The test group were clamped at 2 cm from the upper end of bowel, then injecting 500 mL distilled water to pelvic, and placing 24# Foley catheter through the anus. The catheter balloon was injected with water to close anus, and then injected with 50 mL gas to find the anastomotic leakage where bubbles happened, and then repaired it. After sucking out of the distilled water in pelvic and gas in the rectum, 1 bottle of methylene blue solution (20 mg) and 50 mL saline were injected, observing the location where the methylene blue solution leaking out and repaired it.

Results: Control group 91cases were not found anastomotic leakage during operation but 11 cases were found after operation. Test group 23cases of anastomotic leakage were found during operation, Surgical repair only 1 cases suffered anastomotic leakage.

Conclusions: Large anastomotic leakage can be found by using air leak test, and small and hidden leakage can be found by using methylene blue solution leak test, combination method of the two experiments is better. Repair can be performed effectively under direct vision.

Keywords: Rectal cancer; Air leak test; Methylene blue solution leak test; Anastomotic leakage; Total mesorectal excision; Prevention

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The Association of the ERCC2/XPD gene polymorphism with the Risk of Colorectal Cancer

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Objective: To Discuss the relationship between ERCC2/XPD gene rs13181G/T and rs1799793A/G polymorphism and genetic susceptibility to colorectal cancer.

Methods: Two SNPs of ERCC2/XPD gene rs13181G/T and rs1799793A/G patients with 211 patients with CRC from Tumor Hospital of Hebei Province and 132 healthy controls were analyzed using polymerase chain reaction- ligase detection reaction (PCR-LDR) method. The ratio is calculated using logistic regression relative risk ratio (odds ratio, OR) and 95% confidence intervals (confidence interval, CI).

Results: 1 The frequency of G and T of ERCC2/XPD rs13181 in rectal cancer patients and the control group were 31.11%, 68.89% and 17.8%, 2.2%. There was significant difference between the two groups ($P < 0.05$). The frequency of G and T of ERCC2/XPD rs13181 in colon cancer patients and the control group were 28.68%, 71.32% and 17.8%, 82.2%. There was significant difference between the two groups ($P = 0.02$). The genotype frequency of GG, GT, and TT in Colon cancer patients and control group were 6%, 23.48%, 70.45% and 16.18%, 25.00%, 58.82%, the GG increased the risk of colon cancer, (OR = 3.179, 95% CI = 1.196–8.546). The genotype frequency of GG, GT, and TT in rectal cancer patients and control group were 18.18%, 25.87%, 55.94% and 6%, 23.48%, 70.45%, it was significant ($P < 0.05$). Compared with the TT genotype, the GT and GG genotype increased the risk of rectal cancer. (OR = 2.72, 95% CI = 1.08–6.86 and OR = 3.77, 95% CI = 1.62–8.81). 2 The frequency of G and A of ERCC2/XPD rs1799793A/G in colon cancer patients and the control group were 16.2%, 83.8% and 15.15%, 84.85%. There was no significant difference between the two groups ($P > 0.05$). The frequency of G and A of ERCC2/XPD rs1799793A/G in rectal cancer patients and the control group were 17.83%, 82.17% and 15.15%, 84.85%. There was no signifi-

cant difference between the two groups($P>0.05$). The genotype frequency of GG and GA in Colon cancer patients, control group and rectal cancer patients were 67.65% 32.35% and 69.7%, 30.3% 及 64.34%, 35.66%, it has no significant($P>0.05$). There was no significant association between the GA and GG genotype of colorectal cancer patients and control group (OR=0.784, 95% CI=, 0.473~1.299 and OR=0.909, 95% CI=0.485~1.706).

Conclusions: 1 The gene polymorphism of ERCC2/XPD rs13181G/T may be associated to colorectal cancer in the Hebei populations. related to increased risk of colon cancer Compared with the TT genotype, the GG genotype increased the the risk of colon cancer, the GT and GG genotype increased the risk of rectal cancer.2 It may has no significant correlation between ERCC2/XPD gene rs1799793 and the colorectal cancer in the Hebei populations.

Keywords: Colorectal Cancer(CRC); ERCC2/XPD; Polymorphism Susceptibility

The Clinical Effect and Safety of Neoadjuvant Therapy in the Patients with Locally Advanced Colorectal Cancer

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Objective: To Study the clinical effects and safety of neoadjuvant therapy during treatment of locally advanced colorectal cancer.

Methods: Select 92 comparable patients with locally advanced colorectal cancer, divide them into two groups: the experimental group and the comparison group, each of them consists 46 patients, and then conduct prospective study. Conduct operative treatment after neoadjuvant therapy of the experimental group, Conduct operative treatment first of the comparison group. Observe the situations of tumor regression after neoadjuvant therapy, and compare tumor resection during operation, rate of anal preservation and recent complications after operation.

Results: Total effective rate of neoadjuvant therapy is 65.2%, after treatment CT/MRI shows that tumor of 52.2% patients shrinks significantly, and the discrepancies have statistical significances($P<0.01$); Rates of tumor resection and anal preservation are 73.9% and 76.9% respectively, which are bigger than those of the comparison group, 43.5% and 22.2%, ($P<0.05$); There are no discrepancies on postoperative complications of the two groups($P>0.05$).

Conclusion: Neoadjuvant therapy could reduce the tumor volume of locally advanced colorectal cancer, and improve the rates of tumor resection and anal preservation without increasing the rate of complications. This neoadjuvant therapy is effective and safe.

Keywords: Neoadjuvant therapy; Colorectal cancer; Clinical effect; Safety

The effects of postoperative complications, recurrence and long-term survival from preoperative mesylate imatinib therapy for rectal stromal tumor

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Objective: To investigate the effect of postoperative complications and survival from preoperative oral imatinib mesylate (gleevec) in patients with rectal stromal tumor.

Methods: 36 patients with diagnosis of rectal stromal tumor was randomized separated to two groups, one group accepted preoperative oral gleevec for 12-36 weeks and surgery, one group accept surgery directly. Patients with local recurrence, distant metastasis, postoperative complications and survival were comparative analysed.

Results: Control group 17 cases and another group 19 cases. Two groups of patients after surgery cut edge was statistically significant, research local recurrence and distant metastasis is lower than the control group, there was no evident difference overall survival. Team postoperative complications such as bleeding, wound infection, length of hospital stay were lower than the control group.

Conclusion: Preoperative oral enough course of gleevec reduces the risk of recurrence of rectal stromal tumor, reduce the occurrence of postoperative complications.

The expression and clinical significance of polycomb-repressive complex 2 component SUZ12 in colorectal cancer

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Objective: To investigate the role of polycomb-repressive complex 2 component SUZ12 in colorectal cancer.

Methods: Expression of SUZ12 was studied in archived specimens from 76 colorectal cancer patients by immunohistochemistry. Relationships between SUZ12 expression and clinicopathological characters were analyzed.

Results: Expression of SUZ12 protein in colorectal cancer tissues was significantly higher than that in paratumor tissues (9.24 ± 4.47 vs 3.45 ± 2.78 , $P<0.01$). SUZ12 expression was significantly correlated with tumor differentiation ($P=0.014$), TNM stage ($P=0.016$) and lymph nodes metastasis ($P=0.036$), but not with the patients age, gender, tumor location, tumor size or tumor invasion ($P>0.05$).

Conclusions: Over expression of SUZ12 is associated with more aggressive colorectal cancer and might be a biomarker for metastatic colorectal cancer.

Keywords: SUZ12; Colorectal cancer; Immunohistochemistry

The Influence of Anastomotic Leakage on long-term Survival after Resection for Rectal Cancer

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Objective: The aim of the study was to analyze the correlation between anastomotic leakage (AL) and long-term survival after resection for rectal cancer.

Methods: This study is a retrospective analysis of 653 cases of R0 resection surgical treatment for rectal cancer in the department of Colorectal Surgery in Fujian Medical University Union Hospital from January 2007 to December 2011. Result A total of 653 patients underwent curative rectal cancer resections. The total number of patients was 40 with AL, and 613 without AL. 5 year disease-free survival, 5 year distant metastasis, 5 year local recurrence have no significant difference between patients with and without AL [74.5% vs 78.1% ($P=0.808$), 20.1% vs 14.2% ($P=0.965$) and 8.4% vs 4.2% ($P=0.309$)]. Multivariate analysis showed AL isn't an independent factor of 5 year disease-free survival. There are 507 cases needed postoperative adjuvant chemotherapy. AL prolonged the interval between operation and the first time postoperative chemotherapy (38.17 ± 15.404 d vs 29.55 ± 9.824 d, $P < 0.001$), but only 4 cases exceed 56 d. The rates of the patients finishing postoperative chemotherapy between the two groups were not significant (79.4% vs 76.3% , $P=0.681$).

Conclusions: AL is not an independent predictor of long-term survival for rectal cancer. Actively treating for AL and performing postoperative chemotherapy in time may potentially avoid poor prognosis of AL after resection of rectal cancer.

Keywords: rectal cancer; anastomotic leakage; postoperative adjuvant chemotherapy; prognostic

The lymph node metastasis of colorectal carcinoma is associated with vascularization pattern of inferior mesenteric artery by CTA

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Objective: To study the correlation between 242 lymph node metastasis and vascularization pattern of inferior mesenteric artery (IMA) by CT angiography (CTA).

Methods: Seventy seven patients including 33 with rectum carcinoma and 44 with sigmoideae carcinoma, underwent IMA CTA preoperative, and the branching of LCA, SA, and SRA could be determined. Four types of branching were confirmed: Type A, where the three arteries branch off from the same point; Type B, where SA branches off from LCA; and Type C, where SA branches off from SRA, Type D, where SA branches off from LCA and SRA respectively.

Results: CTA can precisely predict the vascularization pattern of IMA. In sigmoid carcinoma group, the numbers of lymph node metastasis in 242 group were significantly associated with type of sigmoideae artery respectively ($P=0.041$), and lymph node metastasis is significantly associated with the distance of

tumor from anal ($P=0.018$). One skip metastasis was observed in patient with rectal carcinoma.

Conclusion: Aberrance of vascularization pattern of IMA is various, inappropriate surgery maybe induce inadequate lymph node dissection.

Keyword: Inferior mesenteric artery (IMA), Left colic artery (LCA), Sigmoid artery (SA), Superior rectal artery (SRA), CTA, Sigmoid colon cancer, Rectal cancer

The Prevention and Treatment of common complications after Ananostomosis with Double Stapler in The Anus Reserved Operation for Male Patients with Low Rectal Cancer

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Objective: To investigate the common complications and prevention after ananostomosis with double stapler in the anus reserved operation for male patients with low rectal cancer.

Methods: From January 2006 to April 2014, clinic data of 973 male patients with low rectal cancer in our hospital were retrospectively analyzed, which treated by open surgery were 728 cases, and by laparoscopic-assisted surgery were 245 cases.

Results: The most common complications after the anus reserved operation for male patients was anastomotic leakage (5.34%), then other complications including anastomotic stenosis (3.18%), locally recurred (2.98%), anastomotic hemorrhage (1.13%), the function of anal sphincter lose (0.31%). The incidence rates of anastomotic leakage, locally recurred and anastomotic hemorrhage were significantly elevated as compared to the overall incidence rates of patients with low rectal cancer in the same period, the other two were no difference.

Conclusion: because of anatomical and technical operational factors, the incidence rates of anastomotic leakage, locally recurred and anastomotic hemorrhage after the anus reserved operation for male patients with low rectal cancer was higher than that of in females. Corresponding appropriate preventive measures should be taken to reduce the incidence rates of complications.

Keywords: male patient; low rectal cancer; complications; prevention

The role of Charlson Comorbidity Index and body mass index on outcome of patients with colorectal cancer in South China

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Objective: To evaluate the role of Charlson Comorbidity Index (CCI) and body mass index (BMI) on colorectal cancer (CRC) patient's survival in south China.

Material and Methods: With our colorectal cancer data base, we performed a retrospective study of data from 1709 consecutive patients who were diagnosed with colorectal cancer and underwent radical surgery at the first affiliated hospital of Sun Yat-Sen University between June 1994 and August 2006. A 20-year Follow-up was covers all the patients. We estimated survival according to CCI and BMI scores using a multivariate Cox proportional hazards model. The model was adjusted by age, sex, stage at diagnosis, tumor grade, and metastases in liver or lung. The survival scale table was worked out.

Results: Forty-five percent of CRC patients had comorbidity at diagnosis. During the study period, the survival time was obviously shortened along with the increase of the CCI score. Using CRC patients with CCI score 0 as reference, adjusted 5-year relative risk in patients with CCI score 3+ were 1.61 (95% confidence interval [CI]: 1.18–2.18) and CCI score 7+ were 9.70 (95% CI: 4.98–18.87). Different BMI values correspond to the survival curve were differing from each other, especially when the BMI value were below 17. Using BMI values 18.5 to 24 as reference, adjusted 5-year RR in patients with BMI values 14 to 15 were 2.86 (95% CI: 1.52–5.37) and CCI score 7+ were 9.70 (95% CI: 4.98–18.87). The Pearson correlation values of CCI and BMI was 0.112 ($P < 0.01$), but we fail to found the relationship of them.

Conclusion: Both CCI and BMI are independent risk factors for colorectal cancer patients. Either high CCI or low BMI was associated with poorer prognosis in patients with colorectal cancer in south China. With the help of standardized survival scale table, we can get the 3-year or 5-year survival probability of any patients in a conveniently way.

Keywords: colorectal cancer, comorbidity, Charlson Comorbidity Index, body mass index, survival scale table, south China

Transvaginal early fistula debridement and repair plus continuous vacuum aspiration via anal tube for rectovaginal fistula following rectal cancer surgery: report of four cases

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Running title: Repair of rectovaginal fistula following rectal cancer surgery

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Declaration of conflict of interest: None

Objective: To investigate the feasibility and superiority of transvaginal early fistula debridement and repair plus continuous vacuum aspiration via anal tube for rectovaginal fistula following rectal cancer surgery.

Methods: The clinical data of four cases of rectovaginal fistula following rectal cancer surgery were retrospectively analyzed in our center. After adequate preoperative preparation, the patients underwent transvaginal fistula debridement and repair plus continuous vacuum aspiration via anal tube under continu-

ous epidural anesthesia. After surgery and before discharge, anti-infection and nutritional support was administered for 2d, and fluid diet and anal tube vacuum aspiration continued for 7d.

Results: All the four cases healed. Three of them healed after one operation, and the other patient had obvious shrinkage of the fistular orifice after the first operation and underwent the same operation for a second time before complete healing. The duration of postoperative follow-up was 2, 7, 8 and 9 months respectively. No recurrence or abnormal sex life was reported.

Conclusions: Early transvaginal fistula debridement and repair plus continuous vacuum aspiration via anal tube are feasible for rectovaginal fistula following rectal cancer surgery. This operation has many advantages, such as minimal invasiveness, short durations of operation, short treatment cycles, and easy acceptance by the patient. In addition, it does not necessitate colostomy for feces shunt and a secondary colostomy and reduction.

Keywords: fistula; debridement and repair; anal tube; continuous vacuum aspiration; after rectal cancer surgery; rectovaginal fistula

Tricks and key points in radical resection of transverse colon cancer assisted by laparoscopy

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Background: The feasibility and safety of laparoscopic colorectal cancer resection have been gradually accepted as the fast development of minimally invasive surgery. However, there are few reports about the detailed tricks and key points in the surgical techniques because of the low incidence of transverse colon cancer and involvement of pancreas, stomach, spleen and kidney.

Aim: The tricks and key points were summarized in order to decrease the incidence of complications and shorten the laparoscopic learning curve.

Methods: The tricks, key points, complications and follow-up results were studied on 29 patients who underwent laparoscope-assisted radical resection of transverse colon cancer from July 2007 to August 2009 in Guangdong General Hospital.

Results: A total of 29 patients at age of 28 to 75 years (mean 57.6 years) were enrolled in the study. There was no severe complications and death during the operation. Only one case was converted to open surgery. The mean operation time was 138 minutes (75–285 minutes) and the blood loss 110ml (30–650ml). The mean time for flatus was 2.5 days(2–5 days).Complications were observed in two cases, with one case of pulmonary infection and one of incision infection. All the patients were followed up for at least 3 years. The 1 year and 3 year survival rate were 93.1% and 75.9% respectively.

Conclusions: Laparoscope-assisted radical resection of transverse colon cancer is safe and efficient for patients with transverse colon cancer.

Keywords: Colonic neoplasms, Laparoscopy, Technique points, Operation tricks

Tumor volume reduction rate predicts tumor pathological response of locally advanced rectal cancer treated with preoperative chemotherapy alone

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Purpose: To evaluate the clinical value of tumor volume reduction rate (TVRR) in predicting therapeutic efficacy of neoadjuvant chemotherapy alone in locally advanced rectal cancer (LARC).

Methods: Our study included patients with LARC that had undergone neoadjuvant chemotherapy basing on a prospective and randomized phase III clinical trial. Tumor volumes were measured with three-dimensional region-of-interest (3D ROI) magnetic resonance volumetry before and after neoadjuvant chemotherapy but before surgery. TVRR was determined using the equation $TVRR = (V^{Pre-Therapy} - V^{Post-Therapy}) / V^{Pre-Therapy} \times 100\%$. *T*-test and Chi-square test were used to analyze the relationship of TVRR with clinical and pathological characteristics. Logistic regression and ROC (Receiver Operating Characteristic) curves was used to determine to the predictive value of TVRR in TRG, T downstage, N downstage and overall downstage.

Results: 80 eligible cases of LARC were included in our study with TVRR of (51.7±25.1) %. TVRR was higher in the patients with well-differentiation tumors when compared with poor differentiation ($P=0.040$). 25 cases (31.3%) achieved TRG 0/1, 24 cases (30.0%) achieved T downstage, 43 cases (53.8%) achieved N downstage and 25cases (31.3%) achieved overall downstage. TVRR was found to be related with TRG ($P<0.001$), T downstage ($P<0.001$) and overall downstage ($P<0.001$). Risk of achieving TRG 2/3 decreased 57.5% ($P=0.002$) and odds of achieving overall downstage increase into 179.3% ($P<0.001$) when TVRR increased by every 10%. A sensitivity of 0.704 and specificity of 0.804 were calculated when ROC was drawn to predicting TRG using TVRR with a cutoff of 65%.

Conclusion: TVRR is correlated with TRG and overall downstage significantly in LARC patients receiving perioperative chemotherapy and shows great value in predicting favorable TRG and overall downstage with good sensitivity and specificity.

Keyword: Rectal Cancer, Neoadjuvant Chemotherapy, Chemotherapeutic Efficacy, TVRR

System evaluation of the effectiveness in preoperative bowel preparation before colorectal elective surgery

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Objective: To discuss the necessity of the key findings: preoperative mechanical bowel preparation before colorectal undergoing elective surgery.

Methods: from 2003 to 2013 search PubMed, EMBase, the Cochrane library, VIP, CNKI, CBM and WANFANG DATA. Retrieval scope for all of the key findings: preoperative mechanical bowel preparation before colorectal surgery randomized controlled trial (RCT), and meta analysis.

Results: 15 randomized controlled trial, a total of 5218 patients, including bowel preparation (MBP) in 2684 cases, no bowel preparation group (non - MBP) in 2534 cases. Research shows that the two groups in the incidence of anastomotic leakage rate (OR=1.05, 95% CI (0.79, 0.79), $P=0.73$), incision infection rate (OR=0.90, 95% CI (0.74, 0.74), $P=0.27$), the incidence of abdominal abscess (OR=0.88, 95% CI (0.56, 0.56), $P=0.57$), the incidence of sepsis (OR=1.01, 95% CI (0.55, 0.55), $P=0.97$), the incidence of postoperative ileus (OR=0.71, 95% CI (0.42, 0.42), $P=0.21$) and mortality (OR=1.12, 95% CI (0.72, 0.72), $P=0.62$), differences of no statistical significance.

Conclusion: preoperative give up mechanical bowel preparation before colorectal elective surgery is safe

Keywords: Elective colorectal operation; mechanical bowelpreparation

Anorectal manometry in pre- and postoperative evaluations of anorectal fistulas Running head: Evaluating anorectal manometric measurements

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Objective: to evaluate anorectal manometric measurements before and after the repairation of anorectal fistulas.

Methods: Patients in the study were divided into healthy controls, fistula patients with medical treatment, and fistula patients who had undergone prior operative treatment. Anorectal manometry was performed in all patients with pairwise comparisons between groups. Changes in anorectal manometric parameters in patients who had not been treated and patients who had been treated by operative intervention were evaluated.

Results: Compared with healthy controls, the anorectal resting pressure (64 ± 27 vs 74±19 mm Hg) and maximum squeeze pressure (111±28 vs 150 ± 39 mmHg) were found to be significantly higher in anorectal fistula patients treated medically ($P<0.05$). As a result of prior operative treatment of the anorectal fistula, however, the functional length of the anal canal compared to medically treated anorectal patients was shortened

(2.5 ± 0.7 vs 1.4 ± 0.7 cm; $P < 0.05$) and rectal mucosal tolerance was decreased (initial defecation capacity - 66 ± 24 vs 56 ± 27 ml; maximum tolerated volume - 135 ± 27 vs 110 ± 32 ml; $P < 0.05$).

Conclusion: Anorectal fistula may be caused by increased anorectal pressures. Operative repair may lead to the damage of anal sphincter which affects continence and rectal tolerance to stool. In patients with anorectal fistula, anorectal manometry can assist in the evaluation of anal function before and after operative repair.

Keywords: Fistula in ano, Anorectal manometry, Anorectal pressure, Anal function

An 11-year, single-institution retrospective analysis of the effect of surgical treatment on the prognosis of synchronous colorectal hepatic metastases

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Objectives: To investigate the effect of surgical treatment on survival in patients with synchronous colorectal hepatic metastasis.

Methods: 953 consecutive patients with synchronous colorectal hepatic metastases were retrospectively collected from Weifang People's Hospital between 2003 and 2013. The prognostic values of different factors were studied through univariate and multivariate analyses.

Results: Expanding criteria of hepatic metastases resection can raise resection rates (30% vs. 13.6%, $P < 0.050$) and prolong survival (26.3 vs. 7.3 months, $P < 0.001$), while there were no significant differences in complication rates (30.2% vs. 23.4%) and cancer recurrence rates (39.4% vs. 35.2%) between the two groups. For patients with resectable hepatic metastases, the expense per patient in the simultaneous resection group was lower than that in the staged resection group (36,698 vs. 45,134 RMB, $P < 0.050$), and there were no significant differences in complication rates (22.2% vs. 19.1%), perioperative mortality (2.5% vs. 2.1%) or overall survival (47.6 vs. 47.1 months) between the two groups. For patients of asymptomatic primary tumor with unresectable hepatic metastases, resection of the primary tumor was associated with an improved median survival (18.0 vs. 15.0 months, $P < 0.050$).

Conclusions: Expanding indications of hepatic metastases resection can improve survival in patients with synchronous colorectal hepatic metastases. Simultaneous resection of primary tumor and hepatic metastases were accepted in patients with resectable synchronous colorectal hepatic metastases. Resection of primary tumor was recommended at the right time for asymptomatic patients with unresectable hepatic metastases.

Keywords: colorectal cancer; surgical treatment; synchronous hepatic metastases; survival analysis; prognosis

Karyopherin Alpha 2 (KPNA2) Expression as Biochemical Predictor of Long-Term Survival and Recurrence Rates for Patients with Colorectal Cancer

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Background: Rational treatments on colorectal cancer (CRC) patients are depending on the precise preoperative condition. But the prognostic value of conventional parameters in the risk estimation of CRC is limited. Karyopherin alpha 2 (KPNA2) is a member of the nuclear transport proteins family, the adverse prognoses of several kinds of human tumors are associated with the high expression of it.

Purpose: This research was designed to investigate the KPNA2 expressions of in different colon tissues and their prognostic properties for patients with primary CRC.

Methods: KPNA2 expressions in CRC and paired normal tissues were determined by quantitative RT-PCR and immunohistochemistry. KPNA2 expression in serum was detected by ELISA. The correlation between KPNA2 expression in CRC and the clinicopathological features was analyzed.

Results: KPNA2 expression was significantly higher in colon carcinomas than those in paired normal tissues. KPNA2 expressions in serum were significantly higher in CRC patients than those in healthy individuals. Positive nuclear KPNA2 immunoreactivity was identified as a novel predictor of patient survival rate of 5-years overall survival and 5-years disease free survival after radical colorectal surgery. Moreover, KPNA2 expression was highly correlated with some clinicopathological features of tumor size ($P < 0.001$), TNM stage ($P < 0.001$) and lymph node involvement ($P < 0.001$), tumor differentiation ($P = 0.003$), infiltrate depth ($P = 0.010$), lymphovascular invasion (LVI) and perineural invasion (PNI) ($P = 0.016$).

Conclusion: KPNA2 is a novel preoperative prognostic marker for CRC patients. It can be used to identify patients who need more aggressive treatment for CRC patients.

Comparison study of two approaches for treatment of the appendicular stump during laparoscopic appendectomy

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Purposes: To compare the two approaches for treatment of the appendicular stump during laparoscopic appendectomy.

Methods: Totally 216 cases were underwent laparoscopic appendectomy in our hospital from July 2004 to June 2013, the patients were randomly divided into clamping group ($n = 86$) and purse-string suture group ($n = 130$). For patients of clamping group, appendicular stump was clamped by Titanium clip Hem-o-lok during the procedure, while in purse-string suture group, appendicular stump was buried with purse-string suture after mesenteriolum cut off. Then data of both groups were collected and analyzed, including operation time, amount of bleeding,

intestinal function recovery time, and hospital stay after operation and complications.

Results: All operation of both groups goes smoothly and no conversion or severe complications were occurred. No difference existed in amount of bleeding (12 ± 6 ml vs. 14 ± 7 ml, $P=0.17$), intestinal function recovery time (26 ± 8 h vs. 28 ± 9 h, $P=0.25$) and hospital stay after operation (2.7 ± 1.8 d vs. 2.9 ± 1.6 d, $P=0.14$) between two groups. Clamping group showed significantly shorter operation time than purse-string suture group (27 ± 9 min vs. 38 ± 12 min, $P=0.04$). There are 8 cases of lower abdominal discomfort, 3 cases of abdominal pain, 5 cases of fever and 1 re-operation case happened in clamping group, and 3 cases of lower abdominal discomfort, 1 case of abdominal pain, 2 cases of fever happened in purse-string suture group. We found more post-operative complications (19.7% vs. 4.6%, $P<0.01$) and adhesive ileus (8.1% vs. 3.1%, $P<0.01$) in clamping group compared with purse-string suture group. Conclusion Although spending a little long operation time, treatment of the appendicular stump using purse-string suture is a safe approach with lower postoperative complications during laparoscopic appendectomy.

Keywords: Laparoscope; Appendectomy; Appendicular stump; Complications

High level of Src expression is associated with liver metastasis and predicts unsatisfactory patient survival in colorectal cancer

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Background: Colorectal cancer (CRC) is the third most common cancer in the world and colorectal cancer liver metastasis (CRLM) is the major cause of cancer-related mortality. A variety of molecules are involved in liver metastasis via activation of multiple signaling pathways. In our previous work, microarray and Real-time polymerase chain reaction (RT-PCR) analysis of colorectal cancer tissues were performed to explore core genes involved in CRLM, and results showed that up-regulation of Src was correlated with CRLM. This study proposed to further illustrate the relationship between Src expression level and liver metastasis of colorectal cancer, and explore the correlation between Src expression and prognosis for patients with CRC.

Methods: Immunohistochemical analysis was used to evaluate the expression of Src in 329 CRC cases with or without liver metastasis. Chi-square test was used to determine the correlations between clinicopathological characteristics and Src expression level. Kaplan-Meier and Cox analyses were adopted to assess the impact of Src on clinical outcomes.

Results: Immunohistochemical analysis showed that for patients with liver metastasis, Src expression was apparently stronger than those without liver metastasis ($P<0.001$). High Src expression was evidently associated with gender ($P<0.001$), tumor location ($P<0.05$), liver metastasis ($P<0.001$), clinical stage ($P<0.001$), tumor invasion ($P<0.05$), tumor deposits ($P<0.01$) and correlated with poorer overall survival and disease-free survival. Multivariate analysis revealed that Src expression level possessed independent prognostic impact for OS (hazard ratio 2.424; 95% confidence interval, 1.584–3.173; $P<0.001$) and DFS (hazard ratio 3.400; 95% confidence interval, 1.785–5.192; $P<0.001$).

Conclusion: Our results suggest that a high level of Src expression is associated with liver metastasis and unsatisfactory survival for CRC patients. Evaluation of Src expression may provide valuable prognostic information for predicting liver metastasis. Src may represent a novel therapeutic target in prevention and treatment of CRLM.

A retrospective analysis of 259 consecutive patients with initially unresectable colorectal liver metastases undergone conversion chemotherapy

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Background: Colorectal liver metastasis (CLM) is the main cause of death for patients with colorectal cancer. Conversion chemotherapy has been proven to effectively downstage initially unresectable CLM and make secondary resection possible, improving greatly the survival rate of patients. We undertook a retrospective study of 259 consecutive patients with unresectable CLM who underwent conversion chemotherapy in our hospital aiming to assess the effect of different conversion chemotherapy regime and explore the factors associated with a successful conversion.

Patient and Methods: From 2008/1–2011/12, a total of 259 patients was included for this study. Reasons for unresectability were mainly classified into 4 categories: large size, ill location, multinodularity and extrahepatic disease. 152 patients underwent systemic chemotherapy or in combination with biologic agents. 15 patients received fluorouracil based HAI regimen. 92 patients underwent HAI and systemic chemotherapy. Response to therapy was assessed by a multidisciplinary team routinely. Curative hepatectomy was performed as soon as possible for downsized metastases.

Results: The ORR in the general population was 40.9%. In all, 30.5% (79) patients were evaluated resectable and curative hepatectomy were performed. The perioperative mortality rate was 0 and no serious postoperative complications were observed. For patients who underwent curative hepatectomy, the 5-year survival rate was 37.3%, significantly higher than that of patients who were not converted (5-year survival rate of 24.0%, $P<0.001$). Univariate analysis identified 4 factors predictive of converted resection: metachronous CLM, a lower CEA level (≤ 50 ng/ml), reason for unresectable (too large) and targeted therapy. On multivariate analysis, response to chemotherapy (CR/PR), number of CLM (≤ 4) and a lower CEA level (≤ 50 ng/ml) were the independent predictors for superior overall survival.

Conclusion: Conversion chemotherapy regimen enables liver resection in some patients with initially unresectable CLM and improves clinical outcome. Systemic chemotherapy and HAI based conversion regimens are both proven to be effective and safe conversion strategies.

Perioperative FOLFIRI versus adjuvant FOLFIRI in resectable advanced colorectal cancer: mid-term outcomes of a phase III, randomized controlled trial

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Purposes: Comparing perioperative FOLFIRI versus adjuvant FOLFIRI in resectable advanced colorectal cancer who failed to oxaliplatin

Methods: The randomized clinical study was an open-label, phase III trial comparing perioperative FOLFIRI versus adjuvant FOLFIRI in resectable local recurrent or metastatic colorectal cancer failed to oxaliplatin-containing treatment. Histological confirmed colorectal adenocarcinoma patients (age: 18–80 years, ECOG: 0–1) with local recurrent or metastatic focus and history of exposure to oxaliplatin were included. Anticypants were randomly assigned to receive either neoadjuvant FOLFIRI (6 cycles) before surgery and postoperative FOLFIRI (6 cycles) or adjuvant FOLFIRI (12 cycles) after surgery. Statistics analysis was performed according to treatment. This trial is registered with ClinicalTrials.gov (NCT: 02087475).

Results: We randomly assigned 88 patients to receive either direct surgery (n=45) or neoadjuvant chemotherapy (n=43) till November 2014. 47% patients achieved CR/PR and 53% patients developed to unresectable after neoadjuvant FOLFIRI. 40% patients developed disease progression in the direct surgery group and 53% patients developed disease progression in the neoadjuvant chemotherapy group ($P=0.408$). No treatment-related deaths happened.

Conclusions: Our initial results show that perioperative FOLFIRI and adjuvant FOLFIRI shared similar outcomes in resectable advanced colorectal cancer who failed to oxaliplatin. Further recruitment and follow up are needed to confirm our conclusion.

Laparoscopic-dominantabdominoperineal resection (LDAPR)with personalized levatorani resectionfor low rectal cancer

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Background and Objective: The extralevator abdominoperineal resection (ELAPR) for low advanced rectal cancer is still controversial due to its severe pelvic nerve injuries and complicated pelvic floor reconstruction. Abdominoperineal resection (APR) is still a common operation for the patients with low rectal cancer, however, its oncological outcome is relatively poorer than that of anterior resection (AR) because of its higher margin positivity and tumor perforation rate. Traditionally the levatorani resection was performed during the perineal dissection procedure in laparoscopic APR (LAPR). Theoretically, the levator muscles also can be resected with an abdominal approach under a direct visualization during laparoscopic surgery. The aim of this

study was to discuss the feasibility and technique strategies for laparoscopic-dominant abdominoperineal resection (LDAPR) with personalized levatorani resection for low rectal cancer.

Methods: The clinical and pathological findings of 25 patients with low rectal cancer who underwent LAPR with a totally abdominal approach between March 2013 and December 2014 were collected retrospectively. The quality of surgery also was assessed by reviewing the recorded video obtained through the operations in terms of specimen anatomic planes and completeness of the excised mesorectum.

Results: All procedures were successfully performed with no intraoperative complications, laparoscopy-associated morbidity, or conversion to the open approach. The mean operation time and intraoperative blood loss were 125.8 min and 60.5 ml. All specimens had their complete mesorectum with levator muscles attached, negative circumferential margins and no perforation.

Conclusions: LDAPR for low retal cancer is technically feasible and might reduce the margin positivity and tumor perforation rate.

Laparoscopic colorectal surgery causes acute gastrointestinal injury?

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Purpose: Acute gastrointestinal injury (AGI) is malfunctioning of GI tract in critically ill patients due to their acute illness. The incidence of AGI after colorectal surgery is low when laparoscopic techniques are used. On the other hand, elevated intra-abdominal pressure (IAP) and intra-abdominal hypertension (IAH) is associated to AGI grade II. Little is known on the relation between increased IAP during laparoscopy and subsequent AGI. The aim of this study is to assess the impact of different levels of IAP during CO₂ pneumoperitoneum on the incidence of postoperative AGI.

Methods: 66 colorectal cancer patients undergoing elective laparoscopic colorectal surgery were randomized equally into 3 groups, each with a different level of IAP during CO₂ pneumoperitoneum set at 10 mmHg, 12 mmHg and 15 mmHg respectively.

Parameters recorded to evaluate incidence and grade of postoperative AGI included: time to first flatus/defecation, first bowel movement, tolerance of semi-liquid food and the occurrence of vomiting/diarrhea. Moreover, inflammatory mediators were measured before the induction of CO₂ pneumoperitoneum and on postoperative day 1.

Results: 41 men and 25 women were analyzed in this study. AGI occurred in 15 patients (27.3%). The elevated IAP during CO₂ pneumoperitoneum didn't increase the occurrence of symptoms of AGI, neither vomiting nor diarrhea ($P=0.67$). Lower IAP levels didn't result in accelerated recovery of gastrointestinal function or shorter postoperative hospital stay ($P=0.64$). The serum IL-6 increased but was not related to the value of IAP ($P=0.27$).

Conclusions: The incidence of postoperative AGI after laparoscopic colorectal surgery is low and is not related to the level of IAP elevation (up to 15 mmHg) during surgery.

Keywords: Acute Gastrointestinal Injury, Intra-Abdominal Pressure, Laparoscopic Surgery, Postoperative recovery, Inflammatory Mediators

Completemedial approach for laparoscopic complete mesocolic excision in right-hemi colon cancer

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Objective: To explore the feasibilities between operational approaches for laparoscopic complete mesocolic excision to right-hemi colon cancer.

Methods: This prospective randomized controlled trial included that patients admitted to Shanghai minimally invasive surgery center to receive laparoscopic complete mesocolic excision from September, 2011 to January, 2013 were randomized into two groups: Hybrid medial approach, HMA, and complete medial approach, CMA. The feasibilities and strategies of the two techniques were studied and compared. Furthermore, the operation time and vessel-related complications were designed to be the primary end-point and other operational findings, including the classification of the surgical plane and post-operative recoveries were designed to be the secondary end-point for this study.

Results: 50 cases were qualified for the HMA so were 49 for the CMA after several screen factors. Within the HMA, there were 48 cases graded with mesocolic plane and 2 with intramesocolic plane. For the CMA, there were 42 cases graded with mesocolic plane and 7 with intramesocolic plane. The differences between the two were insignificant so were the numbers of lymph node retrieved. The total operation time for the CMA was 128.3±36.4 minutes which was significantly shorter than the one for the HMA, 142.6 ± 34.8 minutes. Among which, the time involved in central vessel ligations and laparoscopic procedures was 58.5 ± 14.1 minutes and 81.2 ± 23.5 minutes respectively which were shorter than the HMA. Vessel-related complication rate was significantly higher in the HMA.

Conclusions: Laparoscopic CME with total medial approach is technically feasible after the precise identifications of surgical planes and spaces for right-hemi colon. The procedure is proved to own shorter operation time and lower vessel-related complications. Therefore it should be highly encouraged and disseminated.

Risk Factors and Postoperative Complications Associated with Anastomotic Leakage in Colorectal Cancer

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Background and Aims: Anastomotic leakage (AL) is a serious complication of colorectal surgery, as it greatly increases the morbidity, mortality and has been associated with augmented local recurrence and diminished survival. This study aimed to identify the risk factors and postoperative complications for AL after colorectal surgery in the first affiliated hospital of Sun Yat-sen university.

Methods: We studied 1275 patients who underwent colorectal cancer surgery between January 2010 and June 2013. 12 preoperative, 17 operative and 11 postoperative variables were examined by chi-square test or Fisher's exact test for univariate analysis and further by multivariate logistic regression analysis, among which, 1 operative and 3 postoperative variables were for 426 rectal cancer surgeries. Meanwhile, 8 postoperative complications and short-term prognostic variables were also examined by Fisher's exact test or chi-square test.

Results: Anastomotic leakage was identified in 60/1158(5.2%) total patients, 20/732(2.7%) and 40/426(9.4%) were for colonic and rectal cancer, respectively. Univariate analysis identified preoperative variables: sex ($P=0.012$), preoperative CEA level($P<0.001$), hemoglobin level($P=0.089$); operative variables: surgical time($P=0.009$), anastomotic methods ($P=0.003$), surgical staging ($P=0.016$), operative sites ($P<0.001$); Postoperative pathologic variables: distance from tumor to distal incisional margin ($P<0.001$). For rectal cancer, rectal procedures ($P=0.022$), rectal segments ($P=0.010$), distance from tumor to dentate line($P=0.011$) and total mesorectal excision(TME) ($P=0.046$). All these variables were selected into multivariate analysis, it identified surgical time ($P=0.021$), preoperative CEA level $\geq 41\mu\text{g/L}$ ($P<0.001$), double stapled anastomosis ($P=0.007$) and for rectal cancer, middle or lower rectal segment ($P=0.008$, 0.005; respectively) as independent predictive factors for AL. To the 8 postoperative complications or short-term prognostic variables, postoperative hospital stay, abdominal infection, urologic infection and incision infection were considered significant.

Conclusions: The rate of anastomotic leakage after rectal cancer was much higher than colon cancer. Surgical time, tumor biomarkers, anastomotic methods and rectal segments may have potential to increase the occurrence of AL. Meanwhile, AL will increase the patients' hospital cost, stay days and some other relevant complications.

Rectovaginal fistula for middle and low rectal cancer in the era of neoadjuvant chemoradiotherapy and total mesorectal excision

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Purposes: This study was to evaluate the incidence and management of rectovaginal fistula (RVF) for middle and low rectal cancer following neoadjuvant chemoradiotherapy (NCRT) and total mesorectal excision (TME).

Methods: A total of 389 consecutive females with middle and low rectal cancer who underwent TME from 2005 to 2012 were retrospectively evaluated. Univariate analysis was performed to evaluate the factors including gender, age, BMI, ASA score, diabetes, pelvic operation history, location on the anterior rectal wall, NCRT, laparoscopic surgery, intersphincteric resection (ISR), combined ovary resection, combined vaginal resection (CVR), stage T4, positive N category and M1 category. The outcome of mucosal advancement flap repair (MAF) with acellular matrix of bovine pericardium interposition (ABP) was estimated.

Results: Of the 389 patients, 18(4.6%) developed RVF. NCRT ($P < 0.001$), ISR ($P = 0.012$) and CVR ($P = 0.018$) were associated with higher incidence of RVF as 16.1% (10/62), 9.4% (10/106), 17.6% (3/17) respectively. The rectal opening of RVF was 0.2cm to 1.0cm (mean 0.5cm) and located from 2 to 5 cm from the anal verge (mean 2.9cm). Six of 18 patients recovered only by the establishment of a diverting stoma. Three underwent endorectal MAF with ABP healed successfully. The vaginal MAF with ABP was used for five patients. One relapsed and was cured by pudendal-thigh flap. At a mean follow up of 60.4 months, 14 patients (77.8%) have healed.

Conclusions: NCRT, ISR and CVR are associated with RVF after TME for middle and low rectal cancer. Good results are obtained with a vaginal or endorectal MAF with ABP.

Extralevator Abdominoperianal Excision Combined with Transanal Minimally Invasive and Laparoscopic Surgery in the Treatment of Rectal Cancer

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Objective: To evaluate the safety and effectiveness of combined with laparoscopic abdominal surgery and perianal transanal minimally invasive surgery in extralevator abdomino perianal excision.

Methods: We analyzed 10 patients of rectal cancer were treated following this procedure retrospectively. In the part of perineal operation, we created an artificial space around the anus then applied a transanal minimally invasive surgery port. The perineal part of extralevator abdomino perianal excision

performed by laparoscopic surgery. The operating time, hospitalization time and post-operation complications were studied.

Results: Laparoscope-assisted abdominal surgery and perianal transanal minimally invasive surgery were combined to all patients successfully. Average operation time was 206 min. Average postoperative hospital stay was 12 d. No intraoperative bowel perforation was happened. No death and conversion was occurred. Postoperative pathological results showed circumferential resection margins were negative. Postoperative follow-up found one case of perineum incision infection, no pelvic floor hernia, no tumor recurrence and metastasis.

Conclusion: Laparoscopy combined with transanal minimally invasive surgery port extra levator abdominal perineal resection is safe and effective. Two parts operation can be operated during the same period. Intraoperative position turning is not needed.

Keywords: rectal cancer; extra levator abdominal perineal resection; laparoscopy; transanal minimally invasive surgery port

LKB1 depletion enhances AICAR induced apoptosis in colorectal cell line HCT116

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Objective: To determine the effect of LKB1 depletion on AICAR induced apoptosis in colorectal cell line HCT116 and to explore the potential mechanism.

Methods: Established LKB1 depleted cell line, HCT116-LKB1-shRNA, and, control cell lines, HCT116-PLKO.1, with lenti virus. Cells were treated with AMPK activator, AICAR, in different concentrations. Growth inhibition was detected with SRB assay, apoptosis and cell cycle analysis was performed with flow cytometry, protein expression of pAMPK, AMPK, LKB1, P21 and caspase 3 was evaluated by western blot.

Results: Both HCT116-PLKO.1 and HCT116-LKB1-shRNA cells were inhibited by AICAR in a concentration dependent pattern. The inhibitory effect increased as the concentration went up. HCT116-LKB1-shRNA cells were more sensitive to AICAR compared to HCT116-PLKO.1 cells. Caspase 3 cleavage was found in both cell lines treated with AICAR and it was more extensive in HCT116-LKB1-shRNA cells than HCT116-PLKO.1 cells. Apoptosis analysis found more apoptosis in HCT116-LKB1-shRNA cells while treated with AICAR. Cell cycle analysis revealed that treatment of AICAR for 12 hr led to cell cycle arrest in G0/G1 in HCT116-PLKO.1 cell, but not in HCT116-LKB1-shRNA. Western blot for cell cycle protein P21 revealed that AICAR could induce P21 in HCT116-PLKO.1 cells but not in HCT116-shRNA cells.

Conclusions: Depletion of LKB1 enhances AICAR induced apoptosis in HCT116 cells. The potential mechanism is that P21 is activated by AICAR dependent on AMPK in HCT116 cells with intact LKB1, and cell cycle arrest is induced to avoid apoptosis. Depletion of LKB1 leads to the failure of activation of P21 and the subsequent cell cycle arrest, which leads to apoptosis.

Keywords: LKB1; AMPK; AICAR; colorectal cancer; HCT116; apoptosis.

The indication for preoperative localization of colorectal tumor with endoscopic clip placement for laparoscopic resection

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Objective: To investigate the indication for pre-operative localization of colorectal tumor with endoscopic clip placement for laparoscopic resection.

Methods: Retrospective analysis was performed on the clinical data of 367 patients who underwent laparoscopic colorectal resection from July 1st, 2013 to June 30th, 2014. Intra-operative colonoscopy was performed in 86 patients (23.4%) to localize the colorectal tumor due to the failure of surgical exploration by laparoscopy and the inaccuracy of pre-operative localization by colonoscopy and CT-Scan/MRI.

Results: The risk factors for inaccuracy of localization of colorectal tumor were as follows: rectal examination was negative; tumor wasn't localized in caecum or ascending colon; CT-Scan/MRI didn't demonstrate primary tumor; T stage of tumor by CT-Scan/MRI was less than T2; Diameter of tumor was less than 3cm; Tumor was protruded type. All factors were strongly correlated ($P=0.000$). The indication for preoperative localization of colorectal tumor with endoscopic clip placement was expressed as a flow chart with all these factors. The prediction for inaccuracy of localization of colorectal tumor with this flow chart showed a satisfactory success: $Se=94.2\%$, $SP=90.0\%$, $LR=9.42$, Youden Index= 0.842 , Accuracy Rate= 91% , $+PV=74.3$, $-PV=98.1$.

Conclusion: This indication makes a preoperative localization of colorectal tumor with endoscopic clip placement more targeted and effective.

Keywords: laparoscopic surgery, colorectal tumor, pre-operative localization, indication

Analysis and post treatment of the chylous fistula after D3 radical resection of colon cancer

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Objective: To summarize the analysis and post treatment of 32 chylous fistula examples, caused after 930 colonic carcinoma patients in gastrointestinal surgery, 2008.01.01-2013.01.01.

Methods: Between January 2008 to January 2013, 930 patients who had undergone radical operation for colonic cancers were included in the study. In the 930 patients, the clinical data of 32 patients who had postoperative chylous leakage were analyzed. Compare effects of sex, age, preoperative complications, location and stage of tumor and operation methods, etc.

Results: The incidence of chylous leakage after colonic carcinoma was 3.4% (32/930), 7 in left colonic carcinoma (7/322, 2.2%), 24 in right colonic carcinoma (25/584, 4.2%) and 1 in transverse colon (1/24, 4.2%). By the standard of TNM in UICC, the results are 3 in stage I, 8 in stage II, 21 in stage III. By the standard of Dukes, the results are 4 in stage A, 7 in stage B and 21 in stage C. Chylous fistula usually occurs at an average of 5 days (4-7 days) after surgery. The maximum daily drainage volume ranged from 200 to 500ml, with an average of 350ml. All the patients were

cured conservatively and the average healing time is 14 days (8-20 days). During the ten factors, hypoproteinemia, tumor location and lymph nodes dissection number have statistical significance with the occurrence of chylous fistula ($P<0.05$). Sex, age, diabetes, method and time of operation, TNM have no clear correlation with chylous fistula ($P>0.05$).

Conclusion: Chylous fistula often occurs in the right hemicolon. A positive correlation between the number of lymph nodes dissection and chylous fistula is testified. Hypoproteinemia is one of the risk factors of chylous fistula. Postoperative chylous leakage should be avoided by intraoperative prevention. Once chylous occurs, support and conservative treatment should be carried out. Emphasis of the lymph ducts, silk ligation and the use of protein gel can help decrease the incidence of chylous fistula.

Keywords: D3 radical resection of colon cancer, postoperative complication, chylous leakage, diagnosis, treatment and prevention.

Endoscopic covered self-expandable metal stents implantation in the management of anastomotic leaks after colorectal cancer surgery

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Objective: We evaluated the efficacy and safety of covered self-expanding metallic stents (CSEMS) implantation as a treatment option in patients with anastomotic leaks after colorectal cancer surgery.

Methods: A retrospective study was performed in 12 patients with anastomotic leaks after colorectal cancer surgery undergoing CSEMS implantation between May 2013 and November 2014. We reported short-term outcome of placement of CSEMS as a treatment option in patients with postoperative colorectal anastomotic leaks.

Results: The median time to diagnosis of an anastomotic leak was 6.3 days (range 2-13). The median time of CSEMS implantation after anastomotic leak was 8.0 days (range 2-55). Clinical success without reoperation was achieved in 10 of 12 cases (83.3%) and there was no mortality. The median time to healing of the anastomotic leak after CSEMS implantation and the median time to healing of the anastomotic leak was 13.0 days (range 10-33) and 22.0 days (range 14-86), respectively. The complications are stent migration (75.0%, 9/12), anorectal pain (58.3%, 7/12), fecal incontinence (25.0%, 3/12) and enterocolic fistula (8.3%, 1/12).

Conclusion: Stent implantation in a week after relief of peritonitis of postoperative colorectal anastomotic leaks, cooperated with other conservative therapy (early indwelling of transanal double catheterization cannula and pelvic double catheterization cannula with persistent bathe and negative pressure aspiration), in management of patients with early diagnosed anastomotic leaks is safe and effective.

Clinical Analysis and Prevention Strategy for the Postoperative Urinary retention of the Low Colorectal Cancer

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Objective: To analyze the reasons of postoperative urinary retention of the low colorectal cancer and propose the strategy of preventing the postoperative urinary retention.

Methods: From May, 2013 to May 2014, 126 postoperative patients with low colorectal cancer selected from the General Surgery Department of Zhengzhou University Affiliated Tumor Hospital were randomly divided into 62 cases for the observation group, 64 cases for the control group. The rate and efficacy of the postoperative urinary retention of the low colorectal cancer were studied between the two groups.

Results: There were three cases of urinary retention in the observation group, and the rate was 4.8%; 12 cases of urinary retention in the control group, and the rate was 18.8%. The incidence of urinary retention in the observation group was significantly lower than the control group, and the obvious difference was statistically significant.

Conclusions: Comprehensive intervention of different stages of the postoperative low colorectal cancer can effectively prevent the occurrence of the postoperative urinary retention. Furthermore, the sex, the age, the neoadjuvant therapy before operation, the distance from the lower of the tumor to the anal margin, and the surgery methods were the main risk factors for the postoperative urinary retention.

Keywords: Low colorectal cancer; Urinary retention; Prevention

The effect and safety of laparoscopic Miles surgery for lower rectal cancer

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Objective: To compare the curative of laparoscopic Miles surgery and open procedure for lower rectal cancer.

Methods: 163 cases of patients with lower rectal cancer treated in our hospital from June 2009 to June 2014 were selected as research objects. According to surgical method, they were divided into laparoscopy group (75 cases) and laparotomy group (88 cases). Patients in laparoscopy group were given laparoscopic Miles surgery, and patients in laparotomy group were given Miles surgery with laparotomy. The operation effect, safety and complication in the two groups were compared.

Results: The bleeding volume, postoperative recovery process on patients in laparoscopy group compared with the laparotomy group, the difference were statistically significant ($P < 0.05$). But the operation time and the mean number of removal lymph nodes in laparoscopy and laparotomy group were not significantly ($P > 0.05$).

Conclusion: Two methods of surgical treatment can obtain good clinical effect in lower rectal cancer treatment. But compared with laparotomy of Miles surgery, laparoscopic Miles surgery can reduce operation wound and complications, improve postoperative recovery and has higher safety.

Keywords: Laparoscopic, lower rectal cancer, Miles surgery;

The clinical effectiveness of fibrinogen on diagnose the severity of acute appendicitis

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Objective: To detect the clinical effectiveness of fibrinogen on diagnose the acute appendicitis.

Methods: A retrospective analysis was used to analyze the clinical data from Aug 2013 to Jan 2014 of 127 patients under acute appendicitis, 73 cases (Group 1) named general infection appendicitis with simple appendicitis, suppurative appendicitis or peritonitis merge limitations, and 54 cases (Group 2) named severe infection of appendicitis with acute peritonitis, pelvic inflammatory purulent or gangrenous, perforated appendicitis, or appendix abscess. To evaluate the effectiveness by comparing the 2 groups sexual, aged, preoperative duration of disease, blood leukocytes examination, intraoperative diagnosis and pathological findings, and preoperative serum fibrinogen.

Results: There were no significant differences between the Group 1 and the Group 2 on sexual (38/35 vs 26/28, $p > 0.05$) and aged (39.8 ± 25.1 vs 41.3 ± 21.6 , $p > 0.05$), but had differences on preoperative duration of disease (35.8 ± 36.5 vs 52.3 ± 38.8 , $P < 0.05$). There were significant between the Group 1 and the Group 2 on blood leukocytes examination and preoperative serum fibrinogen ($P < 0.01$, respectively). The sensitivity and specificity of preoperative serum fibrinogen were 72.22% and 56.16% in Group 1, and 20.37% and 98.63% in Group 2.

Conclusion: The fibrinogen has the clinical effectiveness on diagnosing the acute appendicitis.

Keywords: fibrinogen; acute appendicitis; infection

Perioperative clinical effect results of comparing preoperative short-course radiotherapy with long-course radiotherapy for middle-low rectal cancer

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Objective: The aim of the study was to compare the perioperative clinical effect of preoperative short-course radiotherapy and long-course chemoradiotherapy for locally advanced middle-low rectal cancer as a reference for preoperative neoadjuvant radiotherapy.

Patients and Methods: This study is a retrospective analysis of 82 cases of laparoscopic assisted radical resection of locally advanced middle-low rectal cancer after preoperative neoadjuvant radiotherapy, in the Department of Abdominal Surgery, in Fujian Provincial Tumor Hospital from January 2008 to December 2014. Patients with middle-low locally advanced rectal cancers were classified into two groups, including the preoperative short-course radiotherapy (short-course group) ($n = 40$), and the preoperative long-course chemoradiotherapy (long-course

group) (n=42). The dose in the short-course group was DT 25Gy/5F/5D; after completion of radiotherapy, the patients rest 1 weeks and had laparoscopic assisted radical resection. The dose in the Long-course group was DT 50Gy/2F/25D, and synchronous gave capecitabine 825 mg/m² bid PO, after completion of radiotherapy, the patients rest 6 to 8 weeks and had laparoscopic assisted radical resection. The perioperative clinical effect compared between two groups.

Results: For the short-course and long-course groups, the mean bleeding volum in operation was 181.5ml and 220.0ml, respectively; the postoperative hospitalization days was 14.6 day and 16.3 day, respectively; the rate of T down-staging was 30% and 42.9%, respectively; the rate of N down-staging was 25% and 42.9%, respectively; the rate of postoperative complications was 42.5% and 40.9%, respectively; the rate of sphincter-saving was 37.5% vs 35.7%, respectively; they were all no significant difference between two groups ($P>0.05$). The rate of down-staging and the rate of PCR in long-course group was significantly obviously better than short-course group ($P<0.05$).

Conclusions: Compared the perioperative clinical effect of preoperative short-course radiotherapy and long-course chemoradiotherapy for locally advanced middle-low rectal cancer, the mean bleeding volum in operation, the postoperative hospitalization days, the rate of T down-staging, the rate of N down-staging and the rate of postoperative complications were all no significant difference between two groups, and the rate of postoperative complications of preoperative short-course radiotherapy were not increased relative to the long-course chemoradiotherapy. Thus, combining with the situation of our country, we recommend that locally advanced middle-low rectal cancer patients can receive preoperative short-course radiotherapy.

Keywords: Rectal cancer, Preoperative short-course radiotherapy, Preoperative long-course chemoradiotherapy, Clinical effect.

Application of prognostic nutritional index in prognostic evaluation of colorectal cancer

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Objective: To investigate the correlation between the prognostic nutritional index (PNI) and clinicopathological features and long-term prognosis of colorectal cancer patients after radical resection.

Methods: The clinical data of 211 colorectal cancer patients who underwent radical resection was analyzed retrospectively. The PNI value was calculated by serum albumin(g/L) + 5 × lymphocyte count(×10⁹/L). The receiver operating characteristic(ROC) curve and Youden index was used to determine the cutoff value of the PNI. Survival curves were described by the Kaplan-Meier method and compared by the Log-rank test. The univariate and multivariate analyses were performed with the Cox proportional hazard model to identify the prognostic factors.

Results: The mean PNI value was 43.10±7.09. The mean values of the PNI in age, tumor location, tumor differentiation, tumor depth, negative lymph node, negative metastasis, TNM staging were significantly higher than those in patients without such factors (all $P<0.05$). When the PNI was 45, the Youden index was maximal. with a sensitivity of 57.6% and specificity of 79.5%. The mean age in high PNI group was significantly lower

than that in low PNI group ($\chi^2=55.464, P<0.001$), Tumor located more in rectum in high PNI group ($\chi^2=9.003, P=0.003$). Tumor differentiation in high PNI group was more than in low PNI group ($\chi^2=4.237, P=0.04$). Tumor infiltration depth in high PNI group was less than in low PNI group ($\chi^2=6.240, P=0.012$). The proportion of lymph node metastasis ($\chi^2=13.889, P<0.001$) and distal metastasis ($\chi^2=4.490, P=0.034$) in high PNI group was significantly lower than in low PNI group. The overall survival rate in high PNI group was higher than in low PNI group ($\chi^2=27.676, P<0.001$). The univariate and multivariate analyses showed that the PNI value < 45 (OR, 2.083; 95%CI 1.191-3.644; $P<0.001$) was independent factors for predicting overall survival rate.

Conclusion: Prognostic nutritional index is a valuable clinical marker in preoperative estimation as well as prognosis prediction for colorectal cancer.

APPLICATION OF OSTOMY BAG IN GENERAL SURGICAL WARDS

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Research purposes: This paper by discussing the scope of use ostomy bag in general surgery ward, describes the application of intestinal stoma pocket in colostomy and the applications in stoma complications. At the same time also attempts to probe into the feasibility of using in other diseases of ostomy bag.

Materials and Methods: 341 cases of ostomy bag using were summarized and detailed operation steps that provide and example of application.

Results: in addition to conventional ostomy bag used in intestinal stoma outside, for some there are complications of colostomy can also use ostomy bag. At the same time on intestinal fistula and fecal incontinence drainage tube leakage, in the case of ostomy bag can also play a role in the treatment of.

Conclusion: the majority of medical workers can play the subjective initiative in work, creative "scope" use ostomy bag, expanding the use of ostomy bag indication. Make the pocket shine in the Department of general surgery ward.

Primary tumor resection related to better outcome in Chinese metastatic colorectal cancer patients using bevacizumab

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Purposes: Monoclonal antibody bevacizumab targeting the vascular endothelial growth factor has become the standard treatment of metastatic colorectal cancer(mCRC) and has led to modest but significant improvements in patient outcomes. Given the modest gains there is a pressing need for predictive factors to better identify patients who would benefit from this target therapy.

Methods: We performed retrospective study of 95 Chinese patients with mCRC who received bevacizumab combining chemotherapy. Overall survival(OS) was recorded. Univariate and

multivariate Cox proportional hazard regression models were used to assess the influence of clinical factors on OS in the cohort.

Results: Ninety-five patients was included with the median follow up duration of 32 months (range: 2.4–56.3 months). The OS was 24.6 months (95% CI, 21.1–28 months), with the proportion of primary lesion resected and unresected being 67.4% and 32.6%, pathology grading 1, 2 and 3 being 14.7%, 45.3% and 32.6%, mismatch repair (MMR) protein deficient and proficient being 12.3% and 87.7%, short and long bevacizumab exposure time (cut-point 32.2 weeks) being 70.5% and 29.5% respectively. The univariate analysis showed OS was closely related with 6 variables, which applied to further multivariate analysis showing primary lesion resection status, pathology grading, MMR protein status and bevacizumab exposure time were significantly associated with OS.

Conclusions: Primary lesion resection status, pathology grading, MMR protein status and bevacizumab exposure time may be predictive factors to better identify patients who would benefit from bevacizumab therapy in Chinese mCRC. Prospected controlled trials may be initiated to validate this finding.

Laparoscopic-assisted total colectomy and Duhamel pullthrough procedure with ileo-retrorectal anastomosis for idiopathic megacolon in adults

Short title: Laparoscopic-assisted total colectomy for idiopathic megacolon in adults

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Background/aims: Idiopathic megacolon is an uncommon and poorly characterised condition in adults. To date, no laparoscopic operative experience has been reported. The aim of this study was to describe our initial experience of laparoscopic-assisted technique for magacolon in adults.

Methods: Between October 2006 and November 2008, 44 patients with long term intractable constipation that failed to conservative treatment underwent surgical intervention. Among them, 6 patients diagnosed with idiopathic megacolon were enrolled in this study. All of the 6 patients underwent laparoscopic-assisted total colectomy and Duhamel pullthrough procedure with ileo-retrorectal anastomosis. Main outcome measures included the operative time, blood loss, conversion to open procedure, postoperative hospital stay, and complications.

Results: All of the 6 patients were female. The mean laxatives dependent duration was 16.3 years. The mean operative time was

271.6 min. The mean estimated blood loss was 163 ml. The mean day of first time to flatus was 3.2 days, and the mean hospital stay was 12.2 days. There was no conversion to an open procedure and no surgical mortality. Severe diarrhea was the most prominent complications during the early period postoperatively. However, three months postoperative, all patients gradually got adaptation to the diarrhea.

Conclusions: Laparoscopic-assisted total colectomy and Duhamel pullthrough procedure with ileo-retrorectal anastomosis could be a safe and efficient technique in the treatment of idiopathic megacolon in adults.

Keywords: Laparoscopic; Megacolon; Colectomy; Duhamel procedure; Adult

Single Incision Laparoscopic Subtotal Colectomy with Cecorectal Anastomosis for Slow Transit Constipation

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Aim: Single incision laparoscopic surgery (SILS), performed through a single incision of less than 3 cm, has been shown to be feasible for colectomy. This study aimed to assess its safety and efficacy when used as a method of choice for subtotal colectomy with cecorectal anastomosis (CRA).

Methods: Two female patient (age 52 years, and 55 years; body mass index 16 kg/m², and 18.7kg/m², respectively) underwent subtotal colectomy with CRA, for slow transit constipation (STC), using SILS approach. The single port was placed between the umbilicus and symphysis pubis. Specimen extraction was through the port site.

Results: Operative procedures were performed with an operative time of 147 min and 186min, blood loss of 20 ml and 50 ml, and no intraoperative complication. No additional abdominal ports were required. The postoperative hospital stay was 7 days.

Conclusion: Subtotal colectomy with CRA using SILS is feasible for the treatment of STC in carefully selected patients.

Keywords: Single incision laparoscopic surgery; subtotal colectomy; cecorectal anastomosis; slow transit constipation

Neoadjuvant chemoradiotherapy improves the sphincter preservation rate only when rectal cancer located in 3–5 cm from anal verge: a 14 years experience

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Purposes: Neoadjuvant chemoradiotherapy (NCRT) is the current standard approach for treating locally advanced rectal cancer and has contributed to improved local control. It is unclear whether NCRT increases the rate of sphincter preserving surgery. We evaluated whether NCRT improves the sphincter preservation rate for distal rectal cancers within 6 cm of the anal verge.

Methods: A total of 553 consecutive patients who underwent curative surgery for locally advanced rectal cancer within 6 cm of the anal verge with or without NCRT between January 2001 and November 2014 were reviewed. Of these, 344 patients underwent surgery alone (Non-CRT group) and 209 patients also received preoperative chemoradiotherapy (CRT group). Clinical data were retrospectively reviewed to evaluate sphincter preservation rate according to tumor height over 1-cm intervals, and to determine the factors influencing sphincter preservation.

Results: Sphincter preservation surgery was performed in 402 patients. The overall sphincter preservation rate was 69.8% in patients of Non-CRT group and 77.5% of CRT group ($P=0.047$). In an analysis according to tumor height, the sphincter preservation rate was 0.0%(0/5) vs 0.0%(0/8) in less than 2 cm, 6.3%(2/32) vs 18.2%(2/11) in 2–3 cm ($P=0.240$), 2.6%(1/38) vs 61.3%(19/31) in 3–4 cm ($P<0.001$), 40.6%(13/32) vs 76.3%(29/38) in 4–5 cm ($P=0.002$), 91.1%(171/183) vs 90.6%(77/85) in 5–6 cm ($P=0.893$), and 98.2%(111/113) vs 97.2%(35/36) in 6 cm ($P=0.708$). Tumor height increased significantly after NCRT (from 42.6 ± 13.8 to 46.3 ± 12.9 mm, change 3.6 ± 8.2 mm, $P<0.001$). Multivariate analysis indicated that the independent factors influencing sphincter preservation were tumor height (OR, 5.38; 95 % CI, 2.57–911.30, $P<0.001$) and change in tumor height following NCRT (OR, 3, 48; 95 % CI, 1.60–7.58, $P=0.002$).

Conclusion: NCRT significantly increases the tumor distance from anal verge. However, only when tumors were between 3 and 5 cm from the anal verge, NCRT increased the rate of anal sphincter preservation. In addition, change in tumor height following NCRT is also an independent factor affecting sphincter preservation.

Mucinous cystadenoma of the appendix: a case report and a review of the literature in China

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Background: Mucinous cystadenoma of the appendix is a rare disease and have a difficult preoperative diagnosis. Its main symptoms are right lower quadrant abdominal pain and abdominal mass. US, CT and MRI examination can improve the preoperative diagnosis rate. The final diagnosis relies on laparotomy and postoperative pathology.

Objective: To research the clinicopathologic features, diagnosis and treatment of mucinous cystadenoma of the appendix.

Methods: To analyze retrospectively the clinical data of mucinous cystadenoma of the appendix of 1 case treated in our hospital and 21 domestic cases reported from 1990 to 2013 during past 24 years in China.

Results: In our review, there were 22 patients, 13 of whom were women. The median age was 55.6 years (14–75 years), and the most common presentation was abdominal pain (62.8%). On US in 13 patients, findings were abdominal cystic mass and cyst wall calcification. The CT finding was well-encapsulated cystic mass in 16 patients. In one case, a colonic mass was found in colonoscopic examinations. Two cases were found while doing other operations. Appendectomy was performed in 12 patients and right hemicolectomy was performed in 5 patients. Of 22 patients, there were 3 cases of cancer (13.6%) and one case of concurrent lymph node metastasis (4.5%). 9 cases were received follow-up. The follow-up rate of 40.9%. The longest one case was followed up for 12 years and is still alive.

Conclusion: Clinical doctors must raise awareness of this disease. Complete surgical removal of lesions is the only effective way of treatment. It is important to select the appropriate surgical approach to avoid its malignant change and spillage of the mucocele content.

Keywords: Appendix; Mucinous cystadenoma; Diagnosis; Treatment

Application of magnetic compression technique to repair rectovaginal fistulas: feasibility study in swine

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Purposes: The purpose of this study was to introduce a novel method to repair rectovaginal fistulas by using the magnetic compression technique.

Methods: Two Nd-Fe-B permanent magnet arches which coated titanium nitride were accepted for each animal. 4 female pigs were made into RVF models surgically. After model established, we performed surgery to repair fistula with the magnetic device: after the fistula exposed, pull surrounding tissue onto the vaginal side, place two magnetic arches suit the size of fistula properly to clip the fistula completely. The magnetic device was indwelt until it's expelled spontaneously. The animal was executed 4 weeks after the expulsion of the device to obtain visual inspection and tissue samples of the lesion. HE and Masson staining were performed.

Results: All 4 surgeries were successful. The fistulas were clipped completely and tightly during procedure. The two magnets were expelled in 3 to 4 weeks and the lesions were repaired with no inflammation or swelling observed. HE staining showed both vaginal and rectal mucosae were properly repaired, respectively. Masson staining revealed a large quantity of tidily arranged collagen surrounding the lesion.

Conclusions: Magnetic compression technique was successfully used to repair rectovaginal fistulas in swine with two magnet arches, and this novel approach may be used as a surgical therapy clinically in future.

Effect of differential protein transgelin-2 overexpression on the biological characteristics of colon cancer cells

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Purposes: To study the effect of transgelin-2 expression on biological characteristics of colon cancer cells.

Methods: RT-PCR and Western blot were used to observe mRNA and protein expression of transgelin-2 in five colon cancer cell lines, screen for cell line with lower transgelin-2 expression; Transient transfection was performed to establish overexpression of transgelin-2 colon cancer cell line; The effect of transgelin-2 over-expression on the proliferation, apoptosis and the ability of migration and invasion of colon cancer cell were detected by CCK-8, low cytometric analysis and transwell method respectively.

Results: There was no statistical difference of proliferation and apoptosis in colon cancer cell with transgelin-2 over-expression compared with the controls; Enhanced ability of migration and invasion was noted in colon cancer cell with transgelin-2 over-expression, after 15 hours culture in serum free medium, the number of the cells through the transwell chamber bottom membrane in colon cancer cell with transgelin-2 over-expression group was significantly more than that in the control group (207.3± 62.3 vs. 114.1± 29.2, $P < 0.05$) and empty vector transfected group (120.3± 26.4) ($P < 0.05$), after 24 hours culture, similarly, the number of the cells was also significantly more than

that in the control group (179.2±32.1 vs. 95.1±33.2, $P < 0.05$) and empty vector transfected group (95.9±28.7) ($P < 0.05$).

Conclusions: Transgelin-2 could enhance migration and invasion ability of colon cancer cell.

EVALUATION OF THE OPERATIVE SAFETY AND ONCOLOGIC OUTCOME OF DIFFERENT INTERVALS BETWEEN NEOADJUVANT RADIOTHERAPY AND SURGERY FOR RECTAL CANCER--META-ANALYSIS

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Objective: To compare the effects between a long interval (> 6-8 weeks) and short interval (< 6-8 weeks) between preoperative radiotherapy (RT) and surgery on the operative safety and oncologic outcomes of rectal cancer.

Methods: A comprehensive search of studies was performed using the PubMed, EMBASE, Cochrane Library, Web of Science, CBM and WanFang databases. The primary outcome, reported as the relative risk (RR) or risk difference (RD), included consideration of the sphincter preservation rate, total postoperative complications, anastomotic astium and perineum complication morbidity. The second endpoints were the overall and disease-free survival. A meta-analysis was performed with Review Manager 5.2.

Results: Fourteen trials with a total of 3994 patients were included in the meta-analysis. We found that an interval longer than 6-8 weeks did not increase the sphincter preservation rate (RR: 0.98; 95% confidence interval (CI) : 0.94-1.03, $P = 0.44$). The total postoperative complications (RR: 0.98; 95% CI: 0.89-1.09, $P = 0.73$), anastomotic astium (RD: 0.00; 95% CI: -0.03-0.02, $P = 0.68$) and perineum complication rates (RD: 0.01; 95% CI: -0.02-0.04, $P = 0.43$) were similar in the two groups. Compared with the short interval, a longer interval could improve the overall survival (RR: 1.08; 95% CI: 1.03-1.14, $P = 0.0009$) and disease-free survival (RR: 1.09; 95% CI: 1.03-1.16, $P = 0.003$).

Conclusions: An interval longer than 6-8 weeks did not impact the sphincter preservation rate or surgical safety, but it could improve the oncologic outcome. The result should be confirmed in future randomized controlled trials.

Mesorectal source malignant melanoma (a case report and literature review)

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Objective: To discuss the diagnosis, management and prognosis of mesorectal source malignant melanoma

Methods: One case of malignant melanoma of mesorectum was reported. Through Light microscopy and Immunohistochemistry, and the literature reviewing to discuss its Clinical Features.

Results: The patient underwent total mesorectal excision (TME) and rectal resection and anastomosis. Anatomical

specimens, tumor from straight mesenteric infiltration into the intestine to grow and penetrate the full thickness of the intestinal wall, wrapped in a large number of membrane-based ink-like liquid with odor. Pathologically confirmed malignant melanoma. The patient was followed up 3 months later had local recurrence and distant metastasis and died 5 months after surgery.

Conclusions: Mesorectal source malignant melanoma clinically extremely rare, diagnosis relies on pathology and immunohistochemistry, treatment with surgical excision, but the overall prognosis is poor.

Keywords: Mesorectum; Malignant melanoma; TME surgery

Study on the mechanism of the transgelin-2 enhancing invasion and migration in colon cancer cell

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Purposes: To study the mechanism of transgelin-2 over-expression on enhancing invasion and migration in colon cancer cell.

Methods: RT-PCR and Western blot were used to observe mRNA and protein expression of transgelin-2 in five CRC cell lines, screen for cell line with lower transgelin-2 expression; transient transfection was performed to establish over-expression of transgelin-2 cell line; the effect of transgelin-2 over-expression on the migration and invasion ability were detected by transwell; the microfilament change of transgelin-2 over-expression was observed by Laser scanning confocal microscope and transmission electron microscopy; F-actin coprecipitation was used to validate the interaction between transgelin-2 and F-actin *in vitro*; the cellular location of transgelin-2 protein and F-actin was observed by immunocytochemistry.

Results: Enhanced ability of migration and invasion was noted in colon cancer with transgelin-2 over-expression; remarkable change of the relative contents of F-actin and G-actin was found in colon cancer cell with transgelin-2 over-expression, and relative fluorescence intensity (F-actin/G-actin) was significant higher than that of the controls (18.7±8.6 vs. 6.2±7.2 and 8.8±4.0). It meant that more actins changed from monomeric form(G-actin) to polymer form (F-actin), microfilament remodeling occurred; transmission electron microscopy demonstrated that much more microfilament formed in colon cancer cell with transgelin-2 over-expression; colocalization of transgelin-2 and F-actin was noted *in vivo* by immunocytochemistry; transmission electron microscopy demonstrated that there were interaction of transgelin-2 and F-actin *in vitro*.

Conclusions: Transgelin-2 may enhance migration and invasion ability of colon cancer cell by regulating remodeling process of microfilament.

The relationship between serum ANA expression and clinicopathologic characteristics and prognosis in colorectal cancer

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Purposes: To investigate the correlation between serum antinuclear antibody(ANA) expression and clinicopathologic characteristics as well as the prognosis in colorectal cancer patients.

Methods: Analysis was performed for 198 cases with histologically proven adenocarcinoma of colorectal cancer who underwent curative resection from January 2007 to December 2008. There were 113 male patients and 85 female patients with their average age of 63.9 (22 to 92) years. Serum ANA expression was detected by indirect immunofluorescence. The relationship between clinicopathological features as well as the prognosis and serum ANA expression was studied.

Results: Serum ANA positive was detected in 51 (25.76%) of the 198 patients, higher than that of the control group 8% (4/50). By univariate analysis, we found that serum ANA positive was related to age < 65 years ($\chi^2=4.87$, $P=0.0273$), tumor size ≥ 5 cm ($\chi^2=5.56$, $P=0.0183$), invasion depth ($\chi^2=25.89$, $P<0.0001$) and tumor course ≥ 5 months ($\chi^2=5.43$, $P=0.0198$) respectively. And not related to gender, tumor location, tumor differentiation, lymph node and distant metastasis ($P>0.05$). Multivariate analysis identified that only invasion depth of tumor and tumor course led to serum ANA expression significantly; while The expression of ANA had no correlation with the prognosis of colorectal cancer.

Conclusions: The invasion depth of tumor and tumor course led to serum ANA expression significantly; while ANA expression had no correlation with the prognosis of colorectal cancer.

Norcantharidin, a potential small-molecule synthetic antilymphangiogenic agent, inhibits colonic adenocarcinoma lymphangiogenesis through arresting S-phase cell cycle and VEGF-A,-C,-D/VEGFR-2,-3 signaling pathways *in vitro* and *in vivo*

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Background: Tumor lymphangiogenesis plays an important role in promoting growth and metastasis of tumors, but no anti-lymphangiogenic agent is used clinically. Based on the effect of norcantharidin (NCTD) on lymphangiogenesis of human lymphatic endothelial cells (LECs), we firstly investigated the anti-

lymphangiogenic activity of NCTD as a tumor lymphangiogenic inhibitor for human colonic adenocarcinomas.

Methods: *In vivo* and *in vitro* experiments to determine the effects of NCTD on tumor growth and lymphangiogenesis of the *in-situ* colonic xenografts in nude mice, and lymphatic tube formation of the three-dimensional (3-D) of the co-culture system of colonic adenocarcinoma HT-29 cells and LECs were done. Proliferation, apoptosis, migration, invasion, Ki-67, Bcl-2 and cell cycle of LECs and the co-culture system *in vitro* were respectively determined. Streptavidin-peroxidase staining, SABC, western blotting and RT-PCR were respectively used to examine the expression of LYVE-1, D2-40, CK20 (including their LMVD), and VEGF-A, VEGF-C, VEGF-D, VEGFR-2 and VEGFR-3 *in vitro* and *in vivo*.

Results: NCTD inhibited tumor growth and lymphangiogenesis of the *in-situ* colonic xenografts *in vivo*, and these observations were confirmed by facts that lymphatic tube formation, proliferation, apoptosis, migration, invasion, S-phase cell cycle, and Ki-67 and Bcl-2 expression *in vitro*, and LYVE-1, D2-40, CK20 expression and their LMVD *in vitro* and *in vivo* were inhibited and affected. Furthermore, the expression of VEGF-A, VEGF-C, VEGF-D, VEGFR-2 and VEGFR-3 at protein/mRNA levels in the process of lymphatic tube formation *in vitro* and tumor lymphangiogenesis *in vivo* was downregulated; NCTD in combination with mF4-31C1 or Sorafenib enhanced these effects.

Conclusions: NCTD inhibits tumor growth and lymphangiogenesis of human colonic adenocarcinomas through multiple mechanisms i.e. affecting related malignant phenotypes, inhibiting Ki-67 and Bcl-2 expression, inducing S-phase cell cycle arrest, and directly or indirectly downregulating VEGF-A, -C, -D/VEGFR-2, -3 signaling pathways. The present finding suggests that NCTD could serve as a potential antilymphangiogenic agent for tumor lymphangiogenesis and is of importance to explore NCTD is used for antitumor metastatic comprehensive therapy of human colonic adenocarcinomas.

Keywords: colonic neoplasm; norcantharidin; tumor growth; lymphangiogenesis; antilymphangiogenic therapy

Long noncoding RNAs C21orf96 promotes the migration, invasion and lymph node metastasis in gastric cancer

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Aim: Lymphatic metastasis is a primary cause of gastric cancer-related death, yet factors governing tumor cell lymphatic metastasis have not been fully elucidated. The contributions of long noncoding RNAs (lncRNAs) to lymphatic metastasis remain largely unknown in gastric cancer.

Methods: Differentially expressed lncRNAs between metastatic lymph node tissues and normal lymph node tissues were identified by microarray and validated using quantitative real-time polymerase chain reaction (qRT-PCR). We first examined a

panel of 120 pairs of positive lymph node tissues and negative lymph node tissues in gastric cancer patients. We constructed a stable pcDNA-C21orf96 expression vector. We transfected a pcDNA-C21orf96 expression vector into the gastric cancer cell line MKN-45. We also examined cell migration and invasion ability by transwell migration and transwell invasion assay.

Results: Our results showed that the expression levels of C21orf96 were over-expressed in positive lymph node tissues and gastric cancer tissues. We analyzed the relationship between C21orf96 expression levels in cancer tissues and clinicopathological factors in gastric cancer samples versus adjacent normal tissue. We found that the expression level of C21orf96 was associated with gross appearance, lymphatic metastasis and distal metastasis. The effects of C21orf96 were assessed by overexpressing the lncRNA. We also found that C21orf96 promoted the tubular formation, migration and invasion.

Conclusion: these results indicate that C21orf96 is an oncogenic lncRNA that promotes tumor progression and leads us to propose that lncRNAs may serve as key regulatory hubs in gastric cancer progression.

Keywords: lymph node, gastric cancer, lncRNA, microarray, C21orf96

Ligation of the Intersphincteric Fistula Tract Plus Bioprosthetic Anal Fistula Plug (LIFT-Plug): a New Technique for Fistula-in-Ano

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Background: Ligation of the intersphincteric fistula tract and reinforcement with a bioprosthetic graft are two recently reported procedures that showed promise in the treatment of anal fistula. This study was undertaken to validate ligation of the intersphincteric fistula tract plus bioprosthetic anal fistula plug and report our preliminary results and experience.

Methods: 21 patients with transsphincteric anal fistulae were treated with ligation of the intersphincteric fistula tract plus concurrent bioprosthetic anal fistula plug. We evaluated healing time, fistula closure rate, and postoperative anal function according to the Wexner continence score.

Results: No mortality or major complications were observed. Median operative time was 20 (range 15–40) minutes. After a median follow-up of 14 (range 12–15) months, the overall success rate was 95.2% (20/21), with a median healing time of 2 (range 2–3) weeks for external anal fistula opening and 4 (range 3–7) weeks for intersphincteric groove incision. Only 1 (4.8%) patient reported rare incontinence for gas postoperatively (Wexner score 1).

Conclusions: Ligation of the intersphincteric fistula tract plus bioprosthetic anal fistula plug is an easy, safe, effective, and useful alternative in the management of anal fistula. Further randomized controlled studies are necessary to better evaluate long-term results.

Short-term outcome of tumor-specific extralevator abdominoperineal excision (TS-ELAPE) for rectal cancer

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Purpose: Extralevator abdominoperineal excision (ELAPE) has become increasingly used due to some evidence of improved oncological outcome. The procedure may however, increase postoperative morbidity, such as chronic perineal pain, perineal wound infection, urinary retention, perineal herniation and sexual dysfunction. The introduction of tumor-specific ELAPE (TS-ELAPE) might minimize the operative trauma and the damage to the nerves of the genital organs. The purpose of this study is to evaluate the safety and efficacy of TS-ELAPE for locally advanced low rectal cancer.

Methods: The TS-ELAPE surgical procedure was performed according to individual tumor conditions. For the rectal tumors suitable for ELAPE, most were circular or nearly circular infiltrating tumors. Patients with these rectal tumors should receive conventional ELAPE resection. In those rectal tumors not involving the levator muscle, the dissection plane may continue close to the external anal sphincter and the levator muscle, leaving the ischioanal fat and the terminal branches of the pudendal nerve intact. If the tumor penetrates into the levator muscle, the dissection should include the fat of the ischioanal fossa to achieve a clear CRM. If the tumor has only penetrated into one side of the levator muscle, the dissection might include the levator ani muscle and the fat of the ischioanal fossa on the side of the tumor to achieve a clear CRM, whereas the ischioanal fat and levator ani muscle on the other side of the tumor may be left.

Results: From June 2011 to May 2013, 21 patients with locally advanced low rectal cancer underwent TS-ELAPE. There were 13 male and 8 female, aged from 32 to 76 years with a median of 60 years. During the study, 14 patients were treated with one side levator muscle totally or partially reserved, 5 patients with sacrococcyx reserved, and 2 patients with dissection close to the anterior rectal wall. The median operating time was 210 (150–300) min, and median intraoperative blood loss was 150 (100–600) ml. The common complications included sexual dysfunction (3/18, 16.7%), perineal complications (3/21, 14.3%), urinary retention (2/21, 9.5%), and chronic perineal pain (3/21, 14.3%). A positive circumferential margin was demonstrated in 2 (9.5%) patients, and intraoperative perforations occurred in 1 (4.8%) patient. The local recurrence was 4.9% at a median follow-up of 31 months (range, 18–38 months).

Conclusions: TS-ELAPE is a relatively safe approach with acceptable circumferential resection margin involvement, intraoperative perforations, and local recurrences. It has the potential to reduce the risk of complications without influenced the radical effect for the treatment of low rectal cancer.

CTHRC1 is associated with progress of colorectal cancer by Promoting metastasis of colorectal cancer cells

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Objective: Metastasis is the main cause of death in patients with Colorectal cancer CRC. In previous study, we found that increased expression of CTHRC1 is associated with metastasis in CRC patients and could predict poor outcome in CRC patients. But the biological functional role of CTHRC1 in CRC cells is still unknown.

Material and Methods: Western Blot was used to detect protein expression level of CTHRC1 in 6 human colorectal cancer cell lines. GV287 empty vector (NC) and GV287-CTHRC1 recombinant vectors were transfected in SW480 and SW620 cells. The in vitro transwell assay experiments were used to evaluate the biological functional role of CTHRC1 in CRC cells.

Results: Expression level of CTHRC1 is significantly lower in low metastatic potential cell lines than the high metastatic potential cell lines (SW480 vs SW620, 1.455 ± 0.21 vs 5.224 ± 0.053) ($P < 0.001$). SW480 cells over-expression group and the control group was statistically significant differences appeared in the 48 Hrs (255.2 ± 15.22 vs 140 ± 15.09 , $P < 0.001$), SW620 cells over-expression group and the control group was also statistically significant differences appeared in the 48 Hrs (156.8 ± 16.75 vs 90.8 ± 6.72 , $P < 0.001$), migration ability and interaction time with statistics differences ($F = 117.356$, $P < 0.001$), the different migration ability within the group of over-expression group and the control groups was statistically significant ($P < 0.001$).

Conclusion: The in vitro transwell assay showed that CTHRC1 can enhance migration ability of CRC cells when it is over-expressed. Overall, the result of our study showed that CTHRC1 have the potential biological function to promoting metastasis in progress of CRC. And more experiments are needed to find out the accurate mechanism of CTHRC1 in CRC progress.

Keyword: CTHRC1; colorectal cancer; proliferation; metastasis

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Endoscopic submucosal dissection for rectal carcinoids: a large-scale study of 233 consecutive cases

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Background & Aims: Recent reports about using Endoscopic submucosal dissection for rectal carcinoids are increasing, however large consecutive studies on evaluating long-term outcomes of this technique are little known. Here, we investigated the feasibility of ESD for rectal carcinoids and examined the long-term outcomes in a large consecutive series.

Methods: From January 2007 to October 2012, a total of 233 consecutive patients with rectal carcinoids were included in this

study. The rates of pathological complete resection, complication, tumor recurrence, and distant metastasis were analyzed.

Results: En bloc resection was achieved in all of the 233 treated lesions (100%), and pathological complete resection was achieved in 212 of the lesions (91.00%). The incidence of ESD-related complication was 3% (Figure 1G&1H). With more ESDs performed, the rate of pathological complete resection increased from 83.33% (40/48, before 2009) into 93.51% (173/185, after 2009). Meanwhile, based on statistic analysis, there was a significantly decreased complication rate in the group of patients treated by ESDs after 2009 (OR=0.336, $P=0.011$). The median follow-up period of this study was 52 months (range, 25–94 months) and during this period, all of the patients were free from local recurrence. However, distant metastasis was detected in 5 cases (2.15%, Figure 1 J).

Conclusions: ESD can be effective and oncologically safe for the resection of rectal carcinoids smaller than 2 cm. However, ESD is still a challenge for endoscopists and ESD for rectal carcinoids should be performed by skilled and experienced experts to achieve satisfactory clinical outcomes.

Keywords: endoscopic submucosal dissection; rectal carcinoid; feasibility; long-term outcome.

Short-term Quality of Life in Patients Undergoing Colonic Surgery using Enhanced Recovery after Surgery Program versus Conventional Perioperative Management

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Objective: Enhanced Recovery after Surgery (ERAS) integrates evidence-based interventions to reduce surgical stress and accelerate rehabilitation. Our study was to compare the short-term quality of life (QOL) in patients undergoing open colonic surgery using ERAS program or conventional management.

Methods: A prospective study of 57 patients using ERAS program and 60 patients using conventional management was conducted. The clinical characteristics of all patients were recorded. QOL was evaluated longitudinally using the questionnaires (EORTC QLQ C-30 and CR-29) pre- and postoperatively.

Results: The morbidity in ERAS and control group was 17.5% vs. 26.7% ($P=0.235$). The patients in ERAS group had much faster rehabilitation and less hospital stay. The scores of Global Quality of Life (postoperative day 3 (POD3), POD6, POD10, POD14, POD21), Physical Functioning (POD3, POD6, POD10, POD14, POD21), Role Functioning (POD10, POD14, POD21), Emotional Functioning (POD6, POD10, POD14) and Social Functioning (POD10, POD14, POD21) were much higher in ERAS group than in control group, which suggested that the patients in ERAS group had a better life status. Whereas, the scores of Gastrointestinal Tract Problems (POD3, POD6, POD10) and Defecation Problems (POD6, POD10) were much lower in ERAS group than in control group, which revealed that the patients in ERAS group suffered less symptoms.

Conclusion: Short-term QOL in patients undergoing colonic cancer using ERAS program was better than that using conventional management.

Keywords: enhanced recovery after surgery; quality of life; colonic surgery

An interval > 7 weeks between neoadjuvant therapy and surgery result in the highest chance of achieving pathologic complete response in rectal cancer: a meta-analysis

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Purposes: Neoadjuvant chemoradiotherapy (NCRT) has been proven to increase local control in rectal cancer, but the optimal interval between NCRT and surgery has not been fully examined. We performed a systematic review and meta-analysis to evaluate the influence of interval between NCRT and surgery on rates of pathological complete response (pCR).

Methods: A systematic search was conducted in PubMed, the Cochrane Library and Embase databases for publications reporting outcomes of patients following rectal cancer surgery performed at different intervals after neoadjuvant therapy. The major endpoint was the rate of pCR. Relative risk (RR) of probability of achieving pCR among different intervals were estimated and pooled.

Results: Of 2682 records screened, 13 retrospective cohort studies representing 4030 patients met the inclusion criteria. The time intervals varied between ≤ 5 weeks and > 12 weeks. All studies were classified into six categories based on timing of surgery. Thus, we analyzed whether there was an association between pCR rates and intervals of 5, 6, 7, 8, 10 and 12 weeks between NCRT and surgery. No heterogeneity was found among these studies included in the analysis ($I^2 < 50\%$ each). Using a fixed-effect model, there was a significantly increased rate of pCR in patients treated with surgery followed 7 or 8 weeks later (RR, 1.63; 95% CI, 1.27–2.10; $P < 0.001$; RR, 1.47; 95% CI, 1.12–1.93; $P = 0.005$). No significant differences were found between shorter and longer intervals cohorts with respect to rate of pCR in earlier cutoff points of 5 and 6 weeks (RR, 0.67; 95% CI, 0.40–1.12; $P = 0.128$; RR, 1.03; 95% CI, 0.76–1.42; $P = 0.830$), and further extension beyond 10 or 12 weeks did not offer further advantages in increasing pCR rates (RR, 0.83; 95% CI, 0.65–1.06; $P = 0.126$; RR, 0.81; 95% CI, 0.60–1.08; $P = 0.147$). The highest plateau in the RR of pCR rates were observed in patients who received surgery more than 7 weeks after completion of NCRT.

Conclusion: Performing surgery more than 7 weeks after completion of NCRT seemed to result in the highest chance of achieving pCR. Whether this finding correlates with improved long-term survival warrants further investigation.

Keywords: rectal cancer; neoadjuvant therapy; interval; complete pathological response

Randomized Controlled Trial of Rectal Laparoscopic Surgery Compared to Open Surgery 3-year Efficacy Summary

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Scientific and Technological Key Task Program from Department of Health of Shanxi Province. N.O. 200921

World Health Organization Clinical Trial Registration Number: ChiCTR-TRC-11001817

Objective: To comprise long-term efficacy of rectal laparoscopic surgery and open surgery, as evidence based medicine for clinical applications of rectal laparoscopic surgery.

Methods: 343 cases of rectal cancer were randomized to receive rectal laparoscopic surgery (n=169) and open surgery (n=174). The main endpoint was 3-year disease-free survival. Kaplan-Meier method was used for survival curve analysis, the Log-rank method for survival curves significant testing, by SPSS13.0 software.

Results: The patients were followed up 1 to 88, with a median follow-up of 53.0 months. 9 cases lost to follow, 46 cases died and 50 cases of recurrence or metastasis were in laparoscopic surgery group; and the data in open surgery group were 7, 42 and 49 cases respectively. In laparoscopic surgery group and open surgery group, 3-year disease-free survival rates were 79.8% and 81.5%, respectively. In laparoscopic surgery group, 1-year, 2-year, and 3-year survival, and rate of metastasis or recurrence have no significant difference ($p > 0.05$) with that in open surgery group.

Conclusion: No significant difference was found in the long-term survival efficacy between rectal laparoscopic surgery with open surgery.

Keywords: Rectal cancer; Laparoscopy; Randomized controlled trial

The expression and clinicopathologic features of CD133, β -catenin and hTERT in human colorectal cancer

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Objective: Although CD133, β -catenin and hTERT expression had been studied a lot, but there was no further study in the relationship between them and human colorectal cancer. The aim of the study was to investigate the relationship between the expression of CD133, β -catenin, hTERT and clinicopathologic parameter in colorectal cancer.

Materials and Methods: The Real-time quantification PCR and Immunohistochemistry were adopted to detect the expression of CD133, β -catenin and hTERT in CRC tissues and tissues of cutting side (n=30), normal colorectal tissues (n=9) and normal skin tissues (n=30).

Results: Both of the mRNA level and protein expression of CD133, β -catenin and hTERT expression in tumors were higher than that in tissues of cutting side, normal colorectal tissues and normal skin tissues ($P < 0.05$). CD133, β -catenin and hTERT mRNA and protein expression were found to be associated with lymph node metastasis, TNM stage and distant metastasis ($P < 0.01$). No significant difference was found in gender, age, differentiation and depth of tumor invasion.

Conclusion: Overall, the results of the present study indicated that CD133, β -catenin and hTERT may serve as useful markers of colorectal cancer stem cells to predict disease prognosis and clinicopathologic characteristics of human colorectal cancer.

Keywords: colorectal cancer; cancer stem cell; telomere; CD133; β -catenin, hTERT

Bleeding relief response to topical formalin application and enterostomy in patients of refractory hemorrhagic chronic radiation-induced proctitis

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Background: Topical application of formalin and enterostomy are mostly considered as safe and effective approaches to treat patients with refractory hemorrhagic chronic radiation-induced proctitis(CRP).The aim of this study was to review our results of patients undergoingtopical formalin application and enterostomy for refractory hemorrhagic CRP, focus on the short-term outcome, long-term outcome and postoperative quality of life.

Methods: A total of 40 patients with refractory hemorrhagic CRP from August 2007 to November 2013 was retrospectively reviewed and analyzed.Telephone follow-up was conducted to establish efficacy and quality of life (assessed by the EORTC QLQ-C30).

Results: Forty patients were identified, the mean follow-up was 27.8 months (1.0–63.0). Thirty-five patients were interviewed (5 were lost to follow up).Twenty-six patients had only formalin application more than one time, 3 patients had enterostomyafter formalin application for continuous bleeding or rectovaginal fistula, 14 patients only had enterostomy.The short-term effective

rate was 72.7% in the formalin group and 100% in the enterostomy group in 3 months. The long-term effective rate after 3 months were 68.7% and 80% in the formalin group and in the enterostomy group, respectively. There was no rectal bleeding relapse after the closure of enterostomy in one patient. Two patients had rectovaginal fistula in the formalin group and no patients had postoperative complications in the enterostomy group. Based on the QLQ-C30, both groups had significant improvement in global health, physical, role, emotional and social functional domains, fatigue and appetite loss symptomatic domains.

Conclusions: Topical formalin application and enterostomy are effective procedures to reduce rectal bleeding in patients with refractory hemorrhagic chronic radiation-induced proctitis. Both of them can provide patients with good quality of life. Enterostomy is considered as a more effective and safer approach than formalin application.

Keywords: Refractory hemorrhagic chronic radiation-induced proctitis, Topical formalin application, Enterostomy, Efficacy, Quality of life.

Assessment of T-staging and Circumferential Resection Margin involvement using multislice spiral computed tomography in rectal cancer with rectal distention

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Purpose: To evaluate the accuracy of multislice spiral computed tomography for preoperative T staging and circumferential resection margin involvement of rectal cancer with rectal distention.

Materials and Methods: Fifty-seven patients with rectal carcinoma underwent preoperative multislice spiral computed tomography. Images were obtained in the arterial, portal venous and balanced phases. Two radiologists independently evaluated the depth of tumor invasion into the rectal wall and circumferential resection margin involvement on transverse CT images. Disagreements were resolved by means of consensus. Large slice technique was used in the pathologic study of the specimens operated on following the principles of total mesorectal excision. CT findings were compared with pathologic Results: Accuracy, sensitivity, specificity, positive predictive value, and negative predictive value were assessed.

Results: The overall multislice spiral computed tomography accuracy was 91.2% for T staging and 91.2% for predicting circumferential resection margin involvement. The accuracy, sensitivity, specificity, positive predictive value, and negative predictive value was 93%, 84.6%, 95.5%, 84.6% and 95.5% for \leq T2 tumors, 91.2%, 91.9%, 90%, 94.4% and 85.7% for T3 tumors, 98.2%, 100%, 98%, 87.5% and 100% for T4 tumors, 91.2%, 78.6%, 95.3%, 84.6% and 92.3% for predicting circumferential resection margin involvement, respectively.

Conclusion: Multislice spiral computed tomography enables accurate preoperative assessment for T staging and circumferential resection margin involvement of rectal cancer with rectal distention.

Keywords: Rectal neoplasm; Tomography, X-ray computed; Neoplasm Staging;

The clinical curative effect observation of 31 elderly patients with posterior resection of postoperative local recurrence of rectal cancer

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Objective: To discuss the management for elderly patients with posterior resection and colostomy of postoperative local recurrence of rectal cancer.

Methods: From January 2010 to December 2014, to evaluate the efficacy, safety and operation of radical in 31 cases of patients in 67 patients of low rectal cancer patients (age > 65 years) with local recurrence after Dixon surgery, have been treated with posterior resection and colostomy.

Results: All of the 31 patients were successful, to achieve the purpose of resection, postoperative pathology confirmed negative margin, no serious complications after operation, 17 cases survived without tumor.

Conclusion: The method is relatively safe and feasible, that elderly patients benefit more.

Treatment of anorectal gastrointestinal stromal tumors with preoperative Imatinib therapy

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Purpose: The study aimed to explore the surgical outcome and response of Imatinib as preoperative treatment for anorectal gastrointestinal stromal tumors (GIST).

Methods: We conducted a retrospective analysis of anorectal GIST patients treated between January 2007 and December 2014 in our hospital.

Results: Thirty patients (20 men and 10 women) with anorectal GISTs were identified. Fifteen patients received Imatinib before surgery for a median duration of 4 (range 1–11) months (Group 1). Median tumor size in this group decreased from 7.4 (3.5–12.5) cm to 4.5 (1.0–8.2) cm ($P=0.003$). Distance of tumors from the anal verge extended from 2.5 (0–5.5) cm to 3.5 (0–5.5) cm ($P=0.004$). Thirteen patients had a partial response and 2 had stable disease. No patients had complete response. Twelve out of 15 patients in Group 1 accepted surgeries finally. Fifteen patients received no Imatinib before surgery (Group 2) because of small tumor size or lack of availability. These two groups only had differences in surgery time [210 (110–365) min vs. 180 (25–305) min, $P=0.03$], but had no differences in anal sphincter preserved rate [91.6% (11/12) vs. 86.8% (13/15), $P=0.78$], postoperative complications rate [50% vs. 33%, $P=0.45$], or R0 resection rate (both 100%). Up to our last follow-up in December 2014, Local recurrence occurred in 3 patients in Group 1 (25%), 33 months, 51 months and 61 months after surgery respectively. One patient (6.7%) in Group 2 had liver metastasis 16 months after surgery. The mean DFS and mean OS were not reached in both groups.

Conclusions: Preoperative Imatinib therapy leads to tumor shrinkage and an extension of the distance to anal edge. Preoperative Imatinib therapy is a considerable strategy for increase the opportunity of anal sphincter preservation and complete resection for large anorectal GIST.

Transsacral excision after neoadjuvant imatinib treatment for gastrointestinal stromal tumor (GIST) of the lower rectum

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Purposes: To explore the safety and efficacy of neoadjuvant imatinib mesylate (IM) therapy combined with transsacral excision for lower anorectal gastrointestinal stromal tumors (GISTs).

Methods: Between January 2007 and July 2014, 9 patients with primary anorectal GIST visited our hospital. For the tumor was too big and too close to the anal verge, all the patients were treated with IM before surgery. Tumor size, distance to anal edge were compared before and after the treatment. After several months of IM therapy, transsacral procedures were performed.

Results: The median tumor size was 5.8cm (range, 3.5–9) at the time of diagnosis. The median distance from the anal verge to the lower margin of the tumors was 3.5cm (range, 0–5.5). After a median duration of 4 months(range, 1–10) IM therapy, the median tumor size decreased to 4.5cm (range, 0–7.8), distance extended to 4cm(range, 0–5). Patial/complete response achieved in 7 patiens. Transsacral excision was carried out after IM therapy. Pathological complete (R0) resection was achieved in all patients. Within the median 36months (range, 4–93) follow-up period. local recurrence occurred in two patients after surgery in 33 months and 65 months respectively.

Conclusion: For large GISTs located in the lower rectum, transsacral resection following neoadjuvant IM therapy is safe and effective. The tumor shrinkage and an extension of distance to anal edge have a clear benefit for complete resection and anal sphincter preservation.

TEM and Traditional Transanal Surgery Combination for Rectal Circumferential Villioustublar Adenoma with 2 Cases Report

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Purpose: It was difficult to perform the resection of rectal circumferential villioustublar adenoma. We report 2 cases that performed with TEM(Transanal Endoscopic Surgery) and Traditional Transanal Surgery Combination.

Materials and Methods: A 59 years old male patient and a 63 years old female patient with of rectal circumferential villioustublar adenoma were admitted in December, 2014. We performed TEM and traditional transanal surgery combination (AESCULAP INTERNATIONAL GMBH). The resections were successful, and specimens were 10cm×8cm×7cm and 8cm×7cm×5cm. The margin and basis were clear of villioustublar adenoma.

Results: The patient recovered well and discharged 7days after surgery. The pathology diagnosis was rectal circumferential villioustublar adenoma.

Conclusions: The combination of TEM and traditional transanal surgery was a method for rectal circumferential villioustublar adenoma.

A Clinical parameters-based model predicts early response for locally advanced rectal cancer with Neoadjuvant FOLFOX6 alone

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Objective: To define the population who could obtain benefit from neoadjuvant FOLFOX6 chemotherapy alone, we aimed to develop a model with clinical parameters to predict early response of pre-operative chemotherapy for rectal cancer, including tumor regression grade (TRG) and ypTNM down-staging.

Methods: 116 patients with locally advanced rectal cancer were enrolled into the group with preoperative chemotherapy alone. All the clinical parameters before treatment were collected, including gender, age, tumor location and size by MRI imaging, and blood biomarker such as blood routine test, blood biochemistry and serum tumor markers, TRG and ypTNM staging. TRG 0-1 was defined as good regression, and ypTNM stage 0-I was defined as good responder. 96 patients were taken to be training set and another 20 patients were the validation set.

Results: Of the 116 patients, 9 had TRG 0 (complete regression), 26 patients with TRG 1 and 81 patients with TRG 2 and 3 (poor regression). 47 (40.5%) patients were classified as good responder with ypTNM stage 0-I. The predictive value of all the clinical parameters were evaluated in the training set (96 patients). Four variables, including Age, tumor length, tumor encircle size and ApoA1, were predictive factors for good regression and good responder. The AUC of the clinical model was 0.732 (95% CI 0.614–0.849) for good regression (TRG 0-1) and 0.725 (95% CI 0.615–0.835) for good responder (yp TNM stage 0-I). Applying the four clinical parameters model to the validation cohort, a good performance was obtained for tumor regression (AUC=0.708, 95% CI 0.60–0.78) and good responder (AUC=0.792, 95% CI 0.54–0.95).

Conclusions: The model based on clinical parameters could accurately predict early efficacy with chemotherapy alone. The patients who might obtain good efficacy from neoadjuvant FOLFOX6 chemotherapy alone could avoid radiotherapy damage. Further validation for the model is warranted with larger prospective study.

MAP4K4 expression in colorectal cancer and its clinical significance

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Objective: To investigate MAP4K4 expression and its significance in colorectal cancer.

Methods: The expression level of MAP4K4 was detected in 90 cases of colorectal cancer tissues and corresponding adjacent normal colorectal tissues by tissue microarray.

Results: MAP4K4 expression was significantly overexpressed in colorectal cancer tissues ($P < 0.01$). The high expression level of MAP4K4 was significantly associated with tumor size ($P = 0.039$) and tumor differentiation ($P = 0.049$). Patients with high MAP4K4 expression had a shorter overall survival than those with low MAP4K4 expression. Multivariate analysis showed that MAP4K4 expression and distant metastasis were the two factors that were independently associated with prognosis.

Conclusion: Overexpression of MAP4K4 has a potential to predict poor prognosis of patients with colorectal cancer. Our present study implicated that MAP4K4 might serve as a novel predicted marker in colorectal cancer diagnosis and treatment.

Keywords: MAP4K4; colorectal cancer; prognosis

Clinical Features and Surgical Approach of Patients with Large Intestine Perforation

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Objective: Investigating clinical characteristic and the surgical approach of patients with colorectal perforation to get experience of diagnosis and treatment.

Methods: 48 patients with large intestine perforation were included into the retrospective study in our Hospital. Diagnosis with colorectal perforation depended on result of surgery. Patients' data including sex, age, blood pressure and pulse on admission, routine analysis of blood, base excess, occasion of perforation, causes and sites of perforation, and outcome with different surgical approach was collected and analyzed.

Results: Of 48 patients, 34 were male and 14 were female, with an average age of 64.0 ± 13.5 years and 10 died in Hospital. Mortality rate within 30 days was 20.8%. Causes of perforation were diverticula ($n=18$), cancer ($n=14$), iatrogenic ($n=6$), injury ($n=5$), ischemia ($n=5$). Site of perforation was the sigmoid colon ($n=28$), rectum ($n=6$), transverse colon ($n=8$), ascending colon ($n=4$), or cecum ($n=2$). All patients who died within 30 days after surgery had displayed perforation of the sigmoid colon or rectum. Significant differences in base excess and blood pressure were identified between patients who died within 30 days after surgery and survivors. Factors such as male gender, decreased white blood cell count and non-covered perforation were associated with poor prognosis. Patients who died within 30 days experienced severe complications such as multiple organ failure, sepsis and acute myocardial infarction. In cases of perforated colon cancer, median survival was 91 days in curative cases, and 23 days in non-curative cases. Conclusion Patients with colorectal perforation had a high mortality and low accuracy of diagnosis. The appropriate surgical approach should be selected according to general conditions and perforation causes in patients with colorectal perforation.

Keywords: Large intestine perforation; Clinical feature; Mortality; Surgical approach

The safety and efficacy of plasma prostate electrovaporization system in the treatment of rectal cicatricial stenosis

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Objectives: To evaluate the safety and efficacy of plasma prostate electrovaporization system in the treatment of rectal cicatricial stenosis.

Methods: Intrarectal cicatriclectomy with plasma prostate electrovaporization system that similar to TURP (transurethral resection prostate) were performed in 27 patients with median or severe rectal low cicatricial stenosis. All the patients received cicatriclectomy to dilate enteric cavity. Patients with anastomotic fistula, anastomotic abscess or antrasacral abscess received fistula excision and debris remove with plasma prostate electrovaporization system.

Results: Twenty-seven patients underwent 27 surgery among whom 24 patients were followed-up. The successful rate of the surgery was 100% without serious complications such as post-operation hemorrhage, rectal perforation, septic shock et al. All the resected tissue were sent to pathologic examination with one case (NO.9) of rectal adenocarcinoma and others of chronic inflammation, fibrous tissue hyperplasia and scar tissue.

Conclusions: plasma prostate electrovaporization system is an effective treatment for cicatricial stenosis with tiny trauma.

Keywords: plasma prostate electrovaporization system; rectal stenosis; safety; efficacy;

RUPTURED INFECTED MESENTRIC CYST AS A DIFFERENTIAL DIAGNOSIS OF SUSPECTED APPENDICITIS

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Lower abdominal pain of acute onset in young patients is a very common reason for referral to general surgical team and a differential diagnosis include acute appendicitis, gynecological causes and inflammatory bowel diseases. Intestinal and mesenteric cystic diseases is a rare entity. We present a case of 25 years male who underwent diagnostic laparoscopy for acute lower abdominal pain and was diagnosed with a ruptured infected mesenteric cyst which is up to our knowledge it is the fifth case reported in the literature.

Keywords: mesenteric cyst, acute appendicitis, general surgery

Clinical Safety and Outcomes of Laparoscopic Surgery versus Open Surgery for Stage IV Colorectal Cancer with Unresectable Metastasis: A Meta Analysis

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Objective: To compare the clinical safety and outcomes of palliative laparoscopic surgery versus open surgery for Stage IV colorectal cancer.

Methods: Pertinent studies were selected from the Medline, EMBASE, and Cochrane library databases, references from published articles, and reviews. Both prospective and retrospective studies were included for meta-analysis. Clinical outcomes include safety, complications mortality and survival.

Results: Six trials with 1802 patients were included. The laparoscopic procedure takes longer (mean difference (MD) = 44.20, 95% CI 17.31 to 71.09, $Z=3.22$, $P=0.001$). It also performs fewer postoperative complications (odds ratio=0.53, 95% CI 0.37 to 0.78, $Z=3.29$, $P=0.001$) and lower operative blood loss (MD=-70.21, 95% CI -80.93 to -59.49, $Z=12.84$, $P<0.00001$). Median survival ranged between 11.4 and 30.1 months. The total hospital stay was shorter by 1.68 days for laparoscopic surgery (95% CI -1.83 to -1.53) days, $Z=21.64$, $P<0.00001$).

Conclusion: Laparoscopic surgery for Stage IV colorectal cancer with unresectable metastasis performs a better perioperative outcome than open surgery.

Prognostic Factors and Multidisciplinary Treatment Modalities of Brain Metastases from Colorectal Cancer: Analysis of 93 Patients

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Objective: In order to review patient characteristics and evaluate the potential factors affecting prognosis in brain metastases (BM) from colorectal cancer (CRC).

Methods: We reviewed retrospectively 93 cases of BM from CRC in our hospital. Patients demographics, neurologic symptom, location and number of BM were recorded. Factors were taken into analysis including age, gender, KPS score, number of BM, extracranial metastases, dimension and location of tumor.

Results: The overall one-year and two-year survival rate was 27.7% and 9.9%. On multivariate analysis, number of BM and extracranial metastasis were proved to be independent prognostic factors for overall survival. Surgical resection of BM showed better survival than stereotactic radiosurgery (SRS) or whole brain radiation therapy (WBRT) ($P<0.0001$). Surgical resection followed by WBRT or SRS indicated improved prognosis than surgery alone ($P=0.0153$ and $P=0.0249$). Advantage in survival was found in SRS over WBRT ($P=0.0065$). No significance in survival was found between SRS alone and SRS plus WBRT ($P=0.1098$).

Conclusion: Surgical resection of BM from CRC in selected patients may help prolonging survival. Additional radiotherapy following surgery is valuable in providing extra improvement of prognosis. Extracranial metastasis and multiple BM lesions are considered as independent factors associated with poor prognosis.

Self-expandable metallic stent as a bridge contrast emergency surgery for acute malignant colorectal obstruction

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Objective: The efficacy and safety of self-expandable metallic stent (SEMS) for patients with acute malignant colorectal obstruction (AMCO) are still controversial. We conducted this study to evaluate the safety and efficacy of SEMS for AMCOs.

Methods: From January 2010 to July 2014, a total of 171 patients with AMCOs were retrospectively enrolled in this study: 120 patients received emergency stent placement followed by selective operation as stent group, and 51 patients received emergency operation as emergency-surgery group.

Results: The operation time and hospital stay were significantly shorter in stent group (114.51 ± 28.65 min vs 160.39 ± 58.94 min, $P<0.001$; 8.00 ± 3.97 d vs 12.59 ± 9.07 d, $P<0.001$). Stent placement also significantly reduce the intraoperative blood loss (61.00 ± 43.70 ml vs 121.18 ± 85.90 ml, $P<0.001$). The incidence of postoperative complications in stent group was lower than emergency-surgery group (21.7% vs 52.9%, $P<0.05$). In subgroup analyses, patients received laparoscopic surgery after stent placement had significantly shorter days to first flatus (3.37 ± 1.04 d vs 4.47 ± 1.95 d, $P=0.041$) and postoperative hospital stay (7.10 ± 1.43 d vs 8.47 ± 1.43 d, $P=0.001$) than open surgery. In stent group, the median overall survival time was 48 months, significantly longer than 38.5 months of emergency-surgery group ($P<0.05$).

Conclusion: Stent placement as a bridge followed by selective operation is a safe and feasible procedure, providing significant advantages of short-term outcomes and a favorable prognosis for patients with AMCOs. Laparoscopic surgery could be considered as an optimal treatment after stent placement.

Is Betimes Operation Decrease The Mortality and Morbidity In Patients Who Had Adhesive Strip Bowel Obstruction?

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Background & Aims: Bowel obstruction is a lifespan risk for a patient who have undergone abdominal Surgery. Its treatment

like conservative and operative, is accompanied by considerable mortality and morbidity. Colorectal and gynecologic resections for illnesses reportedly carry a risk. Adhesive strip bowel obstruction (ASBO) causing intestinal obstruction are found at the previous operation areas in most cases. Nonoperative treatment should be operated on among 5 days. However, the optimal time of operation among this 5-day period is unknown. We want to evaluate the effect of timing of operation after admission on outcomes in this study.

Methods: Of forty-nine patients with ASBO that first became clinically manifested in an emergency situation were examined retrospectively from December 2012 to January 2015. Decline in air-fluid levels was performed to evaluate the effect of progressive surgical delay in mortality. The patients were classified to groups by intervention periods and additional diseases. In this study the demographic characteristics of patients, obstruction sites, complications were collected retrospectively.

Results: Of 49 patients have referred to our clinic for ASBO. Assessment of Mortality, morbidity and complications rates after surgical process, we trust that these rates have increased with delay to admit the hospital, delaying the operation time by medical treatment. We divided the patients groups into three groups like as nonoperated (Group1, G1), operated early (before 3 days, G2), operated late (after 3 days, G3), When the periods of delaying prolonge were caused the patient worsens in their health. After the delayed operation group also had higher rates of pneumonia, site infections, sepsis and MODS.

Conclusion: As a result of this study revealed a low incidence of morbidity, mortality and complications in ASBO patients after betimes surgery. There was more significant difference between G2 and G3 groups in the exhaustive research. Also early operative intervention for patients with adhesive bowel obstruction is associated with a clear benefit and lower incidence of complications.

Which Is The Most Preferred Way? The Comparison Of Outcomes In Early Laparoscopic Versus Delayed Diverticulitis Surgery After Antibiotic Therapy

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Background & Aims: The sigmoid diverticulitis mostly seen in 5th decade in the society of Turkey. The best treatment for diverticulitis and the indications for elective colon surgery remain controversial. The significant morbidity and mortality rates related to traditional resection, efforts have been made to

reduce the surgery processes in recent years. We retrospectively investigated the effectiveness of laparoscopic versus conservative methods which could be a definitive treatment.

Methods: Sigmoid diverticulitis was retrospectively evaluated in 92 patients between January 2012 to January 2015. Patients evaluated with demographic data, sociological causes and complications.

Results: We evaluated and divided into two groups retrospectively the data of 92 patients with diverticulitis. Group 1 operated in early period the second group was treated by antibiotics and operated six weeks later. There were 39 males (%42) and 53 females (%58) with a mean age of 42.6 years (range 31 to 84). Of 11 (%11.9) patients had inveterate diseases, like this DM is often observed in the group. Patients typically present with fever, abdominal pain, nausea, vomiting and CT scans shows diverticulitis in patients. Patients in group 1 have operated and seen minimal morbidity (4 patients %8.6) and complication (3 patients %6.5) Also in delayed colon resection group (group 2) of 14 patients have operated (%30.4) because of recurrence and seen more morbidity (6 patients %13.0) and complication (7 patients %15.2) than group 1 because of wasty mesentery, adhesions and intermittent attacks. We have seen no mortality in follow-up period.

Conclusion: Early surgical approaching for diverticulitis can be considered a safe and effective alternative method against to delayed and antibiotal treatment before surgery and using this approach, most elective colon resection might be avoided.

Appraisal Of Enteral Nutrition Inception Time In Colorectal Patients

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Background & Aims: Nutrition is a common medical necessity between patients who had operated because of colon cancer. Patients should be monitored and followed carefully, before developing the malnutrition. A general belief of enteral nutrition shows that it is more useful than parenteral feeding, because it is more physiological and have minimal risk of hyperalimentation. The aim of this study was to evaluate the difference between Early enteral nutrition (EEN group) and Late enteral nutrition (LEN group) after colonic resection due to cancer.

Methods: 146 patients with colonic diseases were examined retrospectively from December 2009 to December 2014. In this study the demographic characteristics of patients, nutritional status, length of stay in hospital, BMI, outcomes and complications were evaluated retrospectively.

Results: In total, 146 patients including 76 cases in the EEN group and 70 cases in the LEN group were recruited. There were 82 females (%56) and 64 males (%44) in the groups. Hypoalbuminemia gradually have improved but malnutrition not improved in the EEN group about 5 days, but it did not increase until average two weeks in the LEN group. The body weight decreased in the EEN group during the first 2 weeks and recovered gradually in a month. However body weight in the LEN group was considerable lower than the EEN group because of starting parenteral nutrition in a month. No significant differences detected between the groups in mean age (54.3 vs. 57.5) and mortality (%5, 3 vs. %9.1). There were significant difference between both of the groups in total major morbidities (%17.1 vs %25.6) detected.

Conclusions: Compared with LEN, EEN has safe and feasible tolerated and could shorten the length of stay in hospital, also reduce morbidities of the patients who were operated due colon Cancer.

A Comparison Of Superficial Applications Between %2 Glyceryl Trinitrate Gel And Collagenase Gel in the Cure Of Anal Fissure

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Background: &Aims: Anal fissures are considered one of the most common reasons of anal bleeding and pain. Acute fissure usually recovers spontaneously during 6 weeks. However chronic fissure, with more than 6 weeks of symptoms, has usually deeper and generally has exposed internal sphincter fibers in its base. It is frequently associated with a hypertrophic anal papilla and sentinel pile. This study aims to evaluate between symptomatic relief, healing and side effects of topical % 2 glyceryl trinitrate gel and collagenase gel in the treatment of fissure in our clinic.

Methods: Patients between January 2014 and December 2014, retrospective study of healing drugs in Anal fissures was performed on 124 patients who were suffering anal fissures in our clinic. The patients were randomly divided into two groups. Half of the patients have applied topical % 2 glyceryl trinitrate gel (GTN) and the same number have applied collagenase gel therapy (CGT).

Results: Fissures have been near to completely recovered in 51 (%82) of GTN group compared to 44 (%71) patients in CGT, which was similar. Side effects such as headache and nausea in GTN group were more common than CGT group, which was statistically different. Recurrence rates were the same after six months of follow-up. The mean duration period was 2 weeks in Group GTN and 2.6 weeks in Group CGT. Of 54 patients (% 87) patients were free from rectal pain and fear of going to the toilet in Group GTN whereas 48 patients (%77) patients were free from these complaints in Group CGT.

Conclusions: Topical glyceryl trinitrate gel should be considered as first step treatment in anal fissure. Although glyceryl trinitrate could reduce symptom of anal fissure immediately and easy, collagenase gel has a significant role in anal fissure treatment with similar healing percentages and minimal side effects.

This Is How We Do: Therapeutic Approaches To Colorectal Polyps

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Background & Aims: Colorectal cancer (CC) is the third most common malignancy in the world. Early detection and removal of these premalignant lesions can be reduced incidence and mortality of CC. Colonoscopic polypectomy is a significant factor in prevention of CC. The complete resection of adenomatous polyps are important for reducing period of cancer after colonoscopy process. The aim of this study is to evaluate the role of colonoscopy in the management of malignant polyps.

Methods: This is a retrospective study of all patients undergoing colonoscopic polypectomy for malignant polyps by experienced surgeons between December 2012 to December 2014. Demographic data and clinicopathological variables, short-term outcomes were all retrospectively maintained in the records.

Results: A total of 247 patients with polyps were evaluated. There were 107 males (%43) and 140 females (%57) with a mean age of 45. 2 years (range 27 to 79). Complaints of patients diagnosed after the start of the mean duration of 2 months (15 days to 180 days). There was no significant difference between the patients with respect to age and gender. Of 54 polyps were proximal to the splenic flexura (%22), of 122 polyps (%50) were sigmoid colon, of 21 polyps (%8.5) were transvers colon and of 51 polyps were descending colon (%20). All polyps were removed endoscopically but in one patient (%0.4) had emergency colectomy following colonoscopic polypectomy. No patient was a member of a family with a dominantly inherited syndrome of colorectal Cancer. One patient which applied polypectomy has local recurrence. This patient has a positive surgical margin at polypectomy and has recommended to have surgery. There has been no mortality detected.

Conclusion: In conclusion, polyp characteristics such as location and histopathology were significant factors for resection in patient group. Endoscopic administration of colorectal polyps appears to be safe in patients with negative margins. Larger studies are needed to confirm these findings.

Determination of Liver Metastases By Aid Of Gd-EOB-DTPA MRI and 18 F-FDG PET/CT In Colorectal Malignancies Preoperatively

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Background & Aims: Radiologic methods are a significant component in the assessment of patients for the screening, staging and recurrence monitoring of colorectal Cancer. MRI and PET/CT imaging methods have becoming an important location when the supply and demand balanced increases to radiology all over the world. This article determine and compare the role of these modalities for preoperative metastases in colorectal cancer.

Methods: Of 35 patients with liver metastases were evaluated with etiological causes, stages, side effects, sensitivity and specificity rates between April 2010 to August 2014 retrospectively.

Results: We evaluated retrospectively the data of 35 patients with colorectal cancer overall 4 years. There were 19 males (%54) and 16 females (%46) with a mean age of 47.1 years (range 24 to 85), of 25 patients (%75) had colon cancer and 10 patients (%28) had rectum cancer. We evaluated the results of imaging methods in all patients. Gd-EOBDTPA (Gadolinium ethoxybenzyl diethylenetriamine pentaacetic acid) enhanced MRI was more accurate than 18 F-FDG PET/CT for evaluation of liver metastasis in patients with colorectal cancer. PET/CT seems to be a useful device in the assessment of liver metastases in colorectal cancer however it is an high-priced modality and its use in routine preoperative examinations is controversial. Currently, PET/CT is recommended only for the assessment of suspected recurrences of colorectal cancer but its sensitivity and specificity is lower than Gd-EOBDTPA MRI in detecting liver metastases. The sensitivities of Gd-EOBDTPA MRI and 18 F-FDG PET/CT were in 27 patients (%77.2) and in 32 patients (%91.4) respectively. The sensitivity of

MR was lower than that of 18 F-FDG PET. Gd-EOB-DTPA MRI has become a first modality because of its specificity, higher diagnosis rate (%) and lower false negativity rate in the evaluation of liver metastases.

Conclusion: We review the current consensus in clinical practice for the preoperative imaging of patients with colorectal cancer. A combination of these modalities is important for the optimal use of preoperative imaging studies.

A Rare Cause of Acute Abdomen: Mesenteric Cyst Torsion

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Background: Mesenteric cysts are rarely seen in adults with an incidence rate of 1/100000. Despite being rare, these cysts can lead to life-threatening acute abdomen cases by causing complications such as bleeding, infection, torsion, rupture and intestinal obstruction. Although the causes of mesenteric cysts are not clear, it is thought to be caused by lymphatic duct obstruction, lymphatic node degeneration, lymphatic duct injury and mesenteric leaves fail to fuse. Congenital disorders, diverticulitis, pelvic surgery and inflammatory bowel disease are accused in the etiology. Ileum and jejunum are the most common locations (80%). Less frequently, they occur in other parts of the colon and transverse colon.

Methods: Mesenteric tumors are benign in general. Their malignant degenerations are rare. Their typical sizes are between 5 and 30 cm. The cysts may have serous, chylous or hemorrhagic content. In this article, a 74-year-old patient admitted to our emergency service because of abdominal pain was discussed.

Results: A 74-year-old female patient admitted to our emergency service with nausea, vomiting, abdominal pain and abdominal swelling complaints. The patient was describing an abdominal swelling, growing gradually for approximately 6 months. She had no history or family history in this regard. In the palpation test, a mass was palpated in the right lower quadrant. There were widespread abdominal guarding and rebound tenderness. The patient had no abnormal findings in the routine examinations. In the direct abdominal imaging, a dense gas appearance was present in the bowels, although no air-fluid level was observed. Computed tomography revealed a cystic lesion of 108x55 mm in size with thick septations in the pelvic region. No other pathology was identified in other abdominal organs. The patient was operated after performing the necessary preparations. There was a cystic mass lesion of chylous character with necrosis in patches ranging from the umbilicus to the pelvis in the abdomen. It was observed that the mass was originated and fed in the meso-ileum, and exposed to torsion around pedicle. The mesenteric cyst was totally excised without damage to adjacent organs. There was no complication in the postoperative period, and the patient was discharged on the 2nd postoperative day.

Conclusion: Mesenteric cysts are detected either by chance through the imaging techniques used for various reasons or when fatal complications such as infection, hemorrhage, volvulus, perforation, intestinal obstruction caused by mesenteric cysts occur in certain cases. Therefore, resection should be considered when a mesenteric cyst is identified, albeit accidentally. In this study, we want to remind the mesenteric cysts and complications when faced with acute abdomen, in line with the literature.

EFFECT OF IRRIGATION WITH CHLORHEXIDINE GLUCONATE ON SURGICAL SITE INFECTIONS IN PILONIDAL DISEASE

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Background: Surgical site infection (SSI) which is the major cause of workdays lost and hospital costs still remains at unacceptable levels after pilonidal sinus excision. Recent studies suggest that irrigation with 0.05% chlorhexidine gluconate (CHG) reduces the microbial activity in the wound. Aim of this study is to investigate the effect of CHG on SSI in pilonidal sinus disease.

Methods: Between August 2014 and December 2014 89 patients with primary pilonidal disease underwent excision and primary closure. Recurrent disease, signs of active infection/abscess, different surgical procedures other than excision and primary closure, use of drain and postoperative administration of antibiotics were the exclusion criteria. After excision of the sinus surgical wound was irrigated with CHG solution for 1 minute followed by saline rinse in CHG group (n=46). In control group a 1-minute saline irrigation was performed prior to closure (n=43). 0.05% CHG irrigation solution was prepared from 4% CHG 2 ml diluted with 1000 ml distilled water. Wound complications were identified according to Centers for Disease Control and Prevention guidelines. Patients were followed up by a surgeon blinded to groups and superficial SSI rates within 30 days after surgery were compared retrospectively.

Results: Demographic, clinical and surgical features were similar between groups. Overall SSI rate was 23.6% (n=21). SSI rate in CHG and control groups were 10.9% (n=5) and 37.2% (n=16), respectively ($P=0.05$). Wound dehiscence and seroma rates were not different between groups. Primary healing rates after 1 month were 84.8% and 58.1% in CHG and control groups, respectively ($P=0.009$).

Conclusion: Irrigation with CHG demonstrated a significant beneficial effect in prevention of SSI after surgery for pilonidal disease. Larger series and multicentric randomized controlled trials are needed to decide the efficacy of CHG on SSI.

A NEW PROMISING PROCEDURE FOR PERIANAL FISTULA DISEASE: RADIAL EMITTING LASER

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Background: Fistula laser closure (FiLaCTM, Biolitec, Germany) is a novel non-invasive procedure for the treatment of perianal fistula disease. Primary closure of the fistula tract is obtained using laser energy emitted by a radial fiber connected to a diode laser. The aim of this study is to determine the effectiveness of this new technique in treatment of perianal fistula.

Methods: Between April 2012 and January 2015, 64 consecutive patients with primary or recurrent perianal fistula underwent FiLaCTM procedure. The surgical procedure was sealing of the fistula tract by laser energy. Phase array pelvic MRI was performed in all patients for preoperative classification and post-operative follow up. Only 3 patients were lost to follow up. The primary outcome was the cure of the disease.

Results: Total 61 (M/F=47/14) patients were included in the analysis. The median operative time was 25 (5–40) minutes. No perioperative complication was seen. Median follow-up was 24 (1–35) months. Twenty four of 61 patients had recurrent fistula. Type of the fistula was intersphincteric in 26 patients, trans-sphincteric in 24 patients, superficial in 6 patients and extrasphincteric in 5 patients. Complete healing was observed in 30 (49.2%) patients (18 primary, 12 recurrent), 11 (18%) patients had slight drainage with minimal symptoms (4 primary, 7 recurrent), 16 (26.2%) patients had persistent symptomatic drainage (11 primary, 5 recurrent), 4 (4%) patients had painful symptomatic drainage (4 primary, 0 recurrent). Thirteen (21.3%) patients underwent reoperation for recurrence.

Conclusion: This new approach for perianal fistula is a minimally invasive, safe and simple procedure. Regarding 40% of the patients had recurrent fistulas; a cure rate of 49.2% was acceptable. Moreover, we achieved significant symptomatic control more than half of the patients. Despite the relatively good result of our study, larger series and randomized trials are needed to have a final decision on the effectiveness of this new procedure.

Tissue associated macrophages and regulatory T lymphocytes as prognostic factors in patients with colorectal cancer.

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The aim of the study was to assess value of the tumor associated macrophages (TAM), cytotoxic (T8) and regulatory T lymphocytes (Treg) infiltrations intensity in prediction of disease-free survival (DFS) and overall survival (OS) of patients with colorectal cancer (CRC).

Methods: The analysis was of a retrospective nature. Sixty patients (age 36–80 years) after major surgical treatment due to CRC of IIA, IIIB or IIIC clinical stage were enrolled in the study. The macrophage and lymphocyte infiltrations were assessed immunohistochemically in formaline-fixed paraffine-embedded tumor samples containing invasive tumor front. To identify the lymphocyte and macrophages subpopulations, expression of CD8, FoxP3, CD63 and iNOS protein markers was used.

Results: A relapse of the disease was observed in 20 of all cases (4 local and 16 distant). Intense TAM and T8 infiltration of the tumor stroma as well as higher proportion of Tregs were observed in patients with recurrent disease ($P < 0.0001$). A positive ($R = 0.46$) statistically significant ($P < 0.05$) correlation between intensity of TAM infiltration and the number of Treg in

the tumor stroma was observed. Patients with massive TAM infiltrates and with high number of Tregs had shorter OS and DFS ($P = 0.041$ and $P < 0.00001$ respectively).

Conclusions: TAM infiltration intensity and number of Tregs in the tumor stroma could be used as an adverse prognostic markers of OS and DFS in patients with stage IIA, IIIB and IIIC colorectal adenocarcinoma.

Which Of The Diagnostic Methods Are More Useful At Pelvic Floor Disorders ? Outcomes of patients who had applied Three-Dimensional Anorectal Ultrasonography

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Background & Aims: Pelvic floor disorders, like aspelvic organ prolapse, defecatory dysfunction, and incontinence, represent awidespread health problem, seen especially in women. The unity of the pelvic floor can happen for the following reasons such as childbirth, pelvic surgery, smoking, chronic obstructive pulmonary disease, obesity, constipation and demographic factors. A large number of these patients suffer for many years without proper treatment often due to the lack of proper treatment. Different imaging methods used for the characterization of these disorders which illustrate and obtain disorders in most people. We aimed to expose the feasible treatment protocols for disordes which diagnosis and cured in our hospital.

Methods: Patients between March 2010 and December 2014, retrospective study was performed on 14 patients which suffer due to pelvic floor disorders (PFD) in our clinic. All of the patients were performed three-dimensional dynamic anorectal ultrasonography technique (dynamic 3-DAUS, D3D) We evaluated the demographic data, treatment history, recovery time after treatment and processing period of the whole patients. results have evaluated by experiencedsurgeons.

Results: All of the patients were able to hold the rectal clyster before the process. The mean age was 48.7 (range 27 to 73 years) in total group. The gender of patients, of 9 patients were female (%64), of 5 patients were male (%36). Of 11 patients (%78) have suffered from this disorder for five years also of 3 patients (%22) have suffered for 2 years. Average of Process time were 30 minutes (range 20 to 45). No complication or side effects observed in all patients.

Conclusion: Pelvic floor diseases represent an increasing clinical problem, “a disease nobody talks about” due to the aging of the female population. The treatment of pelvic floor dysfunction is becoming increasingly dependent on pre-operative radiologic imaging. Ultrasonographic techniques maintain an important role in the study of these patients as it allows diagnosis of associated compartment defects

Multiorgan resections for pelvic tumors.

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Background: Some of the most difficult problems in surgery arise when abdominal and pelvic malignancies affect and invade adjacent structures. In certain carefully selected patient groups, substantial increases in disease-free survival (DFS) as well as overall survival (OS) can be achieved by “en-block” resection of a locally advanced cancer growth.

The objective of this study is to present the experience the Regional Comprehensive Cancer Center in Bielsko-Biala had with multiorgan resections for pelvic tumors, and the impact of these procedures on patient survival.

Methods: The clinical records of patients with pelvic tumors who underwent multiorgan “en-block” resections between 2000–2011 were retrospectively analyzed. During that period, en-block, multiorgan pelvic structure resections were performed on 106 women and 23 men (n = 129). The average age of the patients included in the group was 65 years (40–85 years). 109 patients underwent surgery for malignancies located in the pelvis, and 20 operations were performed on benign neoplasms, inflammatory tumors and fistulas following cancer therapy. In seven cases, we performed urgent surgery on evidence of GI obstruction. Furthermore short and long term outcomes were evaluated in terms of the site of primary malignancy, histological type of neoplasms, number of “en-block” removed organs, early and late complications, and the impact on DFS and OS. Of these subgroups, the colorectal cancer group was meticulously assessed to detect any relationship between the severity of malignancy and OS.

Results: In our study, we noted a 54%, 5-year DFS and 64%, 5-year OS in one evaluated group of patients following complete en-bloc resection. The average length of survival in cases of colorectal cancer was 42 months (range 1–106 months). The average length of survival among the 28 patients who underwent palliative resections was 17, 5 months (range 1–61 months). The influence of the number of removed organs on OS in patients who underwent multiorgan resections was confirmed ($P = .01$). We have also deduced a statistically significant relationship between cancer severity in the Astler-Coller scale and OS in colorectal cancer patients ($P = .00015$).

Conclusions: Multiorgan resections are complex operations, which require meticulous planning both in terms of investigation and strategy, but also time, resources and manpower. Patient selection and preparation are key elements of a successful procedure. If all of the these elements are carefully respected, good result can be achieved both in terms of morbidity/mortality and survival.

INHIBITORS OF APOPTOSIS PROTEINS (IAPs) IN COLON CANCER

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Purpose of the study: Programmed cell death, plays fundamental role in physiological control of cells growth. Disturbances in balance between death and the proliferation of cells can lead to many degeneration or proliferation processes. The significant role in apoptosis control play the recently detected inhibitor of apoptosis proteins (IAPs) - influencing on division of cell as well

as regulating the programmed cell death. IAP can make up the new diagnostic marker of tumours as well as therapeutic goal. In this article we try to find expression of IAP in colon cancer patients, using DNA microarray.

Methods: 32 patients with colon cancer (I-IV clinical stage AJCC) (excluding rectal cancer) operated 2009–2010 in Department of General Surgery in Sosnowiec. The fragments of tumors were estimated with microbiological method - DNA microarray and the expression of IAP genes were measured.

Results: 37 mRNA were estimated, and expression IAP gene were analysed. We found overexpression for IAP gene - Survivin, in colon cancer in comparison with healthy tissues. The other of IAP protein did not exhibit changes in expression in the colon cancer tissue.

Conclusions: Overexpression of IAP (Survivin) correlates with clinical stage of colon cancer. Survivin is present in the majority of tumours, so it can be a useful gain in tumour therapy.

It could be used as supplementary parameter in diagnosing and the prognose of treatment of the colon cancer.

EXPRESSION LEVELS OF THE CADHERINE GENES IN PATIENTS WITH COLORECTAL CANCER

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Aim of the Study: The aim of the study is to designate the cadherin genes, which could be potentially useful for the diagnostics, prognostics, and the treatment of CRC.

Material and Methods: Specimens were collected from 28 persons (14 female and 14 male), who were operated for CRC. The molecular analysis was performed using Oligonucleotide microarrays, mRNA used was collected from adenocarcinoma, and macroscopically healthy tissue. The results were validated using qRT-PCR technique.

Results: Agglomerative hierarchical clustering of normalized mRNA levels has shown 4 groups with statistically different gene expression. The control group was divided into 2 groups, the one was appropriate control (C1), the second (C2) had the genetic properties of the CRC, without pathological changes histologically and macroscopically. The other 2 groups were: LSC (Low stage cancer) and HSC (High stage cancer). Consolidated results of the fluorescence of all of the differential genes, designated two coding E-cadherin (CDH1) with the lower expression, and P-cadherin (CDH3) with higher expression in CRC tissue.

Conclusions: The levels of genes expression are different for several groups of cadherins, and are related with the stage of CRC, therefore could be potentially the useful marker of the stage of the disease, also applicable in treatment and diagnostics of CRC.

RELATIONSHIP BETWEEN IRRITABLE BOWEL SYNDROME AND MELANOSIS COLI

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Background: Melanosis coli (MC) first reported in 1857 by Virchow. MC is a benign condition caused by the accumulation of lipofuscin pigments in macrophages in the colonic mucosa. There's published reports indicated otherwise it has been unable to fully link with colorectal malignancies. The average incidence is 0.25–23.6%. Anthraquinone laxatives for constipation are focused on the etiology. Our patients with irritable bowel syndrome (IBS) diagnosed with MC have been reported in this presentation.

Methods: Previously MC diagnosed patients with IBS in our clinic in 2011–2014 years are evaluated retrospectively.

Results: The average age of our 3 female patients were 39 (age range 35–45). Duration of their complaints is about 1–10 years. Previously constipation-predominant IBS-C diagnosed two patients had a history of anthraquinone laxatives and herbal tea. In the other patient who has variable IBS has not a history of laxatives and herbal tea. All patients are undergone gastrointestinal endoscopy. In all patients reflux esophagitis, helicobacter pylori (+) chronic gastritis and MC were detected. The treatment was started while using of anthraquinone laxative medicines and herbal teas stopped. Dietary modification was made. After 2 years control colonoscopy was performed to patient with constipation-predominant IBS-C and MC and shown and was seen to persist in MC.

Conclusion: MC is seen in 73% of the users of anthraquinone laxatives. Lipofuscin pigment accumulated in MC caused by destruction of epithelial cells. The damaged epithelial cells in colonic mucosa and lipofuscin pigment are released in IBS and seen in other pathological conditions such as MC.

Microflora of the terminal part of the small bowel in patients with the dolichocolon

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Gastrointestinal tract is the difficult symbiotic ecosystem, which has been developed during its own evolution. Due to the literature, there are disorders in a big part of patients with dolichocolon in the colonic microflora, which led to the disturbances in the immune system. The microflora of the terminal part of the ileum plays a crucial role in the functioning of the immune system of the organisms.

Aim: to study the microflora of the terminal part of the ileum.

Material and Methods: the outcomes of the investigation of 44 patients with dolichocolon were analysed. Cultures were taken from the intestinal wall, which has been resected during subtotal or total colectomy.

Results: The account of the bacterial microflora in patients with normal functioning ileocecal part of the intestine was 2.5 - 3 times more than in healthy adults and in patients with the failure in the Bauhinia flap.

Conclusion: Our study show, that the microflora of the terminal part of the ileum changed his profile in patients with dolichocolon.

IS MORE PATHOLOGICAL COMPLETE RESPONSE RATE OBSERVED WHEN SURGERY IS DELAYED 12 WEEKS AFTER COMPLETION OF CHEMORADIOTHERAPY COMPARED TO 8 WEEKS? PRELIMINARY REPORT

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Background: The aim of this study is to assess whether greater pathological complete response (pCR) rate occurs when surgery is delayed to 12 weeks after completion of chemoradiotherapy (CRT) compared to 8 weeks.

Methods: Between July 2011 and January 2015 133 patients with locally advanced (stage II and III) rectal cancer were randomized before CRT (45–50 Gy in 1.8–2 Gy fractions and concomitant 5-FU infusion of 225 mg/m²/day) to two groups according to the neoadjuvant CRT-surgery interval: 8 weeks (Group 1) and 12 weeks (Group 2). The primary outcome measure is to determine the pCR rate.

Results: One hundred patients (43 in Group 1 and 57 in Group 2) were included in the analysis. The groups were similar in terms of the demographic and clinical characteristics. Sphincter-preserving surgery was performed in 36 patients in Group 1 and 38 patients in Group 2 (p>0.05). Four (9.3%) out of 43 patients had pCR in Group 1 compared to 10 (17.5%) out of 57 patients had pCR in Group 2 (p>0.05). There was no perioperative mortality and postoperative morbidity rates were similar in two groups.

Conclusion: Twelve-week interval between completion of neoadjuvant CRT and surgery may result in a modest increase in pCR rate without increasing complications in patients undergoing total mesorectal excision for locally advanced rectal cancer

The Influences of drugs with flavonoid combination on the healing of perianastomotic site in experimental groups

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Background: Colon anastomotic leakages are among the major causes of morbidity and mortality in surgery. Many stud-

ies have been conducted, many methods have been tried, lots of drugs have been used to minimize them, but anastomosis leakages still present a problem. In this study, it was aimed to study the effects of diosmin-hesperidin, which has the remedial effect on the microcirculation, on healing of perianastomotic site.

Materials and Methods: Four groups were formed with 6 rats in each. Anastomoses were performed on the 1st group and the anastomotic bursting pressures, perianastomotic tissue hydroxyproline levels and perianastomotic tissue histopathological evaluation scores were examined in the postoperative 3rd day. 60 mg/kg/day diosmin hesperidin was given to the 2nd group orally by feeding-gavage for three days, and anastomosis performed and the same parameters were evaluated in the 3rd postoperative day. Anastomoses were performed on the 3rd group, and the same parameters were evaluated in the 7th postoperative day. 60 mg/kg/day diosmin hesperidin was given to the 4th group orally by feeding-gavage for three days, and the anastomotic bursting pressures, perianastomotic tissue hydroxyproline levels and perianastomotic tissue histopathological evaluation scores were examined in the postoperative 7th day.

Results: Evaluating the bursting pressures, statistically significant increases were found in the bursting pressure values in the drug administered groups. There was no statistically significant difference in perianastomotic tissue hydroxyproline levels. In the histopathological evaluation, there were no significant differences in necrosis, PMNL, edema, mucosal damage, damage to the submucosal-muscular layer scores and in the total score. However, there was statistically significant difference in the lymphocytes and macrophages scores.

Conclusion: In this study, there were positive improvements in the histopathologic healing's lymphocytes and macrophages scores, and there were increases in the anastomotic bursting pressures in the diosmin-hesperidin administered groups. There was no statistically significant, positive or negative effect on the accumulation of collagen. Based on these results, it was concluded that diosmin hesperidin accelerates wound healing in colonic anastomoses, and diosmin hesperidin can be presented to the world of medicine as an option to improve the healing of the anastomosis, in light of new studies to be conducted.

Treatment of our case with Rectal prolapsus and Solitary rectal ulcer by Laparoscopic Ripstein Operation

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Background: Solitary rectal ulcer syndrome (SRUS) arises with one or more ulcers at rectum or with rectal wall thickening. It is met 1 over 100 000 in the society. SRUS generally shows up with rectal bleeding, pain, mucous defecation, difficulty in

rectal evacuation. Since rectal prolapsus is present by patients with SRUS, in the studies performed it was shown that pelvic floor muscles were contracted discordantly and blood flow was decreased in the mucosa.

Methods: One of our cases with rectal prolapsus and SRUS is presented in this presentation.

Results: The patient was 45 years old and female and had the symptoms constipation, bleeding during defecation, tenesmus since two years. The patient had a medical history of idiopathic prolactinoma and hashimoto thyroiditis. The patient was anemic. In her gastroscopy pangastritis were determined. In her colonoscopy, stable hemorrhoidal disease, at upper rectum between 10–15 cm ulcer at rectum mucosa, dark coloured areas at cecum mucosa were determined. In the pathological examination, SRUS at rectum and melanosis coli at cecum were diagnosed. External rectal prolapsus was determined in the digital defecography. Laparoscopic ripstein operation was applied to the patient. In the colonoscopy of the patient after one year, it was observed that SRUS at rectum was cured.

Conclusions: SRUS should be differentiated from other diseases causing mucosal ulceration. Medical or surgical treatment methods can be used according to the underlying cause. The priority in the treatment has the medical treatment. However surgical restoration could be prioritized by patients having coexisting rectal prolapsus.

PROGNOSTIC FACTORS IN PERITONEAL CARCINOMATOSIS OF GASTROINTESTINAL ORIGIN: A SINGLE CENTER EXPERIENCE FROM TURKEY

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Prognostic factors in peritoneal carcinomatosis of gastrointestinal origin: A single center experience from Turkey

Background: Aim of this study is to determine the prognostic factors on oncologic outcome in patients treated with cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) for gastrointestinal tumors.

Methods: A prospectively recorded database of patients with peritoneal carcinomatosis (PC) of gastrointestinal origin who underwent CRS and HIPEC between October 2007 and June 2014 was reviewed. Management of the patients was discussed in multidisciplinary tumor board. The primary intent of surgery was complete radical resection of the whole tumor burden. Extent of the peritoneal disease was scored with peritoneal carcinomatosis index (PCI). After CRS, all patients received HIPEC with closed abdominal technique.

Results: In 55 patients, totally 57 SRC and HIPEC were performed. Median age was 57(20–86). 28 patients were female and 29 were male. Origin of PC was colon cancer in 34(59.6%) patients, rectum cancer in 4(7%) patients, appendix tumors in 15(26.3%) patients, small bowel in 2 (3.5%), gastric cancer in 1(1.8%) and pancreas in 1(1.8%) patients. In 35 patients PCI was lower than 15. Complete cytoreduction was achieved in 43(75.4%) patients.

Mean number of resected organs was 3.7(0–8). Mean operative time was 291.5(60–720) minutes. Perioperative mortality and severe morbidity rates were 10.5%(n=6) and 19%, respectively.

Recurrent disease was seen in 23(45%) patients(23.5% intraabdominal, 3.9% distant, 17.6% both). During a median follow up of 22(4–86) months overall survival was 64.7%. Multivariate analysis revealed PCI(HR: 2.231, $P=0.020$) and completeness of cytoreduction(HR: 1.952, $P=0.029$) were independent prognostic factors for survival.

Conclusion: These results indicate the importance of proper patient selection and multidisciplinary management in patients treated with CRS and HIPEC.

Hepatobility and pancreatic surgery

A meta-analysis of subtotal stomach-preserving pancreaticoduodenectomy versus pylorus preserving pancreaticoduodenectomy

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Aim: To investigate the differences in outcome following pylorus preserving pancreaticoduodenectomy (PPPD) and subtotal stomach-preserving pancreaticoduodenectomy (SSPPD).

Methods: Major databases including PubMed (Medline), EMBASE and Science Citation Index Expanded and the Cochrane Central Register of Controlled Trials (CENTRAL) in The Cochrane Library were searched for comparative studies between patients with PPPD and SSPPD published between January 1978 and July 2014. The pooled odds ratios (OR) or weighted mean difference (WMD) with 95% confidence intervals (95% CI) were calculated using either a fixed-effects or random-effects model.

Results: Eight comparative studies recruiting 650 patients were analyzed. Patients undergoing SSPPD experienced significantly lower rates of DGE (OR: 2.75; 95% CI: 1.75, 4.30, $P<0.00001$) and a shorter period of nasogastric intubation (OR: 2.68; 95% CI: 0.77, 4.58, $P<0.00001$), with a tendency towards shorter time to liquid (WMD 2.97, 95% CI: -0.46, 7.83; $P=0.09$) and solid diets (WMD 3.69, 95% CI: -0.46, 7.83; $P=0.08$) as well as shorter inpatient stay (WMD 3.92, 95% CI: -0.37, 8.22; $P=0.07$) although these latter three did not reach statistical significance. PPPD, however, was associated with less intraoperative blood loss than SSPPD (WMD -217.70, 95% CI: -429.77, -5.63; $P=0.04$). There were no differences in operative time, pancreatic fistula, postoperative hemorrhage, intraabdominal abscess, wound infection, reinsertion of nasogastric tube and mortality.

Conclusions: SSPPD may improve intraoperative and short-term postoperative outcomes compared to PPPD, especially DGE. However, these findings need to be further ascertained by well-designed randomized controlled trials.

Keywords: pyloruspreserving pancreaticoduodenectomy; subtotalstomach preservingpancreaticoduodenectomy; delayed gastric emptying;pancreatic surgery; meta-analysis.

A single-center experience of sorafenib monotherapy in patients with advanced intrahepatic cholangiocarcinoma

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Purpose: To assess the efficacy and safety of sorafenib as single agent therapy in patients with advanced intrahepatic cholangiocarcinoma (ICC).

Experimental Design: Eligible patients had no prior therapy for metastatic or unresectable disease. Sorafenib was administered at a dose of 400 mg po twice daily continuously. The primary endpoint was the disease control rate at 12 weeks. Secondary endpoints included time to progression (TTP), progression-free survival (PFS), overall survival (OS), duration of treatment (DOT) and adverse event profile.

Results: A total of 15 patients enrolled in this study, the median DOT was 3.2 months with a range of 1.5 months to 30 months. 4 patients achieved a partial response and 7 patients achieved stable disease, with a disease control rate of 73.3%. The median OS was 5.7 months [95% confidence interval (CI) : 5.0 - 6.4 months], PFS was 5.5 months (95% CI: 3.9 - 7.1 months), and median TTP was 3.2 months (range: 1.5 - 29 months). The most common toxicity was skin rash in 5 patients (33.3%). The G3 hand-foot syndrome was observed in 1 patient (6.7%) that required treatment termination.

Conclusion: Sorafenib monotherapy may confer a promising anticancer activity in advanced ICC and the toxicity profile is manageable.

Applying chemical bile duct embolization to achieve chemical hepatectomy in hepatolithiasis: a further experimental study

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the purposes of the study: Hepatolithiasis is the presence of calculi within the bile ducts of the liver. It represents a significant problem for hepatobiliary surgery because of its high recurrence rate and the associated risk for partial hepatectomy. This study was designed to explore the long-term efficacy of chemical biliary duct embolization (CBDE) to treat recurrent hepatolithiasis.

Methods: A rabbit model of hepatolithiasis was established, and CBDE was achieved using oxybenzene and N-butylcyanoacrylate. The short-term (6 weeks) and long-term (12 weeks) efficacy of CBDE treatment treatment was compared by observing the degree of atrophy, fibrosis, proliferation of collagen fibers, and apoptosis of hepatocytes and hepatic stellate cells in the embolized hepatic lobe. Biochemical measurement of β -glucuronidase (β -G) was also evaluated to determine the effect of CBDE on stone formation.

Results: Six weeks after CBDE, there was liver cell destruction, collagen accumulation and bile duct proliferation only in the peripheral part of the target lobe. Twelve weeks after CBDE, “self-cut” chemical hepatectomy was achieved, as manifested by the destruction of almost all the hepatocytes in the target lobe, bile duct proliferation, and collagen fiber accumulation. The β -G activity was markedly lower in the embolized lobe than in the nonembolized lobe. In contrast, bax, caspase-3, caspase-9, and α -SMA expression was substantially higher in the embolized lobe than in the sham-operation group at 6 weeks, but was lower at 12 weeks.

Conclusions: CBDE is a potentially effective therapeutic approach for treating and preventing the recurrence of hepatolithiasis.

Keywords: chemical biliary duct embolization; chemical hepatectomy; hepatolithiasis

Clinical analysis of infected pancreatic necrosis complicated with intestinal leakage

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Objective: To explore the clinical features, diagnosis and treatment, and prognosis of patients with infected pancreatic necrosis (IPN) complicated with intestinal leakage.

Methods: During Jan.2010 to Dec.2014, 33 patients admitted with IPN were retrospectively analyzed. The clinical data of 10 cases with intestinal leakage were specifically compared with 23 cases of IPN without intestinal leakage.

Results: The mortality of the 33 patients was 39.4% (13/33), and the severity score (2012) was closely associated with the mortality ($P < 0.05$). The mortality of the patients with IPN complicated with intestinal leakage was 40.0% (4/10). Intestinal leakage had no impact on the mortality, but significantly prolonged the hospital stay ($P < 0.05$). The mortality in patients with intestinal leakage at the rare locations (75%, 3/4) was higher than that with leakage at the common locations (16.7%, 1/6).

Conclusion: The mortality of the patients with IPN was still high. Intestinal leakage was not associated with increased mortality, but with prolonged hospital stay. Intestinal leakage at the rare locations was associated with increased mortality of IPN.

Keywords: Infected Pancreatic Necrosis; intestinal leakage;

Diagnosis, treatment and prevention of iatrogenic injury in choledocho—pancreatico—duodenal junction

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Objective: To discuss the diagnosis, treatment and prevention of iatrogenic injury in choledocho—pancreatico—duodenal junction.

Methods: Clinical data of 13 cases with iatrogenic injury in choledocho—pancreatico—duodenal junction in our department from January 1996 to December 2014 were retrospectively analyzed. At operation 11 cases were detected by water injection

test and confirmed by choledochoscopy examination. In these cases bile duct repair and suture accompany with T tube drainage or sphincteroplasty of oddi were completed according to injury part. Completely biliopancreatic shunt, duodenal diverticulum and jejunum stoma were performed in 2 delay-diagnosed cases, and followed by gastrointestinal and biliary reconstruction after 6 months.

Results: All operations on 13 cases were completed successfully. Duodenal fistula accompany with server infection occurred in 1 case, the patient died of massive haemorrhage after reoperation. Another 12 cases recovered smoothly. Satisfactory efficacy were confirmed during 2–18 years follow-up period.

Conclusions: Water injection test and choledochoscopy examination can effectively detect injury in choledocho—pancreatico—duodenal junction at operation. Early diagnosis and rational operation disposal help to prevent server postoperative applications. Damage control surgery is necessary for delay-diagnosed cases. Prevention of iatrogenic injury in choledocho—pancreatico—duodenal is the most important.

Keywords: Choledocho—pancreatico—duodenal junction; Iatrogenic injury; Diagnosis; Treatment; Prevention

Does isolated Roux-en-Y pancreaticojejunostomy reduce pancreatic fistula after pancreaticoduodenectomy? A systematic review and meta-analysis

Running title: Roux-en-Y pancreaticojejunostomy versus conventional pancreaticojejunostomy

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Aim: To investigate the differences in outcome following pancreaticoduodenectomy between the isolated Roux loop pancreaticojejunostomy and conventional pancreaticojejunostomy.

Methods: Comparative studies regarding this topic published between January 1976 and October 2014 were searched, and selected based on specific inclusion and exclusion criteria. Quality of included studies was assessed and perioperative outcomes were compared. Pooled odds ratios (OR) or weighted mean differences (WMD) with 95% confidence interval (CI) were calculated using either fixed- or random-effects model.

Results: Six studies were included with two randomized controlled trials and four non-randomized trials. A total of 712 patients (359 patients from the IPJ group and 353 patients from the CPJ group) were analyzed and the pooled result revealed that IPJ had more operation time (WMD: 36.55 min; 95%CI: 6.98, 66.11 min, $P = 0.02$) compared with CPJ after PD. However, there were no significant difference in postoperative pancreatic fistula (OR: 0.88; 95%CI: 0.59, 1.32) and other any intraoperative and postoperative outcomes.

Conclusion: PD with IPJ was comparable to CPJ in intra-operative outcomes and postoperative complications, despite associated with longer operation time. However, further randomized controlled trials should be undertaken to ascertain these findings.

Keywords: Pancreaticoduodenectomy; Pancreaticojejunostomy; Isolated Roux loop; Pancreatic fistula; Systematic review.

Elevated GRP78 expression is associated with poor prognosis in patients with pancreatic cancer

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Background: 78 kDa glucose-regulated protein (GRP78), is a member of heat shock protein 70 family, localized in the endoplasmic reticulum (ER). As a sensor of the unfolded protein response (UPR), it was found playing important roles in several malignancies. However, the associations between GRP78 expression and clinicopathological characteristics of patients with pancreatic ductal adenocarcinoma (PDAC) remain unknown.

Methods: A total of 180 patients with PDAC were enrolled with cancer tissues and corresponding adjacent cancer tissues. The expression of GRP78 protein was evaluated using tissue microarray and immunohistochemistry. The relationships between expression levels, clinicopathological factors, and overall survival were studied by statistical analysis. Further more, the relationships between the expression of GRP78 and cell proliferation were assessed by using the CCK-8 kit with the PDAC cell lines SU.86.86 and BxPC-3. Western blotting and transwell assay were used to assess the relationships between GRP78 expression and migration, invasion ability of PDAC cell lines.

Results: Higher GRP78 expression was detected in cancer tissues when compared with the expression in normal duct cells of adjacent cancer tissues. High expression of GRP78 in cancer tissue was correlated significantly with high T staging. Most importantly, overall survival was significantly poorer in patients with high expression of GRP78 in cancer tissues. In vitro study, knocking down GRP78 expression reduced proliferation, migration and invasion ability of tumor cells via downregulations of CyclinD1, CDK4, CDK6; STAT3, JAK2; Rho, ROCK1 and FAK after silencing GRP78.

Conclusions: The present study suggests that GRP78 protein plays a positive role in proliferation, migration and invasion in human PDAC and maybe a suitable independent prognostic marker in PDAC.

Expression and clinical significance of Tspan1 and Integrin $\alpha 6$ in human pancreatic ductal adenocarcinoma

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Objective: To explore the clinicopathological significance of the expression of Tspan1 and Integrin $\alpha 6$ in pancreatic ductal adenocarcinoma (PDAC) tissue and pancreatic cancer cell lines.

Methods: Immunohistochemistry was used to detect the expression of Tspan1 and Integrin $\alpha 6$ in 95 paraffin-embedded PDAC specimens and 55 adjacent non-cancerous pancreatic tissues. Western blot and quantitative real-time polymerase chain reaction (qRT-PCR) were used to detect the protein and mRNA expression in 16 paired fresh IDC specimens of the pancreas and adjuvant non-cancerous pancreatic tissues and 6 different pancreatic cancer cell lines.

Results: Tspan1 and Integrin $\alpha 6$ were significantly over-expressed in PDAC than in adjacent non-cancerous pancreatic tissues ($\chi^2=7.429, P<0.05$; $\chi^2=15.1, P<0.01$). Lymph node metastasis, TNM stage and post-operation recurrence were positively correlated with the expression of Tspan1 ($\chi^2=6.688, P<0.01$; $\chi^2=13.055, P<0.01$; $\chi^2=6.116, P<0.05$). TNM stage was positively correlated with the expression of Integrin $\alpha 6$ ($\chi^2=8.896, P<0.05$). Tspan1 was correlated with Integrin $\alpha 6$ ($r=0.223, P<0.05$). The expressions of Tspan1 and Integrin $\alpha 6$ were negatively correlated with survival time ($\chi^2=5.263, P<0.05$; $\chi^2=10.124, P<0.01$). Multivariate analysis revealed that Tspan1 and Integrin $\alpha 6$ expressions were independent prognostic factors in PDAC patients ($\chi^2=6.152, P<0.05$; $\chi^2=9.479, P<0.01$). Western blot ($t=2.278, P<0.05$; $t=3.153, P<0.05$) and qRT-PCR ($t=2.439, P<0.05$; $t=3.258, P<0.05$) show that Tspan1 and Integrin $\alpha 6$ expressions were higher in PDAC tissues than in adjacent non-cancerous pancreatic. Tspan1 and Integrin $\alpha 6$ were expressed in all six pancreatic cancer cell lines. In SW1990 which derived from metastasis PDAC, Tspan1 and Integrin $\alpha 6$ expressions were higher than the cell lines from primary tumor.

Conclusions: Tspan1 and Integrin $\alpha 6$ expression can up-regulate the invasion and metastasis of PDAC and may be used to predict the prognosis of PDAC.

Keywords: pancreatic ductal adenocarcinoma; Tspan1; Integrin $\alpha 6$; Tetsapanins

Expression of glucose-regulated protein 78 in the occurrence and evolution process of the mouse pancreatic cancer

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Objective: To investigate the expression of glucose-regulated protein 78 in the occurrence and evolution process of pancreatic cancer and its significance.

Methods: Established murine chronic pancreatitis, pancreatic intraepithelial neoplasia (PanIN) and pancreatic cancer model by DMBA embedding in situ. GRP78 expression was detected in various stages by immunohistochemistry.

Results: 18 of 60 cases (30%) died during the observation period, two months after embedding, the survived mice were sacrificed, and HE staining and IHC staining were performed. In the survived mice, 9 cases (15%) were chronic pancreatitis; 18 cases (30%) were PanIN (PanIN I 5 (8.3%), PanIN II 9 (15%), and PanIN III 4 (6.7%)); 15 cases were pancreatic cancer (25%). Immunohistochemistry showed that the expression of GRP78 in pancreatic cancer tissue was significantly higher than that in adjacent noncancerous duct cells ($P<0.01$). GRP78 expression in pan-

atic cancer tissue and high grade PanIN was significantly higher than that in Low grade PanIN and chronic pancreatitis ($P < 0.01$).

Conclusion: The expression of GRP78 was significant different in different stages and associated with the occurrence and evolution of pancreatic cancer.

Keywords: pancreatic cancer; pancreatic intraepithelial neoplasia; glucose-regulated protein 78

Gli1 promotes TGF- β 1 and EGF induced epithelial to mesenchymal transition in pancreatic cancer

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Objective: The function of Gli1 in regulating epithelial to mesenchymal transition (EMT) of pancreatic cancer (PC) remains controversial.

Methods: We study the expression of Gli1, MMP9, E-cadherin and Vimentin for clinical significance in PC tissues, and investigate the definite role of Gli1 in regulating TGF β 1 and EGF induced EMT in PC cells.

Results: IHC showed Gli1 had a positive association with MMP9, but not with E-cad and Vimentin. Gli1 expression was positively associated with tumor T ($P = 0.025$) and UICC stage ($P = 0.032$), while MMP9 expression had positive association with lymph nodes metastasis ($P = 0.017$) and UICC stage ($P = 0.006$). Meanwhile, patients with the co-expression of Gli1 and MMP9 had a significantly poor overall survival ($P = 0.015$). Gli1 single silence without external stimulus had no effect on EMT, but inhibited TGF β 1 and EGF induced EMT in PC cells, along with the inhibition of TGF β 1 and EGF induced EMT-like cell morphology and invasion, downregulation of E-cad, and upregulation of MMP9 and Vimentin, respectively.

Conclusion: We support a pro-tumor role of Gli1 in the development of PC through promoting TGF β 1 and EGF induced EMT.

Overexpression of HOXA13 as a Potential Marker for Diagnosis and Poor Prognosis of Hepatocellular Carcinoma

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Purposes: HOXA13 is a member of homeobox genes that encode transcription factors regulating embryonic development and cell fate. Abnormal HOXA13 expression was reported in hepatocellular carcinoma (HCC), but its correlation with tumor angiogenesis and prognosis still remain unclear. This study was aimed to uncover the expression, diagnostic and prognostic significance of HOXA13 in HCC.

Methods: Immunohistochemistry was performed to detect HOXA13 expression in HCC and corresponding paracarcinomatous tissues from 90 patients. Enzyme-linked immunosorbent assay was used to detect serum HOXA13 in 90 HCC patients and 20 healthy volunteers. Receiver operating characteristics

was analyzed to calculate diagnostic accuracy of serum HOXA13, alpha-fetoprotein (AFP) and their combination.

Results: Immunoreactivity of HOXA13 was detected in 72.2% of HCC, and 12.2% of adjacent non-cancerous samples. HOXA13 expression was significantly associated with tumor size, microvascular invasion, pathological grade, tumor capsula status, AFP level, tumor-node-metastasis stage and positively correlated with VEGF ($P < 0.001$) and microvessel density ($P < 0.001$). The combination of serum HOXA13 and AFP had a markedly higher area under the curve than HOXA13 alone. HOXA13 expression was associated with unfavorable overall survival (OS) ($P < 0.001$) and disease-free survival (DFS) ($P < 0.001$). Multivariate analysis indicated that patients with HOXA13-expressing tumors had a significantly shorter OS ($P = 0.030$) and DFS ($P = 0.005$) than those with HOXA13-negative tumors.

Conclusions: HOXA13 expression possibly plays an important role in tumor angiogenesis, progression and prognosis of HCC. Moreover, serum HOXA13 may serve as a biomarker for early HCC diagnosing and predicting outcome.

Surgical treatment of primary hepatic carcinoma with diaphragmatic muscle invasion

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Purpose: To explore the feasibility and the afterward curative effect of surgical treatment of primary hepatic carcinoma with diaphragmatic invasion, this essay sums up the experiences of surgical treatment.

Methods: Clinical data of 37 patients with primary hepatic carcinoma who had diaphragmatic invasion and had liver surgery in Anhui Provincial Hospital between January 2008 and January 2014 were retrospectively analyzed, choosing the same line as a control group of 54 cases of patients with liver cancer randomly.

Results: All cases were performed successfully, no significant statistical differences were found between pre-operation clinical data of two groups. The operation time of the group with diaphragmatic invasion is slightly longer than that of the group without (149.4 ± 23.4 min vs 137.9 ± 24.6 min, $P = 0.028$); meanwhile, there is no obvious difference between bleeding loss of the two groups (449.5 ± 304.1 ml vs 304.1 ± 222.3 ml, $P = 0.499$). There are no significant statistical differences in other aspects between two groups of patients postoperative pulmonary infection, pleural effusion, infection of incision, mortality and hospitalization time. Based on Kaplan Meier - log - rank test analysis, it is found that the two groups had no significant differences in disease-free survival and overall survival.

Conclusions: Hepatic carcinoma with diaphragmatic invasion is still the indications for liver resection and should not be treated as indicator of poor prognosis of liver cancer. It is safe and effective along with some diaphragm excision.

Keywords: Primary liver cancer; Diaphragmatic invasion; Surgery; resection

The Clinical Diagnosis and Treatment and Prognosis of Unexpected Gallbladder Analysis

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Objective: To summarize the clinical and pathological features of the unexpected gallbladder, analysis of different operative methods and the relationship between the pathological staging and prognosis, and standardize the diagnosis and treatment strategy of incidental gallbladder carcinoma.

Methods: Between January 2009 and December 2013, 29 incidental gallbladder carcinoma patients were treated in the General Hospital of Ningxia Medical University. A retrospective study was performed based on the clinical data of these patients to evaluate the Cumulative survival rate of patients between different ways of operation and pathological staging in patients with Kaplan-Meier Methods.

Results: The preoperative diagnosis of 29 cases is: 20 patients with gallbladder stones, cholecystitis; 1 case with the gallbladder stone and gallbladder polyps (both for multiple); gallbladder polyp in 1 case; gallbladder stone with common bile duct calculi in 6 cases; 1 case was in Intraoperative diagnosis of department of gynaecology. Two cases were on the stage of Nevin I, 2 on Nevin II, 11 on Nevin III, 5 on Nevin IV and 9 on Nevin V. In this group, adenocarcinoma 23 cases (3 high-differentiation, 6 high-moderate-differentiation, 5 low-moderate-differentiation, 4 moderate-differentiation, 5 low-differentiation), papillary adenocarcinoma 1 case, papillary adenocarcinoma merger adenocarcinoma 1 case, mucous adenocarcinoma 1 case, squamous cell carcinomas 1 case, adenoma canceration 1 case, adenocarcinoma merger mucous adenocarcinoma 1 case. The survival terms were of statistic significance between the radical cholecystectomy groups and simple cholecystectomy groups ($P=0.036$); The prognosis of patients on stages I, II are better than those who are on stages III, IV, V (Kaplan Meier survival Long - rank test, stages I, II vs III, $P<0.05$, stage III vs IV, $P<0.05$).

Conclusions: The clinical manifestations of the Unexpected gallbladder are lack of specificity, so the early diagnosis is difficult. Surgeons should raise awareness of unexpected gallbladder and send frozen pathology diagnose in time. To the confirmed cases, surgical operation is the first choice of therapy.

Keywords: Unexpected gallbladder; Diagnosis and treatment; The prognosis.

The effect of enteral nutrition (EN) on intra-abdominal pressure (IAP) in severe acute pancreatitis (SAP) patients

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Aim: To investigate the effect of enteral nutrition (EN) on intra-abdominal pressure (IAP) in severe acute pancreatitis (SAP) patients and the relationship between the decrease of IAP and the therapeutic effect of EN.

Methods: Eighty SAP patients were randomly divided into study group and control group (40 patients in each group). Patients in the study group received EN and Patients in the con-

trol group received total parenteral nutrition (TPN) for 7 days. Intra-cystic pressure (ICP) of the two groups was measured during treatment period. The outcomes of treatment were observed, APACHE II scores, NB data were applied in analysis.

Results: The ICP data was lower in the study group than in the control group on days 4 and 5 of treatment ($P<0.05$). On days 3-5 of treatment, the APACHE II scores of the study group were lower than which of the control group ($P<0.05$). NB data increased significantly in study group than in the control group ($P<0.05$). abdominalgia relief time, operation rate were different between the two groups ($P<0.05$). The abdominal compartment syndrome (ACS) occurrence rate of the two groups have no significant difference. The ICP data and APACHE II scores, abdominalgia relief time, operation rate of pancreas debridement show positive correlation ($P<0.05$). ICP and NB data show negative correlation ($P<0.05$).

Conclusion: EN can decrease the IAP of SAP, which may be the reason for EN show preventive and therapeutic effects on SAP.

Keywords: enteral nutrition (EN); severe acute pancreatitis (SAP); intra-abdominal pressure (IAP)

Tumor size and clinical stage are independent risk indicators for postoperative liver metastasis in patients with resectable pancreatic cancer

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Objective: As yet, there is no reliable data for illustrating the detailed effect of postoperative liver metastasis (PLM) on prognosis and evaluating the definite predictors that influence the initiation of PLM in pancreatic cancer (PC).

Methods: 189 consecutive patients with non-metastatic and resectable PC were entered into this study. We determined the prognostic factors for PLM in PC patients following surgical resection and established two liver metastasis models in vivo.

Results: PC recurred in 145 (145/189; 76.7%) of the 189 patients, and 68 cases occurred in liver metastasis (46.8%). Patients with PLM had a significantly worse overall survival ($P=0.001$), and was an independent unfavorable prognostic indicator in PC ($P=0.019$). PLM was positively associated with tumor size ($P=0.002$), T stage ($P=0.004$), lymph nodes metastasis ($P=0.004$) and UICC stage ($P=0.003$). Multivariate analysis identified tumor size ≥ 3.5 cm ($P=0.005$), UICC stage (IIA+IIB) ($P=0.021$) and lymph nodes metastasis ($P=0.032$) as independent risk factors for PLM. High incidence of liver metastasis in both spleen and tail vein injected models (100% and 62.5%, respectively) in nude mice indicated PC had a specific metastatic ability into the liver.

Conclusion: PLM is an independent unfavorable prognostic indicator for PC patients. Tumor size, UICC stage and lymph nodes metastasis are independent risk predictors for PLM. Two liver metastasis models are easy for operation and meaningful for further investigating molecular mechanism of PLM in PC.

Keywords: Postoperative liver metastasis, prognosis, predictor, pancreatic cancer

The influence of perfusate on liver viability during hypothermic machine perfusion

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Aim: Although static cold-storage (SCS) is the gold standard for liver transplantation (LT), hypothermic machine perfusion (HMP) is currently challenging the limitations of SCS. However, there is no consensus on the basic conditions used for HMP, including the optimal perfusates. In this study we aimed to optimize the perfusates used for HMP.

Materials and Methods: Sprague Dawley rats were assigned randomly to three groups (n=12 per group) that received either saline, University of Wisconsin cold-storage solution (UW) or histidine-tryptophan-ketoglutarate solution (HTK) solutions as the perfusate. Each group was divided into two subgroups: SCS and HMP (n=6 per group). The perfusates were collected at different time-points for analysis of aspartate aminotransferase (AST), alanine transaminase (ALT) and lactate dehydrogenase (LDH) levels. Liver tissues were obtained for evaluation of histology, dry/wet weight (D/W) ratio, and malondialdehyde (MDA) and ATP levels. The portal vein pressure and velocity were monitored in real-time in all HMP subgroups.

Results: Regardless of the perfusate, HMP improved the architecture and function of the donor graft and decreased MDA levels compared to SCS. Among the HMP subgroups, HTK showed less portal vein resistance (VR) and ATP consumption than UW and saline, while UW reduced edema with the highest efficiency.

Conclusion: HMP is superior to SCS in maintaining both the architecture and function of liver grafts. Among the three solutions evaluated, HTK was found to be the optimal perfusate for HMP.

A meta-analysis of the efficacy of combined hepatectomy and splenectomy in treating hepatocellular carcinoma complicated with hypersplenism

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Background: To systematically evaluate the efficacy and safety of combined hepatectomy and splenectomy in hepatocellular carcinoma (HCC) with hypersplenism patients.

Methods: PubMed, EmBase databases and Cochrane Library (until May. 31. 2014) were systematically searched without limitation. All relevant studies were searched and the data were extracted by independent researchers. All the extracted literature were managed by Bibliographic citation management software. The quality assessment of the included studies was performed by the modified NOS judgment. The data were analysed with Review Manager 5.1 software.

Results: Finally, seven studies involving a total of 593 patients (276 in hepatectomy and splenectomy group, 317 in hepatectomy group) were included in the analysis. Outcomes, including post-operative complications (OR=0.82, 95%CI: 0.55-1.23, P=0.34), operative mortality (OR=0.48, 95%CI: 0.09-2.50, P=0.38), 5-year survival rate (OR=0.08, 95%CI: -0.03-0.19, P=0.18) and blood transfusion (OR=0.84, 95%CI: 0.43-1.62, P=0.49) did not differ significantly in the comparison. Combined hepatectomy and splenectomy was associated with a significantly more intraoperative bleeding (MD=57.75, 95% CI: 13.46-102.03, P=0.01), CD4+T cell /CD8+T cell ratio (MD=0.69, 95%CI: 0.61-0.77, P<0.00001), CD4+T cell, platelet count (MD=213.06, 95%CI: 202.59-223.53, P<0.00001), WBC count (MD=4.85, 95%CI: 4.58-5.13, P<0.00001), IFN- γ level (MD=18.52, 95%CI: 13.93-23.11, P<0.00001) and IL-2 level (MD=20.73, 95%CI: 16.05-25.41, P<0.00001), longer operation time (MD=15.61, 95%CI: 11.48-19.74, P<0.00001). In addition, lower CD8+T cell ratio (MD=-7.85, 95%CI: -9.07--6.63, P<0.00001) and IL-10 level (MD=-18.56, 95%CI: -22.61--14.50, P<0.00001) were observed in combined hepatectomy and splenectomy.

Conclusions: We identified that combined hepatic resection and splenectomy do not increase the incidence of postoperative complications and the operative mortalities of HCC with hypersplenism patients. Simultaneous splenectomy can increase postoperative WBC and platelet levels significantly, improve the function of blood coagulation, reduce the incidence of postoperative bleeding and enhance immunity. So, combined hepatectomy and splenectomy is safe, effective and feasible for HCC with hypersplenism patients.

Keywords: Hepatocellular carcinoma; Hypersplenism; Combined hepatectomy and splenectomy; Hepatectomy+Meta-analysis

A novel diagnosis for early hepatocellular carcinoma based on intestinal microbiome

Running title: A novel diagnosis for early HCC

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Background: The prognosis for HCC is very poor, mainly because early diagnosis was often not feasible. Serum AFP as a diagnostic tool for early HCC has significant limitations. Intestinal microbial variation is closely associated with liver injury and chronic inflammatory, and ultimately promotes HCC development by intestinal microbiota-liver axis. This study was the first to identify intestinal microbial characteristics in clinical HCC patients.

Methods: 150 HCC patients including 105 early HCC (eHCC) and 45 advanced HCC patients were enrolled in this study. 131 healthy counterparts were recruited as healthy control. The fecal microbial community was analyzed by Miseq high-throughput sequencing of the 16S ribosomal RNA V3-V4 region followed by real-time quantitative PCR (RT-qPCR). Community-wide changes of fecal microbiota in both early HCC and advanced HCC were observed compared with healthy controls. Based on the different microbial distribution, we performed microbial marker selection by mRMR method (minimum redundancy-maximum relevance) and constructed a patient discrimination index (PDI) between 85 eHCC and 85 controls, and an independent cohort (20 versus 46) was used to validate PDI efficacy.

Principal Findings: Intestinal microbiota in HCC patients presented a moderate dysbiosis that would aggravate along with HCC development compared with healthy controls. The ratio of phylum Bacteroidetes was decreased, while Proteobacteria and Fusobacteria were increased in the HCC group. At the genus level, Anaerostipes, Dorea, Blautia and Butyrivibrio were significantly reduced, whereas Klebsiella and Haemophilus were obviously enriched in the HCC patients versus healthy control. RT-qPCR also indicated 20 bacteria including Bifidobacteria and Butyrate-producing bacteria were remarkably decreased, while Enterococcus and Enterobacteria were increased in HCC patients. Based on the mRMR method, the top 35 OTUs were selected as gene markers to construct the final PDI. Based on the 170 training samples, the AUC (area under the curve) values of the PDI achieved 0.831 and 0.829 for the training and the external validation procedures (66 samples), respectively. Importantly, the PDI model performed perfectly well for patients with AFP less than 20, achieved 0.859 and 0.915 for the training (46 patients versus 85 controls) and the external validation procedures (57 samples), respectively.

Conclusion: Intestinal microbiota in HCC patients presented a moderate dysbiosis that would aggravate along with HCC development. A novel PDI based on intestinal microbiome can achieve a highly-efficient and non-invasive diagnosis for early HCC even including AFP negative patients. Thus microbiota-targeted biomarkers may be a powerful tool for early diagnosis of different tumors diseases.

Keywords: Hepatocellular carcinoma; Intestinal microbiome; Early diagnosis; AFP;

Analysis of risk factors for pancreatic fistula after distal pancreatectomy

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Objective: The study aims were to explore the risk factors for pancreatic fistula after distal pancreatectomy.

Methods: 150 patients who underwent distal pancreatectomy were collected and analyzed from Jan 2012 to Apr 2014 in this retrospective study. The risk factors for pancreatic fistula after distal pancreatectomy were analyzed by univariate and multivariate logistic regression analysis.

Results: In these patients, the total incidence of complications was 36.0%, average postoperative hospitalization time was 9.1 ± 6.2 days, reoperation rate was 2.7%, perioperative mortality was 0, incidence of postoperative pancreatic fistula was 34.7% (Grade B and C, 10.0%). In patients with postoperative pancreatic fistula, the average postoperative hospitalization time was 12.6 ± 9.3 days, reoperation rate was 7.7%. In univariate and multivariate logistic regression analysis, hypoproteinemia (P value 0.011, OR 4.919, 95% CI 1.435-16.858) were risk factor for pancreatic fistula after distal pancreatectomy.

Conclusion: The incidence of pancreatic fistula after distal pancreatectomy were related to hypoproteinemia before operation.

Keywords: distal pancreatectomy; pancreatic fistula

Analysis of the Risk Factors of Intestinal Anastomotic Fistula of Pancreas

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Objective: To analyze the risk factors of intestinal anastomotic fistula of pancreas after pancreaticoduodenectomy

Methods: Total of 92 patients who underwent pancreaticoduodenectomy in the First Affiliated Hospital of Xinjiang Medical University from Jan. 2009 to Jan. 2012 were selected for this study, and the general parameters of the patients with and without pancreatic fistula were analyzed.

Results: The age (> 65 years), preoperative jaundice, soft pancreas, preoperative anemia, preoperative hypoproteinemia, Pancreatic duct diameter (< 3 mm), placement drainage, abdominal infection of the patients with and without pancreatic fistula were statistically significantly different ($P < 0.05$). The multi-factor regression analysis revealed that the soft pancreas and pancreatic duct diameter < 3 mm were the independent risk factors of pancreatic fistula after pancreaticoduodenectomy ($P < 0.05$).

Conclusion: Soft pancreas and pancreatic duct diameter were the independent risk factors of pancreatic fistula after pancreaticoduodenectomy, the prevention and treatment of which should be paid more attention in clinical, in order to reduce the incidence of intestinal anastomotic fistula of pancreas effectively.

Keywords: Pancreaticoduodenectomy; Intestinal anastomotic fistula of pancreas; Risk factors

Analysis on prognostic factors of tumor recurrence and metastasis after curative resection of intrahepatic cholangiocarcinoma

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Objective: Curative resection is the only chance of cure for patients suffering from intrahepatic cholangiocarcinoma (IHCC). This study aims to analyze the surgical outcomes and prognostic factors of recurrence and metastasis in a cohort of patients with IHCC who underwent curative resection.

Methods: The clinicopathological data of 125 patients with IHCC undergoing curative resection between January 2002 and May 2008 were retrospectively reviewed. The postoperative survival and prognostic factors were analyzed by using the Kaplan-Meier method and Cox hazard models. The correlation between CA19-9 expression and clinicopathological factors was analyzed using the χ^2 test and a logistic regression model.

Results: The cumulative 1-, 3- and 5-year disease-free survival rates were 61.6%, 27.2% and 12.8% respectively. Multivariate analysis showed that lymph node metastasis (RR: 3.990; 95%CI: 2.383–6.679; $P < 0.001$), tumor size ($>5\text{cm}$) (RR: 1.78; 95%CI: 1.190–2.663; $P = 0.005$), CA19-9 level $>200\text{U/ml}$ (RR: 1.734; 95%CI: 1.138–2.642; $P = 0.01$) and multiple tumors (RR: 1.77; 95%CI: 1.114–2.812; $P = 0.016$) were independent adverse prognostic factors. The rate of lymph node metastasis in the CA19-9 $>200\text{U/ml}$ group was significantly higher than that in the CA19-9 $\leq 200\text{U/ml}$ group (OR: 3.208; 95%CI: 1.276–8.067; $P = 0.013$).

Conclusions: Lymph node metastasis, tumor size $>5\text{cm}$, CA19-9 level $>200\text{U/ml}$, multiple tumors are independent adverse factors for relapse of IHCC. High preoperative CA19-9 $>200\text{U/ml}$ is significantly associated with lymph node metastasis.

Keywords: Intrahepatic cholangiocarcinoma; Hepatectomy; Recurrence; Prognosis;

Application of Combined Vessel Resection with Reconstruction in Complex Hepatobiliary and Pancreatic Space-occupying Lesions

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Aim: To explore the value and prospects of the combined vessel resection with reconstruction techniques in space-occupying lesion surgical treatment.

Methods: Collect and analysis clinical data of patients received combined with vessel resection and reconstruction techniques surgery in department of hepatobiliary surgery in our hospital from May 2007 to November 2012, conclusion our experience in application of vessel resection and artificial vessel reconstruction.

Results: A total of 12 cases were collected, 9 of them were pancreatic lesion, the other 3 were liver echinococcus granulosis, the average operative time of 12 cases was 6.1 ± 1.8 h, and the

average blood loss was 385 ± 202 ml, the average intraoperative portal vein occlusion time 31 ± 13 min, 1 cases suffered intraperitoneal hemorrhage within 48 h after surgery and other 2 suffered pancreatic fistula, all of them were treated and cured, there were no infection, thrombosis and other complications and perioperative deaths turned up before discharged. 4 cases of pancreatic cancer patients after 4, 9, 35 and 37 died of tumor recurrence and metastasis, 1 was lost and the rest are all alive, the follow-up time of these cases were 3–58 months with an average level of 22.4 months. Conclusion Occupying lesions that cannot achieve traditional radical resection due to vessel invasion conventional radical resection, may be cured by combined with vessel resection and reconstruction of the lesion resection surgical, and with good prospects worthy of promotion and application of clinical, this technique should be applied to lesion in hepatobiliary system.

Appropriate treatment strategy for hepatocellular carcinoma patients with portal vein tumor thrombus invaded into the main trunk of portal vein and inferior cava

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Background: Aims at exploring the proper treatments for hepatocellular carcinoma (HCC) patients accompanying with portal vein tumor thrombus (PVTT) invading into the main trunk of the portal vein (type III) and the inferior cava (type IV).

Methods: During 2009 and 2013, according to the location and extend of PVTT, 459 patients were divided into 2 groups: PVTT type III ($n = 322$) or type IV ($n = 137$). They were divided into six subgroups and underwent different treatments: (1) transcatheter arterial chemoembolization (TACE) group ($n = 274$); (2) surgery with/without postoperative TACE group ($n = 54$); (3) TACE + sorafenib group ($n = 33$); (4) single use of sorafenib group ($n = 15$); (5) TACE + chemo/radiotherapy group ($n = 41$); (6) palliative treatment group ($n = 42$). Overall survival (OS) rates of the patients were analyzed by the Kaplan-Meier methods.

Results: Single TACE (17.21 months) and TACE (11.48 months) combined with sorafenib were more effective in prolonging OS than other treatments ($P < 0.001$). But no significant difference was found between them. No significant differences of OS rates were found among surgery combined with/without postoperative TACE (5.58 months), sorafenib (4.89 months), TACE combined with chemo/radiotherapy (5.68 months) and palliative treatment group (2.76 months) ($P > 0.05$). PVTT type was an independent risk factor attributed to OS.

Conclusion: For HCC patients with PVTT type III or IV: (1) TACE still remains a safe and effective therapy. (2) Sorafenib could be recommended as an adjuvant treatment to combine with TACE but single use of sorafenib remains under discussion. (3) Surgery including removing the tumor thrombus could

be selected carefully to release the portal vein hypertension and reduce its related disease but it might not prolong the OS but induce postoperative complications and increase the risk of postoperative liver failure and death. (4) Chemo/radiotherapy is unnecessary to combine with TACE that they might not prolong the OS but induce complications and increase the risk of liver function deterioration and impairment.

Aspirin enhances Nutlin-3-induced growth inhibition and apoptosis of hepatocellular carcinoma

Running title: Aspirin activates apoptosis

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Article category: Research Articles;

We declare that there is no potential conflict of interest in this article. We state that the protocol for the research project has been approved by a suitably constituted Ethics Committee of the institution and that it conforms to the provisions of the Declaration of Helsinki.

Objective: Aspirin and Nutlin-3 have been extensively studied for inducing various malignancies growth inhibition respectively, despite their severe side effects. Here, we developed a novel combination by aspirin and Nutlin-3 on hepatocellular cancer cells (HCCs).

Methods: On the condition of treating with aspirin and Nutlin-3, the viability of HCC lines were analyzed by MTT assay, apoptotic analysis of HepG2 cell was performed. Cell line's invasion were examined by transwell. Western blotting was performed to determine the expression of apoptosis related genes and proteins such as Bcl-2, Bax, caspase-3, caspase-8 and caspase-9. Moreover, the potential mechanisms of Aspirin enhanced-apoptosis combine with Nutlin-3 were investigated in response to Nutlin-3 stimulation with or without aspirin at various time points.

Results: The viability of HCC lines' significantly decreased after drug combination treatment, and cancer cell apoptosis in combination group increasingly induced compared with single drug use. Nutlin-3 was combined with aspirin the duration and level of Bax were significantly enhanced than that of Nutlin-3 treatment alone ($P < 0.01$).

Conclusions: Aspirin and Nutlin-3 combination have a synergistic killing effect on hepatocellular cancers cells proliferation and apoptosis by Bcl-2/Bax signaling pathway.

Keywords: HCC; Nutlin-3; Aspirin; P53; Bax

Associating liver partition and portal vein ligation for staged hepatectomy procedure in treatment of huge hepatocellular carcinoma with hepatitis B cirrhosis

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Objective: To investigate the application value of associating liver partition and portal vein ligation in staged hepatectomy (ALPPS) for huge hepatocellular carcinoma (HCC) with hepatitis B cirrhosis.

Methods: The clinical data of one patient with huge HCC associated with hepatitis B virus (HBV) cirrhosis admitted in July 2014 to Tumor Hospital of Guangxi Medical University and undergoing ALPPS were retrospectively analyzed.

Results: Preoperative assessment showed that the patient's future liver remnant (FLR) to standard liver volume ratio was 34.9%. The patient underwent first-stage operation of right portal vein ligation and splitting of the left lobe of left hepatic vein and hepatic left lateral lobe (II, III); on postoperative day (POD) 7, the patient's FLR to standard liver volume ratio reached 39.2%. For the first- and second-stage operation, the operative time was 300min and 200min. The patient was discharged from the hospital on POD 24.

Conclusion: For huge HCC patients with non-active HBV cirrhosis, a proper expansion of the indications for the ALPPS procedure is safe and feasible.

Keywords: Hepatitis B; Cirrhosis; Huge HCC; Future Liver Remnant; ALPPS

Association between glutathione S-transferase P1 (GSTP1) gene polymorphisms and survival in hepatocellular carcinoma

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Background: Glutathione S-transferases (GSTs) are the most important detoxifying enzymes in liver, and protect hepatocytes against carcinogenic compounds. Present study was designed to investigate the prognostic value of polymorphisms of GST genes in HCC patients.

Methods: Twelve single nucleotide polymorphisms (SNPs) in GST genes (including GSTA1, GSTA4, GSTM2, GSTM3, GSTO1, GSTO and GSTP1) were genotyped using SequenomMassARRAYiPLEX genotyping method in 469 HCC patients and analyzed for associations with overall survival.

Results: SNP rs4147581 in GSTP1 gene was significantly associated with overall survival of HCC patients ($P = 0.006$). Patients carrying at least one variant allele of rs4147581 (WV + VV) had a significantly decreased risk of death (hazard ratio, 0.71; 95% confidence interval, 0.53-0.90), when compared with those carrying homozygous wild-type alleles (WW). Kaplan-Meier analysis showed a significantly longer median survival time in patients with WV + VV genotypes of SNP rs4147581 than

those with WW genotype ($P=0.03$). In addition, we observed that smoking exposure exhibited a significantly adverse effect on those WV + VV genotypes carriers, who also frequently had a median GSTP1 expression.

Conclusion: The present study provides the evidence that GSTP1 gene polymorphism is significantly associated with overall survival in Chinese HCC patients.

Keywords: glutathione S-transferase P1; hepatocellular carcinoma; survival; single nucleotide polymorphism

The Application of associating liver partition and portal vein ligation for staged hepatectomy procedure in treatment of huge hepatocellular carcinoma

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Objective: To investigate the application value of associating liver partition and portal vein ligation in staged hepatectomy (ALPPS) for huge hepatocellular carcinoma (HCC).

Methods: The clinical data of one patient with huge HCC admitted in Sep 2014 to Tumor Hospital of Guangxi Medical University and undergoing ALPPS were retrospectively analyzed.

Results: Preoperative assessment showed that the patient's future liver remnant (FLR) to standard liver volume ratio was 32.6%. The patient underwent first-stage operation of right portal vein ligation and splitting of the left lobe of left hepatic vein and hepatic left lateral lobe (II, III); on postoperative day (POD) 8, the patient's FLR to standard liver volume ratio reached 41.2%. For the first- and second-stage operation, the operative time was 350min and 180min. The patient was discharged from the hospital on POD 20.

Conclusion: For huge HCC patients, a proper expansion of the indications for the ALPPS procedure is safe and feasible.

Keywords: Huge HCC; Future Liver Remnant; ALPPS

Urgent simultaneous endoscopic naso-biliary drainage combined with endoscopic naso-pancreatic drainage in the treatment of acute biliary pancreatitis

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Background: Urgent simultaneous endoscopic naso-biliary drainage (ENBD) combined with endoscopic naso-pancreatic drainage (ENPD) in treating acute biliary pancreatitis (ABP) were rarely reported. This study aims at evaluating the feasibilities and values of urgent ENBD combined with ENPD in the treatment of acute biliary pancreatitis.

Methods: From 2005 to 2006, 28 patients diagnosed with acute biliary pancreatitis were admitted to our hospital. Among them, 15 patients underwent conventional Endoscopic Sphincterotomy (EST) and ENBD while the other 13 patients underwent simultaneous drainage of biliary and pancreatic ducts with

two transnasal tubes. The two groups were labeled Single-tube Drainage group (SD group) and Double-tube Drainage group (DD group) respectively. Observational indexes of serum amylase, recovery time of total serum bilirubin and abdominal pain, decreased Acute Physiology and Chronic Health Evaluation II (APACHE II) scores 10 days post operation were recorded with enough details to assess the therapeutic effects of different treatment to the two groups.

Results: There were no statistical significance between SD group and DD group in recovery time of neutrophil, serum bilirubin and APACHE II scores on the 1st and 10th day postoperation ($P > 0.05$). Compared with SD group, DD group has more significant decrease in APACHE II scores on the 10th day (3.57 ± 0.73 versus 5.33 ± 2.21 , $P < 0.05$). Follow-up last for 67 to 87 months (80.40 ± 6.66), no complication of pancreatic abscess occurred. Two cases of acute pancreatitis recurred in DD group while four in SD group. Moreover, one patient in SD group developed pancreatic pseudocyst two years after endoscopic treatment and was then cured by ENPD.

Conclusion: Urgent simultaneous ENBD combined with ENPD can contribute to the improvement of acute biliary pancreatitis and may improve the long-term therapeutic outcomes of this disease.

Keywords: Endoscopic Retrograde Cholangiopancreatography, Endoscopic Naso-biliary Drainage, Endoscopic Naso-pancreatic Drainage, Acute Biliary Pancreatitis

Laparoscopic resection of benign schwannoma in the hepatoduodenal ligament: a case report

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Purposes: Schwannomas occurring in the hepatoduodenal ligament are extremely rare. We aim to present a case of the hepatoduodenal ligament schwannoma in a 50 years old man and provide a further understanding on schwannoma in the seat. We firstly treated the schwannomas in the hepatoduodenal ligament by laparoscopic surgery.

Methods: Physical and laboratory examinations, ultrasound (US), Color Doppler US and computed tomography (CT) were performed before treatment. After obtaining the patient's consent, we applied laparoscopic surgery to resect the mass in hepatoduodenal ligament. The intraoperative frozen pathology and post-operative pathology examinations were used to give a final diagnosis.

Results: Physical and laboratory examinations showed no abnormal result. US and CT were hard to give definitive location and diagnosis of the mass. By laparoscopic surgery, the mass

were completely removed and pathology examinations showed a benign schwannoma in the hepatoduodenal ligament.

Conclusions: It was hard to determine the nature of the tumor precisely prior to the surgery, although the imaging techniques were applied. Surgical operation may be the optimal treatment for schwannomas, as it not only could be curative, but also was able to demonstrate the seat and the nature of the lesion. To our knowledge, this was the first time to apply laparoscopic surgery for treating benign schwannoma of the hepatoduodenal ligament.

Beneficial effect and underlying mechanism of Shenmai injection on acute experimental pancreatitis

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Objectives: To explore the therapeutic effect of *Shenmai injection* (SMI) on acute experimental pancreatitis and underlying mechanisms.

Methods: After induction of acute pancreatitis model with caerulein in rat, sixty Sprague-Dawley rats were randomized into a SMI (5 ml/kg/d) group (n=30) and control (5 ml/kg/d saline) group (n=30). The serum amylase, vascular endothelial growth factor (VEGR), angiogenetic factor (AF), platelet activating factor (PAF) were measured at 1d, 3d, 5d, 7d respectively after the pancreatitis. Moreover, half of the rats in each group were executed respectively at d7 and d14 to assess nuclear factor kappa B (NF- κ B), positive expression of CD31 and microvascular density (MVD) of pancreatic tissue.

Results: Serum amylase in SMI group at d3, d5, d7 were significantly lower than the counterparts in control ($P < 0.05$) while the PAF were lower at d5 and d7 in the SMI group ($P < 0.05$). Conversely, the VEGR, AF in 5d and 7d were significantly higher in the SMI group ($P < 0.05$). With respect to the biopsy result, while the expression and protein concentration of NF- κ B were significantly lower in SMI group at d7 and d14, positive expression of CD31 and microvascular density were significantly higher in the SMI group ($P < 0.05$).

Conclusion: Treatment with SMI, a traditional Chinese medicine, in experimental pancreatitis rats, would attenuate inflammatory reaction, promote angiogenesis and consequently improved microcirculation. This may partial explain the beneficial effect of SMI in acute pancreatitis.

Keywords: acute pancreatitis; *Shenmai injection*; inflammation; microcirculation

Isolation, Culture and Identification of Human Hepatic Cancer Stem Cells from Hepatocellular Carcinom Tissues

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Objective: To isolate and culture human hepatic cancer stem cells from tissues of hepatocellular carcinoma and identify their biological characteristics.

Methods: Hepatocellular carcinoma tissues from patients with liver cancer after surgery were collected. Hepatic cancer cells were isolated by digestion and cultured in the serum free medium. The proliferation of hepatic cancer cells was analysed by MTT assay, and stemness related makers of CD90 and CD133 were detected by flow cytometry assay.

Results: Tumor spheres could be found in the serum free culture condition and the hepatic cancer cells kept in an increased state in continued 72 hours, moreover, the ratio of expression of CD90 and CD133 was 7.2%, 8.8% respectively.

Conclusion: We successfully established the method to isolate and culture human hepatic cancer stem cells which had the ability to form tumor spheres, self-renew and partially co-express CD90 and CD133.

Keywords: hepatocellular carcinom tissue, cancer, stem cells, CD133, CD90

Liposomes containing clodronate and superparamagnetic iron oxide nanoparticles attenuate spleen injury in rats with severe acute pancreatitis and MRI

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Background: Severe acute pancreatitis (SAP) is characterized by severe symptoms and a high mortality rate. Macrophages play an important role in the development of SAP and eventually lead to multiple organ failure (MOF), highlighting the necessity for studies of SAP complicated with multiple organ injury. Clodronate-containing liposomes selectively deplete macrophages, and superparamagnetic iron oxide (SPIO) nanoparticles facilitate cell labeling and detection in the clinical setting. In this study, we investigated the protective effects of clodronate-SPIO nanoparticle-containing liposomes against SAP in rats and MRI.

Methods: SPIO nanoparticles were prepared by chemical coprecipitation. SPIO nanoparticle-containing liposomes and clodronate-SPIO nanoparticle-containing liposomes were prepared by the thin film method. SAP models were prepared by injection of sodium taurocholate into the subcapsular space of the rat pancreas. Spleen injury was evaluated after exposure to either SPIO nanoparticle-containing liposomes or clodronate-SPIO nanoparticle-containing liposomes by T2-weighted magnetic resonance imaging (MRI). The levels of serum amylase and tumor necrosis factor (TNF) - α were analyzed by enzyme-linked immunosorbent assay, pathological changes in the pancreas and spleen were observed by HE staining, and apoptosis was detected with TUNEL staining. Macrophage markers (e.g., CD68) were detected in spleen tissues by immunohistochemistry.

Results: Pathological changes in the pancreas and spleen of SAP model rats administered clodronate-SPIO nanoparticle-containing liposomes were milder than those in SAP model rats administered SPIO-containing liposomes. The MRI signal

intensities observed in spleens of these model groups were significantly lower ($P < 0.01$) than that in the control group (administered only saline). Additionally, the levels of serum amylase, interleukin (IL) -6 and TNF- α in SAP model rats administered SPIO nanoparticle-containing liposomes were higher than those in the control group ($P < 0.01$), but were significantly lower in SAP model rats administered SPIO nanoparticle-containing liposomes than those in rats administered clodronate-SPIO nanoparticle-containing liposomes ($P < 0.01$). The apoptotic indexes of spleens were higher in rats administered clodronate-SPIO nanoparticle-containing liposomes than in those administered SPIO nanoparticle-containing liposomes at 2 and 6 h ($P < 0.01$).

Conclusions: Clodronate-containing liposomes protected against spleen injury in SAP rats, and SPIO nanoparticles could be used as a tracer for MRI examination to detect spleen injury in SAP rats. SPIO nanoparticle-assisted MRI provided an efficient, noninvasive method for monitoring the migration of macrophages after spleen injury in rats with SAP.

Keywords: pancreatitis; clodronate disodium; macrophage; spleen injury

Experience of 9 cases of Laparoscopic Frey Procedure for Chronic Pancreatitis and Discussion of Selective Criteria

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Running title: Laparoscopic Frey procedure is viable but limited.

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Background: Frey procedure has been proved effectiveness for pain relief in chronic pancreatitis. It brings better quality of life and identical long-term effects compared with pancreaticoduodenectomy. The laparoscopic Frey procedure is rarely reported. Here we share our experience of the laparoscopic Frey procedure.

Methods: All consecutive patients undergoing duodenum-preserving pancreatic head resection from July 2012 to July 2014 were reviewed. Both laparoscopic and open Frey procedures were selected for analysis.

Results: Nine laparoscopic and 37 open Frey procedures were analyzed. Two laparoscopic (2/9) were converted. In 7 successful cases, mean operative time was 323 ± 29 (290–370) minutes. Intra-operative estimated blood loss was 57 ± 14 (40–80) ml. One patient had postoperative complication. No mortality occurred. Postoperative hospital stay was 7 ± 2 (5–11) days. Multiple linear regression analysis of 37 open procedures showed inflammatory mass and acute exacerbation were two risk factors for intra-operative blood loss.

Conclusion: The laparoscopic Frey procedure is feasible, but suitable for carefully selective patients.

Keywords: Chronic pancreatitis; Frey procedure; Laparoscopic surgery

The oxidative stress in hepatic steatosis is not related to the severity of steatosis but to the dietary induction

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Purposes: Hepatic steatosis interferes with the stress response of the liver. However, contradictory observations are reported regarding the effect of steatosis on surgical stress. We investigate the effect of three different diets on hepatic steatosis, microcirculatory disturbances and metabolic phenotype.

Methods: Male Lewis rats were fed with low methionine/choline+high starch diet (FLD), low methionine/choline+high fat diet (MCD+HF), methionine-choline deficient diet (MCD) and standard diet for 1, 2, 4, 6 weeks and 3 months. Hepatic steatosis, hepatic damage, hepatic microcirculation and oxidative stress were evaluated.

Results: MCD caused severe steatosis, hepatic damage and severe oxidative stress (lipid peroxidation products (LPO) -increase 160-fold). FLD cause very mild steatosis, but induced a 4-fold elevation of LPO and depletion of glutathione (GSH). MCD+HF induced severe steatosis. Severity of oxidative stress was comparable to the FLD group. Inhomogeneity in the spatial distribution of steatotic hepatocytes as well as microcirculatory impairment (reduction of Functional capillary density (FCD)) was related to the severity of steatosis but not to the dietary steatosis induction protocol.

Conclusions: The oxidative stress in steatotic livers was not related to the severity of steatosis but to the dietary induction protocol. This observation calls for an assessment of functional parameters of hepatic steatosis prior to surgical interventions

Effectiveness and safety of dehydrated ethanol on soaking cut surface of liver in Rats and Patients with spontaneously rupture of HCC

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Purposes: Spontaneously rupture of hepatocellular carcinoma (HCC) is indicative of a poor prognosis. The aim of the present study was to investigate effectiveness and safety of dehydrated ethanol on soaking cut surface in rats subjected to partial hepatectomy and patients with ruptured HCC.

Methods: In vitro: samples of rat liver tissue were soaked in dehydrated ethanol for 30seconds, 1minute, 3minutes, 5minutes, 10minutes and 30minutes. The control group was soaked in physiological saline. Histological examination was performed. In vivo: Twelve rats subjected to partial hepatectomy were equally divided into two groups for soaking dehydrated ethanol on cut surface of 3 minutes and 5minutes. The rats as control group were soaked with physiological saline. Blood samples were obtained 3days and 7days after hepatectomy. All rats were humanely killed on postoperative day 7 and histological examination was performed. Clinic: 39 patients with ruptured HCC treated with curative liver resection from 2005 to 2010 were extracted. 20 patients with spontaneous rupture of HCC were soaked with

dehydrated ethanol (<100ml) no longer than 3minutes on cut surface during hepatectomy(GroupA). 19 patients with spontaneous rupture of HCC were soaked with distilled water for 20minutes on cut surface during hepatectomy (Group B). The influence of prognosis was defined.

Results: In vitro: Histological examination showed the depth of coagulation necrosis increased with the extended time of soaking in dehydrated ethanol, which was less than 1mm at 30minutes. In vivo: All rats survived tillpostoperative day 7 without significant postoperative complications. The AST, ALT and ALB level on postoperative day 7 were not significantly different between three groups. No severe abdominal adhesions were found in all the rats when killed. Clinic: The mean disease-free time of Group A was 21.08±6.94 months; for Group B it was 16.12±4.17 months ($P<0.05$)

Conclusions: Dehydrated ethanol soaking on cut surface of liver of patients under curative liver resection is effective and safe to reduce the postoperative recurrence rate of spontaneously rupture of HCC.

Structural Shifts of Fecal Microbial Communities in Rats with CSA after Orthotropic Liver Transplantation

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Background: Orthotopic liver transplantation (LT) is a life-saving procedure for patients with end-stage liver disease. Nevertheless, morbidity and mortality due to immunosuppressive agents (ISA) related complications remain as major problems following transplantation. Here we aimed to assess the effects of CSA on intestinal microbiota in rats after OLT.

Materials and Methods: The whole experiment was divided into 4groups. (i) N group (normal control, n=8) (ii) I group (Iso-graft LT, BN to BN, n=8) (iii) R group (allograft LT, BN-Lewis, n=8) (iv) CSA group (R group cheated with CSA, n=8). On the 28th day after the OLT, all animals were sacrificed for sample collection. Serum was collected for measurement of liver function. Tissue samples taken from the liver was fixed in 10% neutral formalin for later histological study by light microscopy. The fresh fecal of ileocecum was collected and stored in -80°C for further analysis.

Results: Compared to the R group, CSA improved both liver histopathology and function ($P<0.001$) after LT. Predominant bacteria showed the numbers of 16S rDNA gene copies of FPRA in CSA group increased while CG3, CG1, ECO decreased. Cluster analysis of DGGE profiles showed the samples from the N, I and CSA groups were in one cluster, others contained the samples from the R group and total similarity of the cluster was 79.7%. The cluster findings were also proved by MDS and PCA analysis (contribution rate: 34.7%, 16.1 and 12.2%, respectively).

Conclusion: CSA is a popular used ISA after LT, which not only improved liver morphology and function but also contributed to restore microbiological functions of the intestinal ecosystem.

Resveratrol Inhibits Hepatic Stellate Cell Proliferation and High Glucose Induced NF-kB65 Expression

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Objective: To evaluate the effect of resveratrol (Res) on cell proliferation and high glucose induced NF-kappaB (NF-kB) expression in hepatic stellate cells (HSCs).

Methods: HSCs were given high glucose, different concentrations of resveratrol (10, 100, 1000µM) and high glucose+ Res treatment respectively. The proliferation of HSC was examined by MTT colorimetry. The levels of superoxide dismutase (SOD), total antioxidative capacity (TAC), malondialdehyde (MDA) and nitric oxide (NO) in the supernatant of HSC after treatment were measured. The level of inter-cellular adhesion molecule 1 (ICAM-1) was analyzed by avidin biotin complex-ELISA (ABC-ELISA) assay. The expression of NF-kB mRNA and protein in HSCs were assayed by RT-PCR and Western-blotting, respectively.

Results: High glucose (30 mmol/L) remarkably induced HSC proliferation ($P<0.01$), decreased SOD and TAC activities ($P<0.01$), but increased the content of MDA and NO ($P<0.01$) in the supernatant of HSC. The effects induced by high glucose were inhibited by resveratrol in a dose dependent manner ($P<0.01$). Furthermore, high glucose increased ICAM-1 content in the supernatant of HSC and NF-kB65 expression both in mRNA and protein levels ($P<0.01$). After pretreatment with resveratrol for 2 h, ICAM-1 value, NF-kB65 mRNA and protein expression were reduced to the level of control group comparing with the increase from high glucose treatment alone ($P<0.01$).

Conclusion: The study indicates that resveratrol inhibits HSC proliferation and high glucose stimulated NF-kB65 over-expression, suggests that resveratrol may have a potential therapeutic value for hepatic fibrosis acting as antioxidant.

Keywords: Resveratrol; hepatic fibrosis; antioxidant, NF-kB65; superoxide dismutase

Experiences of treatment for echinococcosis with liver and lung involved

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Purposes: To explore the comprehensive experiences of treatment for cystic and alveolar echinococcosis with liver and lung involved.

Method: Retrospectively analyzing the clinical date from our hospital in treating 77 hydatid patients with liver and lung involved from 2003 years to 2013 years. To summarize the therapeutic method and characteristic of cystic and alveolar echinococcosis in clinic.

Results: In total 77 patients, 52 patients were cystic echinococcosis, the treating mode of it was surgery of pulmonary echinococcosis done firstly, and then, surgery of hepatic echinococcosis done after three months. Another surgical treating mode is that operation of hepatic echinococcosis done firstly and operation of pulmonary echinococcosis done after three months. It is no statistical significance between two modes ($P>0.05$). Chemotherapy usually was done as adjuvant therapy of surgery. 25 patients were alveolar echinococcosis, the mode of surgery combined with chemotherapy is major therapeutic method, hepatectomy and Ex-vivo liver resection and liver autotransplantation was important method for surgery in treating it.

Conclusions: It is ideal mode for treatment of cystic echinococcosis with liver and lung involved that is surgery as main method in treating cystic echinococcosis, regardless of which procedures of operation, chemotherapy usually as adjuvant therapy. It is more ideal mode for treatment of alveolar echinococcosis with liver and lung involved that is surgery combined with chemotherapy as main method in treating it.

Keywords: Echinococcosis; Liver; Lung; Surgery; Chemotherapy

Anatomic versus Non-anatomic Resection for Small Single Hepatocellular Carcinomas

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Objective: To compare the efficacy of anatomic resection (AR) and non-anatomic resection (NAR) for single small hepatocellular carcinoma (HCC).

Methods: Between June 1, 2006 and December 31, 2011, one hundred and forty patients underwent curative hepatectomy for a single HCC ≤ 5 cm at Guangxi Tumor Hospital. Of these patients, forty-four underwent anatomic resection and 96 patients underwent non-anatomic resection. The 1-, 3- and 5-year recurrence-free and overall survival rates of these cases were analyzed, and a comparison was conducted between the two groups.

Results: The respective 1-, 3- and 5-year recurrence-free survival rates were 67.5%, 44.1% and 39.2% in the AR group, and 77.2%, 52.6% and 28.0% in the NAR group ($\chi^2=0.271$, $P=0.602$). The corresponding 1-, 3- and 5-year overall survival rates were 93.2%, 88.0% and 72.2% in the AR group and 99.0%, 91.4% and 80.2% in the NAR group ($\chi^2=0.645$, $P=0.422$). By multivariate analysis, age, serum albumin level, tumor size and presence of cirrhosis were independent prognostic factors.

Conclusion: No superiority was seen in survival when single small HCCs was treated by anatomic resection. Nonanatomic resection did not influence survival outcome in an adverse manner, presumably because hepatic reserve was greater. It should be advised to select an optimal operative procedure according to the liver function and location of the tumor for the surgical treatment of small hepatocellular carcinomas preoperatively.

Keywords: Small hepatocellular carcinoma; Anatomic liver resection; Recurrence-free survival rates; Overall survival rates

Robotic Puestow procedure combined with ureteroscopic for pancreatic lithiasis

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Background: Surgical decompression of the obstructed main pancreatic duct was for a long time the 'gold standard' for relief of chronic pancreatitis. Puestow procedure as one type of longitudinal pancreaticojejunostomy, is one of the techniques that has been used most often, however, such procedure is technically challenging under laparoscope, both for identifying the pancreatic duct and the anastomosis. Such disease is often complicated with pancreatic lithiasis, which is another challenge for laparoscopic surgery. However, such limitation can be addressed by robotic surgery, with all its advantages, and the combining use of ureteroscopic for the pancreatic duct exploration and stone's removal.

Methods: We present the case of a 39 year old female patient who suffered from chronic abdominal pain due to chronic pancreatitis and pancreatic lithiasis. Endoscopic procedures by placing two pancreatic duct stents were attempted without satisfactory outcomes. She was indicated for surgical decompression of the obstructed main pancreatic duct.

Results: The operation was performed robotically. After exposure of the pancreas, the pancreatic duct was identified with robotic assisted ultrasound (Figure 1), before it was opened, the stones were exposed, removed, an 8 gauge ureteroscope was applied to explore the pancreatic duct, stone retrieval basket was applied to remove the remnant stones, pus was also seen in the duct. A post colon side to side Roux-en-Y pancreatic duct-jejunojejunostomy anastomosis was performed. The operative time was 170 min, with intraoperative blood loss of 40ml. The post-operative course was uneventful. 80-90% stone clearance was achieved, the symptom was relieved after surgery.

Conclusion: With the robot's endowrist holding the ultrasound probe, the pancreatic duct is easier for identification, the 8 gauge ureteroscope was useful for extracting the pancreatic lithiasis in the pancreatic duct, the pancreaticojejunostomy was facilitated under robotic assisted manipulation.

Failures and Lessons in the Endovascular Treatment of Symptomatic Isolated Dissection of Superior Mesenteric Artery

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Objectives: To discuss the technical failures and lessons in endovascular treatment of symptomatic isolated dissection of superior mesenteric artery (SIDSMA).

Methods: 33 patients with SIDSMA treated between July 2007 and September 2013 were retrospectively collected. The technical failures and lessons in the endovascular management were analysed in terms of their causes and prophylaxis.

Results: 18 patients were successfully treated medically, 13 underwent stent placement, 1 received hybrid procedure, and 1 had open fenestration. Full follow-up (10 to 78 months, mean 37 ± 21 months) was achieved in 28 patients. The failure in cannulating the true lumen developed in 8 patients. Of them, the femoral and brachial approaches were taken in 6 and 2 patients, respectively, and there was no significance between them (1-sided Fisher's exact=0.420). Among the 6 femoral failures, the true lumen was ultimately cannulated after conversion to the brachial approach in 3 cases. The perfusion of distal SMA was not improved until the second stent was placed distally covering the whole expanded false lumen in 1 case. Quite a few branches originating from the false lumen were overlooked in 1 patient, which were apparently compromised after stenting. Consequently, the patient died of intestinal necrosis. In a patient with a huge dissecting aneurysm, the stent was misplaced across the false lumen. Fortunately, remarkable aneurysmal thrombosis formed at 3 months. In the patient receiving the hybrid procedure including thrombectomy, distal fenestration and proximal stenting, the stent was occluded at 2 weeks probably because the thrombus protruded into the stent.

Conclusions: Difficulty in cannulating the true lumen was not uncommon in endovascular treatment of SIDSMA, and the brachial approach might be helpful. The length and branches involvement of the false lumen would better be evaluated beforehand. Should the lumen contain thrombus, a covered stent would be a reasonable option.

Keywords: symptomatic; dissection; superior mesenteric artery; endovascular treatment

Expression and clinical significance of Glut1 in hepatocellular carcinoma

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Objective: To investigate the expression and clinical significance of glucose transporter 1 (Glut1) in hepatocellular carcinoma (HCC).

Methods: The expression of Glut1 protein was detected by Immunohistochemistry in 60 HCC tissues and 45 corresponding tumor-adjacent tissues, and analysing the relevant clinical pathological characteristics and prognosis.

Results: The positive expression rates of Glut1 in HCC tissues were significantly higher than those in tumor-adjacent tissues (58.3% vs. 13.3%, $\chi^2=21.878$, $P<0.01$). The expression of Glut1 was related with Ki-67 index and histological grade ($P<0.05$). Total of 56 HCC cases acquired long term follow-up, 41 experienced HCC recurrence during the period, compared with the Glut1 positive group, the average of recurrence time was significantly prolonged in the negative group [(22.7 \pm 17.2) vs. (13.3 \pm 10.6), $t=2.162$, $P=0.036$].

Conclusions: Higher expression of Glut1 in HCC plays an important role in carcinogenesis and prognosis, it maybe a vital therapeutic target for HCC.

Keywords: hepatocellular carcinoma; Glut1; prognosis; therapeutic target

A analysis of surgical treatment status of hepatic echinococcosis in hospital of hydatid disease endemic area in Gansu Province

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Objective: The aim of the study was to understand current status of surgical treatment of hepatic echinococcosis in basic hospital of hydatid disease endemic area in Gansu Province, In order to provide the basis for regulating diagnosis of liver hydatid diagnosis, treatments and follow-up, improving the level of diagnosis and treatment of personnel in the grass-roots hospital.

Methods: A questionnaire carried out for hydatid disease endemic area of Gansu Province, investigating and analysing the relevant circumstances of surgical treatment of hepatic hydatid disease including 9 hospitals.

Results: The level of surgical treatment of hepatic hydatid disease is closely related with emphasis degree and the number of liver hydatid disease surgery patients, they are major factors restricting liver hydatid disease surgical treatment, such as medical personnel structure, perioperative management, surgical options.

Conclusion: The treatment of liver hydatid disease needs to be improved in the secondary hospital in Gansu Province, and strengthen the theoretical and technical training and promotion.

Keywords: Basic hospital; Hepatic echinococcosis; Surgical treatment status

Clinic Comparative Study on Left Semi-Hepatectomy by Pringle's Maneuver and Anatomical Left Semi-Hepatectomy for Left Segment Bile Duct Stone

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Objective: To explore feasibility and safety of anatomical left semi-hepatectomy in the treatment of left segment bile duct stone.

Methods: 80 patients with left segment bile duct stone undergoing elective semi-hepatectomy were randomly divided into two groups, including 40 cases of treatment group, 40 cases of control group. The treatment group was treated with anatomical left semi-hepatectomy, and the control group was treated with left semi-hepatectomy by Pringle's maneuver. The operation time, blood loss in operation, improvement of liver function after operation and complications after operation were compared.

Results: There were no significant difference on the operation time, blood loss and blood transfusions in operation ($P > 0.05$), while the stay-in-hospital time after operation in treatment group was significantly shorter than that in control group ($P < 0.05$). After treatment for 5 days, the level of ALT, AST and TB in treatment group were significantly lower than those in control group ($P < 0.05$). For 5 days, the PT, APTT in treatment group at 1st and 3rd after treatment were significantly shorter than those in control group ($P < 0.05$), while the difference was no longer significant at 5th after treatment ($P > 0.05$). The incidence of post-operative complications in treatment group was 10.0%, and 25.0% in control group, the difference was significant ($P < 0.05$).

Conclusions: It is a safe and feasible of anatomical left semi-hepatectomy for treating left segment bile duct stone, it has relative small damage to liver of uninjured sides, and it can contribute to control blood loss in operation, reduce post-operative complications.

Keywords: Cholecystolithiasis; Extrahepatic bile duct cholelithiasis; Pringle's maneuver

Analysis of diagnosis and treatment of fifty-nine patients with chronic pancreatitis

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Objective: To discuss the etiology, clinical features, characteristic of auxiliary examination and therapeutic method of chronic pancreatitis.

Methods: The data of fifty-nine patients diagnosed with chronic pancreatitis from 2004 to 2014 were collected and analysed by retrospective method.

Results: Ten of seventeen chronic pancreatitis patients combined with pancreatic duct stones were received surgical treatment and twenty-eight of forty-two chronic pancreatitis patients who did not have pancreatic duct stones were treated by surgical operation as well. Besides, considering twenty-six patients had drinking history and seventeen accompanied with biliary tract diseases, thus, chronic alcoholism and biliary tract diseases were taken as main risk factors. The first symptom of forty-four patients were intermittent abdominal pain, while two were jaundice. All

patients were confirmed by imaging examinations and laboratory tests. The symptoms of twenty-six treated by surgical operation, twelve received endoscopic treatment and twenty-one patients received non-surgical treatment were relieved respectively.

Conclusion: Alcohol abuse is already having been considered the major risk factor of chronic pancreatitis. Imaging examinations CT are playing a crucial role in diagnosis of the disease. Endoscopic interventional treatment and surgical operation are the main methods to treat the disease.

Keywords: chronic pancreatitis; etiology; clinical features; diagnosis; therapy

The clinical application of choledochoscopic minimally invasive gallbladder-preserving cholecystolithotomy

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Objective: To investigate the choledochoscopic minimally invasive gallbladder-preserving cholecystolithotomy (CMIGPC) for operation indication and risk factors of postoperative recurrence of stones, to evaluate the treatment effect and application prospect of CMIGPC.

Methods: With the clinical data of 46 cases from August 2010 to August 2014 underwent CMIGPC, observed the changes of gallbladder contraction ratio and gallbladder wall thickness between before their surgery and after, evaluated feasibility and scientific nature of operation indications for score sheets about CMIGPC, and analyzed the risk factors of recurrence of stones. According to operation indications for score sheets about CMIGPC, the group of cases can be divided into three groups-group A with 22 cases, group B with 13 cases and group C with 11 cases.

Results: There were 46 cases of surgical succeeded, 3 cases of cholecystolithiasis recurrence occurred during 18–20 months, that is to say calculi recurrence rate was 6.5%. The single factor analysis showed that the calculi recurrence rate was related to family history, serum triglycerides, serum cholesterol, gallbladder wall thickness, gallbladder contraction ratio ($P < 0.05$). Variance analysis results of three groups showed that the thickness of gallbladder wall time main effect were statistically significant ($P < 0.05$), but score group and time interaction effect were not statistically significant ($P > 0.05$); The gallbladder contraction ratio time main effect, score group and time interaction effect were statistically significant ($P < 0.05$).

Conclusion: 1. The calculi recurrence rate of CMIGPC had correlation with family history, serum triglycerides, serum cholesterol, the gallbladder wall thickness and gallbladder contraction ratio. 2. The operation indications for score sheets about CMIGPC can be a more reasonable assessment of CMIGPC indications, a scientific forecasting of gallbladder wall thickness and gallbladder contraction ratio after CMIGPC, therefore it is worth popularization and application.

Keywords: gallbladder-preserving cholecystolithotomy; contractibility of gallbladder; fiber cholangioscopy; cholecystolithiasis

Application of bio-mesh-reinforced pancreaticogastrostomy after pancreaticoduodenectomy: A convenient and safe strategy

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Objective: Our aim was to evaluate the clinical effects of bio-Mesh-reinforced pancreaticogastrostomy.

Methods: A total of 38 patients who underwent bio-mesh-reinforced pancreaticogastrostomy from May 2011 to May 2014 were retrospectively analyzed. Patients' demographic data, operative parameters, and post-operative outcomes were analyzed. The severity of pancreatic leak was determined according to the criteria of International Study Group on Pancreatic Fistula (ISGPF).

Results: The mean anastomosis time of bio-Mesh-reinforced pancreaticogastrostomy was 23 minutes (range, 19–35 minutes). Nine patients (23.7%) were recognized to have pancreatic leakage of grade A. Two patients (5.3%) were recognized to have pancreatic leakage of grade B. No patient developed pancreatic leakage of class C after operation. There were four cases of abdominal infection and one case of abdominal hemorrhage. No severe complications such as bile leakage, and gastrojejunostomy leakage were observed in our study.

Conclusion: This novel technique might be a convenient and safe strategy. It is applicable to all types of pancreatic remnants.

Keywords: pancreaticogastrostomy; pancreatic leakage; Mesh

Clinical Efficacy of Central Pancreatectomy and Distal Pancreatectomy: a meta-analysis

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Objective: To systematically evaluate the clinical efficacy of the central pancreatectomy and distal pancreatectomy.

Methods: To search the Chinese and English data bases and evaluate the 15 included controlled clinical trials using RevMa5.2 software.

Results: 1079 cases of patients were included in our study, which consisted of 436 CP cases and 643 DP cases. Compared CP with DP, CP have a high pancreatic fistula rate and postoperative complications. The result of pancreatic fistula were 38.3% and 24% [OR: 2.0, 95%CI: 1.48–2.71, $P < 0.01$], Postoperative complications were 45.7% and 31.7% [OR: 1.52, 95%CI: 1.11–2.08, $P = 0.01$]. But CP have a lower endocrine insufficiency rate and exocrine insufficiency rate). Postoperative endocrine insufficiency reported were 6% and 24% (OR: 0.21, 95%CI: 0.06–0.78, $P < 0.05$). Postoperative exocrine insufficiency reported were 7.1% and 9.1% (OR: 0.49, 95%CI: 0.27–0.78, $P < 0.05$).

Conclusion: CP is a better approach to preserve long-term function of pancreas. If DP can instead of CP, CP higher risk of early complications.

Keywords: Central Pancreatectomy; Distal Pancreatectomy; Meta-analysis

A correlation study between preoperative hepatitis B virus DNA level and hepatic function of perioperation period in patients with HCC

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Objective: To explore the correlation between preoperative hepatitis B virus DNA level and hepatic function of perioperation period who underwent hepatectomy of HCC.

Methods: Clinical data of 374 patients with HCC undergoing hepatectomy between Jan. 2008 to Aug. 2013, were retrospectively analyzed. Patients were divided into two groups with low DNA level group in which the hepatitis B virus DNA level was lower than 104 copies/ml and high DNA level group in which the level was higher than 104 copies/ml. The changes of postoperative hepatic function, complications and hospitalization time in two groups were compared.

Results: The values of two groups of patients reached peak at d1 after operation including ALT and AST, reached peak at d3 after operation including TBIL, then decreased gradually, to the preoperative level at d7 after operation. Comparison of different HBV DNA level group, there is statistical significance of postoperative liver function ALT, AST peak difference. After 7 days of high viral level group ALT, AST, TBIL decline curve were all higher than those of low level group. High level group after surgery on pulmonary infection, bile leakage, the total number of cases of complications and postoperative hospitalization time was higher than that of low level group ($P < 0.05$).

Conclusion: The hepatitis B virus DNA level has a significantly positive influence on postoperative hepatic function. So the patients whose hepatitis B virus DNA level are level was higher than 104 copies/ml preoperatively should receive antiviral therapy.

Keywords: Hepatocellular carcinoma; Hepatic function; Hepatitis B virus; Hepatectomy

¹²⁵I Seeds Implantation Combined with neoadjuvant or primary chemotherapy for the Treatment of Hepatic Cancer

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Objective: Objective To investigate the technical points and the clinical effectiveness of ¹²⁵I seeds implantation combined with neoadjuvant or primary chemotherapy for the treatment of liver cancer.

Methods: 45 cases of hepatic carcinoma were retrospectively collected and divided into group A (21 patients with neoadjuvant or primary chemotherapy alone) and group B (24 patients with ¹²⁵I seeds implantation combined with neoadjuvant or primary chemotherapy sequential therapy). Efficacy evaluation was performed in 3 month, 6 month and 1 year after the operation by

CT scan, and the survival status of 6 month and 1 year were also recorded.

Results: The overall response (CR+ PR) of group A and were 71.4%(15 /21), 52.4%(11 /21), 38.1%(8 /21) and respectively at 3 months after operation with significant difference ($P=0.005$). The overall response (CR+ PR) of group B and were 83.4%(20 /24), 70.8%(17 /24), 62.5%(15 /24) and respectively at 3 months after operation with significant difference ($P=0.005$). The survival rate at 3, 6 and 12 months in group B (95.8% (23 /24), 87.5% (21 /24), 70.8%(17 /24)) were significantly higher than those in group A (85.7% (18/21), 66.7%(14 /21), 42.8%(9 /21)) ($P<0.01$).

Conclusion: ^{125}I seeds implantation combined with neoadjuvant or primary chemotherapy could be a safe and effective treatment for liver cancer.

Keywords: Hepatic cancer; ^{125}I seedneoadjuvant or primary chemotherapy; chemoembolization

Evaluation of curative effect of biliary stent combined with ^{125}I particles for intracavitary treatment of malignant jaundice in cholangiocarcinoma

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Objective: To investigate the difference of clinical curative effects of percutaneous biliary metal stent and stent combined with ^{125}I particles for intracavitary irradiation treatment of malignant jaundice in cholangiocarcinoma.

Methods: 52 patients with malignant obstructive jaundice caused by cholangiocarcinoma which was unsuitable for radical cure operation were selected. The stents was performed at first, then they were divided into in treatment group (26 cases) and control group (26 cases) according to the implantation of ^{125}I particle. Compare the routine biochemistry, tumor maximum diameter, minimum diameter, and jaundice time, survival time of two groups if there are statistically significant before and after treatment.

Results: The liver functions in two groups were improved significantly compared with preoperative liver functions after treatment for 1, 3, 6 months, and the difference was statistically significant ($P<0.05$); There was no significant difference in postoperative bilirubins in two groups ($P>0.05$); There were significant differences in bilirubins between postoperative 3 months, 6 months and preoperative, postoperative 3 months and 1 month, postoperative 6 months and 3 months in two groups, and the differences were statistically significant ($P<0.05$); The tumor size significantly reduced in treatment group after treatment, while the tumor size in control group significantly increased, and the difference was statistically significant ($P<0.05$). The average survival time was (12.83±1.57) months in treatment group; while the average survival time was (8.89±1.0) months in control group, and the difference was statistically significant ($P<0.05$).

Conclusion: Compared with simple stent implantation therapy, intracavitary irradiation therapy with percutaneous biliary metal stent combined with ^{125}I particles had the same effect of reducing jaundice. Meanwhile it could effectively inhibit tumor growth and prolong the survival of patients and stent patency time.

Keywords: cholangiocarcinoma; malignant obstructive jaundice; PTCD; biliary metal stent; ^{125}I particles

Experimental study on the regulatory effect of a 7-acetylcholine receptor on cholangiocarcinoma cell proliferation and invasion

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Objective: To explore the regulation and related mechanism of a 7-acetylcholine receptor on cholangiocarcinoma cell proliferation and invasion.

Methods: MTT assay and Transwell invasion model were carried out to determine the role of a 7 AchR agonist nicotine and antagonist a-BTX in proliferation and invasion of QBC939 cells.

Results: The ability of proliferation of cholangiocarcinoma cell was significant enhanced in 48h and 72h (48h: $F=80.86$, $P<0.05$; 72h: $F=61.49$ $P<0.05$) with the stimulate concentration of nicotine increased. The effect of promoting proliferation was time-dependent, the effect was more significant in 48h and 72h than that in 24h ($F=0.49$, $P>0.05$), with 48h > 72h. Meanwhile, contrast with other experiment group, the quantity of QBC939 cell crossed Matrigel was significantly increased with nicotine treatment ($P<0.05$). a7 AchR antagonist a-BTX significantly inhibited pro-tumor phenotype of nicotine.

Conclusion: Nicotine can significantly enhanced QBC939 cell proliferation and invasion, nicotine may effect via a7 nicotine acetylcholine receptor in vitro.

Keyword: cholangiocarcinoma; a7 acetylcholine receptor; nicotine; proliferation; invasion

Comparison of Clinical Features between Liver Abscess Patients With and Without Type 2 Diabetes Mellitus

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Objective: To explore the difference of clinical features of liver abscess between patients with and without type 2 diabetes mellitus(T2DM) and provide evidence for diagnosis and treatment.

Methods: 108 cases of bacterial liver abscess were selected during January 2006 to December 2012, 75 cases were included after exclusion of cases of missing data, referral patients from other hospital and spontaneously discharged patients. The patients were divided into DM group (28 cases T2DM) and non DM group (47 cases). General information, clinical manifestation, laboratory tests, the characteristics of liver abscess and treatment and effect of the 2 groups were analyzed and compared retrospectively.

Results: There was no statistically significant difference between the two groups in age and gender ($P>0.05$). Causes of the disease were not different as well ($P>0.05$). The proportion of epigastric pain, hepatic region tenderness cases between the 2 groups was different ($P<0.05$). The proportion of elevated WBC count, total bilirubin, direct bilirubin, indirect bilirubin and blood platelet count ($>300\times 10^9/\text{L}$) was statistically different between the 2 groups ($P<0.05$); The location and size of liver abscess were not different between the 2 groups ($P>0.05$). 19 patients in the DM group received pus culture, 17(89.5%)

cultures were positive, 16(84.2%) culture results were *Klebsiella pneumoniae*; 30 patients in non DM group received pus culture, 16(53.3%) cultures were positive, and 12 culture results were *Klebsiella pneumoniae*. The rate of positive pus culture and *Klebsiella pneumoniae* results was different between the 2 groups ($P>0.05$). The diagnosis of 18(64.3%) patients in the DM group and 19(40.4%) patients in non DM group was uncertain when admission which resulted in the delay of specialized hospitalization and treatment ($P<0.05$). All 75 patients used antibiotics, the duration was (13±5) d for the DM group, and (11±4) for the non DM group ($P<0.05$).

Conclusion: Symptoms and signs of liver abscess patients with DM are usually not obvious and are easily misdiagnosed. There tends to be other infections in this kind of patients, in which *Klebsiella pneumoniae* is the common pathogenic bacteria. Treatment should be focused on effective control of serum glucose, timely liver puncture treatment, adequate use of antibiotics, individualized treatment of vomica and nutrition support to improve the effect of treatment and reduce the cost of admission.

Keywords: Diabetes mellitus; Liver abscess; Disease features

Effect of anti-osteopontin antibody on angiogenesis of hepatic alveolar hydatid tissue in gerbil

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Objective: To observe the effect of anti-osteopontin antibody on angiogenesis of hepatic alveolar hydatid tissue in gerbil.

Methods: Ninety gerbils were infected with echinococcus protoscoleces (approximately 400 for each gerbil) by abdominal opening inoculation in liver. The gerbils were randomly divided into three groups: model group (group A), rabbit serum injection group (group B), anti-osteopontin antibody experiment group (group C). Each gerbil in group C was injected with anti-osteopontin antibody (0.15ml/gerbil, Titer: 1: 32) as follows: qod×7 times, then, one times each week. Each gerbil in group B was injected with rabbit serum in the same way. Gerbils in group A received no treatment. Six gerbils from each group were sacrificed at 20, 60, 100, 140, and 180 days post-infection, respectively. The liver tissues with hydatid cysts were collected, and the expression of MVD-CD34 was observed by immunohistochemistry staining (Envision method).

Results: Infected echinococcus metacestode protoscoleces gerbils liver was observed Hepatic Alveolar Hydatid Tissue, some spread to the abdominal cavity. At 20 days post-infection, the number of microvessels of group A, group B, group C respectively presented as follows: (9.83±3.87) /HP, (9.67±2.94) /HP and (7.50±1.87) /HP. And at each other 40days timepoints, the number of microvessels of each groups were (33.67±3.67) /HP, (32.83±6.11) /HP and (24.33±5.61) /HP; (44.67±4.92) /HP, (42.20±6.26) /HP and (28.00±8.76) /HP; (34.17±3.19) /HP, (31.67±4.97) /HP and (20.50±4.72) /HP; (32.33±7.42) /HP, (29.67±3.88) /HP and (13.50±3.21) /HP. At 60, 100, 140 and 180 days post-infection, the microvesseldensity (MVD) of Hepatic

Alveolar Hydatid Tissue of group C was lower than that of group A and group B ($P<0.05$).

Conclusion: The anti-osteopontin antibody can suppresses the angiogenesis of hepatic Alveolar Hydatid Tissue in Gerbil.

Keywords: Echinococcus multilocularis; Osteopontin; Angiogenesis; MVD; CD34

Expressions of MVD-CD34 and VEGF in Hepatic Alveolar Hydatid Tissue in Gerbil Model and Their Clinical Significances

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Objective: To detect the expressions of MVD-CD34 and VEGF in hepatic alveolar hydatid tissue in gerbil model and explore their clinical significances.

Methods: Sixty health gerbils were randomly equally divided into two groups, an experimental group and a sham operation group, each gerbil was given liver vaccination by opening their abdominal. Each gerbil in the experimental group was injected with approximately 400 echinococcus protoscoleces (0.1 mL), and each gerbil in the sham operation group received a corresponding volume of physiological saline. Six gerbils were sacrificed on day 20, 40, 60, 80, and 100. The hepatic alveolar hydatid tissue (AE) and its surrounding liver tissue (HSAE) were collected from the experimental group and the normal liver tissue (NL) was collected from the sham operation group, and the expressions of microvessel density (MVD) -CD34 and vascular endothelial growth factor (VEGF) were detected by immunohistochemistry staining (EnVision method).

Results: *E. multilocularis* hydatid tissues were observed over the liver and in the abdominal cavity in the experimental group each gerbil by general observation. The expressions of CD34 and VEGF were observed in the AE at each timepoint after infection and located in the cytoplasmic of endothelial cells. The number of MVD-CD34 of AE at each timepoint in the AE was (9.83±3.87) /HP, (25.33±6.71) /HP, (34.50±5.50) /HP, (37.67±5.71) /HP and (44.67±4.93) /HP, respectively, which were significantly higher than those in the HSAE (0/HP, (1.17±0.98) /HP, (3.50±1.38) /HP, (5.83±2.71) /HP, and (8.83±2.48) /HP, respectively) and NL (all were 0), $P<0.05$. The points of VEGF at each timepoint in the AE was 2.95±0.46, 3.90±0.68, 4.27±1.05, 5.33±0.95, and 4.50±0.81 respectively, which were significantly higher than those in the HSAE (1.07±0.63, 1.38±0.75, 1.55±0.83, 1.67±0.47, 2.10±0.55, respectively) and NL (1.02±0.83, 1.12±0.63, 1.26±0.26, 1.20±0.74, 1.21±0.28), $P<0.05$.

Conclusion: Angiogenesis might be involved in the invasive growth of the alveococcus tissue, and VEGF might contribute to angiogenesis of alveolar hydatid tissues.

Keywords: Echinococcus multilocularis; Angiogenesis; Microvessel density; vascular endothelial growth factor

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Preliminary integration and study the Individual and comprehensive therapy for hepatic echinococcosis

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Objective: Put forward the concept of individual and comprehensive therapy for hepatic echinococcosis. Preliminary integration solutions of Individual and comprehensive therapy for hepatic echinococcosis.

Methods: The clinical data of 120 patients with hepatic echinococcosis of each treatment from Jun. 2011 to Dec. 2013 were retrospectively analyzed.

Results: 120 cases according to the patient's individual conditions to used individualized and comprehensive treatment, all of these patient s had no post operative bile leak residual cavity complication.

Conclusion: Through referring to literature information in home and abroad and our center clinical experience, To set up the reasonable individualized treatment and comprehensive treatment indications for providing theory support which from the hospital clinicians treating liver cystic echinococcosis, decrease the recurrence rate, to reduce the complications.

Keywords: Hepatic echinococcosis Individual and comprehensive therapy integration

Survival analysis of surgical treatment of primary liver cancer and Influencing Factors

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Objective: Explore the prognostic factors affecting the surgical treatment of primary liver cancer.

Methods: Retrospective analysis of 126 cases from 2003 to 2011, First Affiliated Hospital of Shihezi University, a liver resection of primary liver cancer clinical data and follow-up data, survival analysis using Kaplan-Meier method, relevant factors line Log-rank test, Cox model line multivariate analysis, filter factors that affect the prognosis.

Results: Follow-up to June 30, 2012, 11 patients (8.73%) were lost to follow, liver cancer patients after 1-, 3- and 5-year overall survival rates were 84.3%, 69.5%, 39.4%, the median survival time was 50.14 months, univariate analysis showed that tumor size, preoperative of AFP, changes in the postoperative AFP, vascular invasion, cirrhosis and adjuvant therapy are prognostic factors for liver cancer survival rate, Cox multivariate analysis showed postoperative AFP changes, vascular invasion, liver cirrhosis is an independent prognostic factor affecting the survival of patients with hepatocellular carcinoma ($P < 0.05$).

Conclusion: Efficacy of liver cancer patients depends on the presence or absence of vascular invasion and cirrhosis, the proportion of small hepatocellular carcinoma surgery and postoperative AFP surveillance is the key to improving the prognosis of liver cancer surgery.

Keywords: Primary liver cancer; Surgery; Survival rate; Influencing factors

Application of serum chromogranin A in clinical diagnosis of pancreatic neuroendocrine tumors

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Objective: To investigate the value of serum chromograninA(CgA) in clinical diagnosis of pancreatic neuroendocrine tumors (p-NET).

Methods: We enrolled 32 p-NET patients from January 2004 to October 2013, which included 6 patients with lesions and 26 patients without lesions after surgery, 2 of the 6 patients with lesions were proved to have liver metastases. At the same time, we took 32 healthy subjects as control group. The serum CgA levels of all subjects were measured with Enzyme-linked immunosorbent assay. Nonparametric test were performed for analysis. And also we constructed receiver operating characteristic curve(ROC curve), in order to obtain the area under ROC curve(AUROC) and the cut-off value of serum CgA.

Results: The median of serum CgA level of p-NET patients with lesions, patients without lesions after surgery and healthy control group were 181.3 $\mu\text{g/L}$ (range from 56.2 to 4820.8 $\mu\text{g/L}$), 45.4 $\mu\text{g/L}$ (range from 20.1 to 148.5 $\mu\text{g/L}$) and 42.2 $\mu\text{g/L}$ (range from 18.3 to 124.8 $\mu\text{g/L}$), respectively. The serum CgA level of p-NET patients with lesions was significantly higher than that of patients without lesions after surgery ($Z = 3.163$, $P < 0.002$) and healthy control group ($Z = 3.247$, $P < 0.001$). We took the value of 92.6 $\mu\text{g/L}$ as the diagnostic cut-off value for healthy controls, patients without lesions and patients with lesions, the sensitivity and specificity were 83.3% and 88.9%, respectively. There was no significant difference between the serum CgA level of p-NET patients without lesions and that of healthy control group ($Z = 0.044$, $P > 0.05$). The serum CgA levels of the two patients with liver metastases were extremely high, which was 3588.6 $\mu\text{g/L}$ and 4820.8 $\mu\text{g/L}$, respectively.

Conclusion: The serum level of CgA has a high diagnostic value in p-NET patients, and can be used as a reliable biomarker in clinical diagnosis of p-NET.

Keywords: Pancreatic neuroendocrine tumors; Neuroendocrine tumors; Chromogranin A; Enzyme-linked immunosorbent assay

Clinicopathological analysis of recurrence and metastasis following resection of pancreatic adenocarcinoma

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Objective: To investigate the clinical and pathological factors of recurrence and metastasis following resection of pancreatic adenocarcinoma and provide aid for decision of follow-up schedule and further treatment.

Methods: A total of 72 patients who underwent resection for pancreatic adenocarcinoma from January 2005 to December 2013 were included in the current study. Clinical and pathological data of patients were compared between distant metastasis

group and non-distant metastasis group. Univariate and logistic multivariate analyses were utilized to identify correlation factors of distant metastasis after operation. We utilized receiver operating characteristic (ROC) curve analysis and calculated Youden index to evaluate the predictive abilities of such correlation factors. Lymph node rate (LNR) and lymph node status (LNS) were underwent univariate analysis as well.

Results: Liver metastasis is the most common site of 72 patients following resection of pancreatic adenocarcinoma, followed by local recurrence. Univariate analysis revealed that the tumor size, TNM staging and lymph node metastasis were correlated with distant metastases ($P < 0.05$). Multivariate analyses revealed that tumor size and lymph node metastasis were independent risk factors of distant metastasis following resection of pancreatic Adenocarcinoma. ROC curve analyses was employed to decide the cut-off point of tumor size relating to distant metastases. Thus, we demonstrated that tumor size > 4.8 cm and lymph node metastasis significantly predict distant metastases after resection (sensitivity, 90.9%; specificity, 46.4%; area under the curve, 0.758). When applied to our sample, 93.3% (14/15) of patients who met the indicators confirmed to develop distant metastasis after operation. Patients with $LNR \geq 0.2$ had shorter recurrence or metastasis time ($P < 0.05$). For pancreatic head carcinoma patients with the second station LN metastasis had shorter recurrence or metastasis time ($P < 0.05$).

Conclusions: Liver metastasis is the most common site following resection of pancreatic Adenocarcinoma. Tumor size and lymph node metastasis are independent risk factors of metastasis following resection of pancreatic Adenocarcinoma. Tumor size > 4.8 cm and lymph node metastasis significantly predict distant metastases after operation. Patients with $LNR \geq 0.2$ suffer from earlier recurrence or metastasis. Patients with the second station LN involvement have shorter recurrence or metastasis time in pancreatic head carcinoma. The number of lymph nodes involvement correlate with LNR and LNS.

Keywords: pancreatic adenocarcinoma; recurrence and metastasis; lymph node metastasis; risk factors

Analysis of the treatment and prognosis in patients with pancreatic neuroendocrine tumor

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Objective: To investigate the treatment and prognosis in patients with pancreatic neuroendocrine tumor.

Methods: A retrospective analysis of a collected database was performed. The clinical, demographic and laboratory data of 32 consecutive cases of NET patients admitted to Affiliated Union Hospital of Fujian Medical University from January 2004 to December 2013 were reviewed for this study. 2010 WHO classification of tumors of the digestive system based on its classification was used to evaluate disease prognosis of NET. Then the relationship between grading and prognosis was analyzed. And pathological grading prognostic was valued in patients with NET and related literatures were discussed.

Results: The patients, including 12 males and 20 females, had an age range of 27–71 years. There are 17 cases of tumors located in the head, 15 cases in body and tail. According to 2010 WHO classification of tumors of the digestive system based on classification, G1 grade 14 cases, G2 grade 14 cases, G3 grade 4 cases. All of them received surgical treatment. Patients with pancreatic resec-

tion (including splenectomy) 20 cases, pancreaticoduodenectomy six cases, five cases of local tumor resection, liver biopsy in 1 case. All cases were confirmed to have Neuroendocrine carcinomas by post-operative pathological examination. They had an diameter range of 1.6–3.5cm, invasive growth occurred in 16 cases, Lymph node metastasis occurred in 3 cases and liver metastasis in 2 cases. Immunohistochemical studies of these patients showed high CgA, Syn. There was no lost in this study, the follow-up among 4–108 months, one of the 32 patients died because of multiple metastasis, other patients were improved.

Conclusion: Prognosis of pancreatic neuroendocrine tumors relied on pathological examination, surgical combined therapy can help improve the prognosis.

Keywords: pancreatic neuroendocrine tumors; treatment; prognosis

The clinical analyzation of severe acute pancreatitis related to primary hyperparathyroidism: 4 cases reports

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Objective: To evaluate the experience of diagnosis and treatment for severe acute pancreatitis (SAP) related to primary hyperparathyroidism.

Methods: A total of 4 cases of SAP related to primary hyperparathyroidism due to functional parathyroid adenoma were retrospectively analyzed from 2011, November to 2014, August. Follow-up was performed through outpatient service or telephone interview till 2014, December.

Results: 4 cases presented acute peripancreatic fluid collection (APFC) to different degrees. 3 cases underwent the operation for the removal of parathyroid adenoma after phased enteral nutrition (EN). 1 case presenting pancreatic pseudocyst combined with severe infection and toxic encephalopathy, underwent an emergency operation for the debridement of necrotic pancreatic tissue and drainage of abscess and an elective operation for the removal of parathyroid adenoma until in stable situation. Pathology proved to be coincident with preoperative diagnosis. All patients were followed up for 3 months to 3 years (average 18 months). The serum level of calcium and PTH remained normal and no recurrence of acute pancreatitis was observed during follow-up period.

Conclusion: SAP related to primary hyperparathyroidism is characterized by acute onset and severe illness. Early diagnosis and early treatment are very important to achieve favourable prognosis.

Keywords: primary hyperparathyroidism; severe acute pancreatitis; parathyroid adenoma; diagnosis; treatment

The Clinical Application of Total Mesorectal Excision with Pelvic Autonomic Nerve Preservation under the Laparoscope for the Male Patients

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Objective: Discuss the clinical application value and operative skills of conducting total mesorectal excision (TME) with pelvic autonomic nerve preservation (PANP) under the laparoscope for male patients, and provide reference for the radical resection of rectal carcinoma.

Methods: According to retrospective study, divide the 92 cases of male rectal carcinoma patients in our hospital into 2 groups according to operation methods 47 cases as the patients of the observation group are treated with TME with PANP under the laparoscope. 45 cases of the control group are treated with TME with PANP under the laparotomy. Compare the operation-related index, tumour-related index, sexual function, urination dysfunction and postoperative local recurrence of the patients of the two groups.

Results: Intraoperative bleeding amount, recovery time of postoperative intestines functions, time of postoperative recovery of eating and drinking, along with postoperative activity time of the patients of the observation group are evidently lower than those of the control group patients ($P < 0.05$). While the whole operation time of the former group is more than the latter group ($P < 0.05$). There are not any evident differences of postoperative complications between the two groups ($P > 0.05$). There are not evident differences of the number of intraoperative cleaning of lymph nodes, the incisional close end length and distant end length of the two groups' patients ($P > 0.05$). Follow up the patients after their operations for one ³year. The occurrence rates of erectile dysfunction, and dysfunction of ejaculation and urination of the observation group patients are evidently lower than those of the control group patients ($P < 0.05$). There are not any evident differences of local recurrence rate of the patients of the two groups one year after the operation ($P > 0.05$).

Conclusion: Conducting TME with PANP under the laparoscope is beneficial for the radical resection of rectal carcinoma. This method effectively reduces the influence on the urination and sexual function of the patients on the basis of radical treatment. So it is worthy of further promotion.

Keywords: Colorectal cancer; Pelvic Autonomic Nerve Preservation; Total Mesorectal Excision; Peritoneoscopy

Curative Effect Observation of Intraperitoneal Chemotherapy and Portal Venous Infusion Chemotherapy for Postoperative Patients with Primary Liver Cancer with Portal Vein Tumor Thrombus

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Objective: For primary hepatocellular carcinoma with portal vein tumor thrombosis of postoperative intraperitoneal chemotherapy and portal vein intubation chemotherapy curative effect analysis.

Methods: 62 cases of primary hepatocellular carcinoma with portal vein tumor thrombus hepatectomy and portal venous thrombectomy postoperative patients according to the treatment method are divided into simple operation group 20 cases, intraperitoneal chemotherapy group 22 cases, portal vein infusion chemotherapy group of 20 cases. Three were in illness, disease duration, severity, classification, age, gender, tumor size and tumor number, and no significant difference. Comparison of three groups of 1, 2, 3 year survival rate.

Results: Simple operation group 1, 2, 3 year survival rates were 34.3%, 24.4% and 11.6%, the median survival time was 10.6 months; 32 cases with intraperitoneal chemotherapy group, the survival rate was 1, 2, 3 years were 41.1%, 31.9%, 18.6%, the median survival time was 16.6 months; portal vein intubation perfusion chemotherapy group of 20 patients, the survival rate was 1, 2, 3 years were 42%, 33.2%, 19.1%, the median survival time was 17.5 months. Intraperitoneal chemotherapy group, portal vein infusion chemotherapy group and simple operation group survival rate, the difference was statistically significant ($P < 0.05$). Intraperitoneal chemotherapy group and portal vein infusion chemotherapy group survival rate, no significant difference ($P > 0.05$).

Conclusion Chemotherapy and portal venous infusion chemotherapy intraperitoneal can increase survival rate of primary hepatocellular carcinoma with portal vein tumor thrombus in patients, but the difference has no statistical significance.

Keyword: Primary hepatocellular carcinoma; Portal vein tumor thrombus; Liver resection; Chemotherapy

Research of clinical application of enteral nutrition in postoperative gastroparesis syndrome after Pancreatoduodenectomy

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Objective: To evaluate the effects of enteral nutrition in preventing and treating postoperative gastroparesis syndrome after Pancreatoduodenectomy.

Methods: 56 cases of postoperative gastroparesis syndrome after Pancreatoduodenectomy in 1847 cases were analyzed in the course of in-treatment, compared postoperative gastroparesis syndrome incidence rate of enteral nutrition association with total parenteral nutrition, and the recovery time of them.

Results: 1.3% cases suffered postoperative gastroparesis syndrome in the group of enteral nutrition association, 6.2% cases of the group of total parenteral nutrition. There was significant difference between two groups ($P < 0.05$). The mean recovery time of the group of enteral nutrition association is 9.6 ± 3.3 days, and 24.2 ± 4.5 days of the group of total parenteral nutrition. There was significant difference between two groups ($P < 0.05$).

Conclusion: The effects of enteral nutrition in promotion of functional rehabilitation after subtotal gastrectomy of gastric cancer patients were good.

Keywords: subtotal gastrectomy; enteral nutrition; prevent; treatment; postoperative gastroparesis syndrome

Diagnosis, Treatment and Outcomes of Mirizzi Syndrome in Laparoscopic Cholecystectomy

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Objective: To study the diagnosis and surgical treatment of Mirizzi syndrome (MS).

Methods: The clinical data of patients with MS treated in our hospital from Jan 2005 to Dec 2013 were retrospectively studied, and the diagnostic methods, operative strategies and outcomes of surgical treatment were analyzed.

Results: MS was identified in 62 out of 10200 patients who received cholecystectomy (0.608%). MS was diagnosed preoperatively in 30 patients (48.4%). According to Csendes Classification, 41 of the patients were type I, 16 were type II, 3 were type III, and 2 was type IV. An initial laparoscopic approach was attempted in 48 patients, and 14 were converted to open surgery. Surgical procedures included cholecystectomy, closure of the biliary defect with remained cholecyst wall (with/without T tube), Roux-en-Y hepaticojejunostomy. Intraoperative bile duct injury occurred in 4 patients. 59 patients were followed up for 6 months - 9 years, and postoperative morbidities included biliary leak (n=3) and anastomotic stenosis (n=1).

Conclusions: Preoperative diagnosis doesn't insist on if difficult. The key is to get a better understanding of MS, to follow the correct anatomical principles, to improve laparoscopic techniques, and to select the appropriate approach to reconstruct biliary defect. Laparoscopic treatment may be used in selected patients, and have clinical curative effect as good as open surgery.

Keywords: Cholelithiasis; Mirizzi syndrome; Laparoscopy

Clinical study of cystic duct lithiasis during elective laparoscopic cholecystectomy

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Objective: To study the incidence of cystic duct lithiasis (CDL) during elective laparoscopic cholecystectomy, as well as the context of its occurrence and to recommend a practical surgical approach.

Methods: Over a period of 18 months, 336 consecutive elective laparoscopic cholecystectomies were performed by the same surgeon. The clinical manifestation, diagnostic methods, and operative strategies were analyzed.

Results: CDL was found in 29 cases (8.63%) and diagnosed preoperatively in 3 cases (10.3%). Pain in the 3 months preceding cholecystectomy occurred more than 3 times in cases of CDL (19/29 [65.52%] vs 17/307 [5.54%]; $P < 0.001$). Similarly, liver function tests were more often abnormal with CDL (12/29 [41.38%] vs 58/307 [18.89%]; $P < 0.05$). However, neither jaundice nor gallbladder enlargement was predictive of CDL in this study. CBDL occurred more frequently in association with CDL (8/29 [27.59%] vs 19/307 [6.19%]; $P < 0.01$).

Conclusion: Cystic duct lithiasis is found frequently during elective laparoscopic cholecystectomy, and preoperative diagnosis is difficult; CDL is often associated with preoperative pain, abnormal liver function tests and choledocholithiasis. The search for CDL and complete excision of cystic duct should be routinely performed during laparoscopic cholecystectomy.

Keywords: Cystic duct lithiasis; Laparoscopy; Cholecystectomy

Clinical study of cystic duct lithiasis during emergency laparoscopic cholecystectomy

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Objective: To investigate the incidence of cystic duct lithiasis (CDL) during emergency laparoscopic cholecystectomy, as well as the context of its occurrence and to recommend a practical surgical approach.

Methods: Over a period of 30 months, 122 consecutive emergency laparoscopic cholecystectomies were performed by the same surgeon. The clinical manifestation, diagnostic methods, and operative strategies were analyzed.

Results: CDL was found in 12 cases (9.84%) and diagnosed preoperatively in no case (0%). The presence of CDL was not associated significantly with symptoms of pain in three months prior to surgery, preoperative fever, jaundice, abnormal liver function tests, gallbladder enlargement, and operative opportunity. The incidence of these findings didn't differ significantly from that observed in patients without CDL. CBDL occurred more frequently in association with CDL (6/12 [50%] vs 9/110 [8.18%]; $P < 0.01$).

Conclusion: Cystic duct lithiasis is always asymptomatic and found frequently during emergency laparoscopic cholecystectomy, and preoperative diagnosis is difficult. CDL is often associated with choledocholithiasis. The search for CDL and complete excision of cystic duct should be routinely performed during emergency laparoscopic cholecystectomy to avoid cystic duct remnant calculi. If difficult, it may be alternative that remnant cystic duct is milked to extract any possible CDL downstream from the choledochotomy.

Keywords: Cystic duct lithiasis; Laparoscopy; Cholecystectomy; Acute cholecystitis

Metabolic phenotypes in pancreatic cancer

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Introduction: The aim of present study was to profile the glucose-dependent and glutamine-dependent metabolism in pancreatic cancer.

Methods: We performed Immunohistochemical staining of GLUT1, CAIX, BNIP3, p62, LC3, GLUT1, and GOT1. Based on the expression of metabolism-related proteins, the metabolic phenotypes of tumors were classified into two categories, including glucose- and glutamine-dependent metabolism. There were Warburg type, reverse Warburg type, mixed type, and null type in glucose-dependent metabolism, and canonical type, non-canonical type, mixed type, null type in glutamine-dependent metabolism.

Results: Longer overall survival was associated with high expression of BNIP3 in tumor ($P = 0.010$). Shorter overall survival was associated with high expression of GLUT1 in tumor ($P = 0.002$) and GOT1 in tumor ($P = 0.030$). Warburg type of glucose-dependent metabolism had a highest percentage of tumors with nerve infiltration ($P = 0.0003$), UICC stage ($P = 0.0004$), and

activated autophagic status in tumor ($P=0.0167$). Mixed type of glucose-dependent metabolism comprised the highest percentage of tumors with positive marginal status ($P<0.0001$), lymphatic invasion ($P<0.0001$), and activated autophagic status in stroma ($P=0.0002$). Mixed type and Warburg type had a significant association with shorter overall survival ($P=0.018$). Non-canonical type and mixed type of glutamine-dependent metabolism comprised the highest percentage of tumors with vascular invasion ($P=0.0073$), highest percentage of activated autophagy in tumors ($P=0.0034$). Moreover, these two types of glutamine-dependent metabolism were significantly associated with shorter overall survival ($P<0.001$). Further analysis suggested that most of tumors were dependent on both glucose- and glutamine-dependent metabolism. After dividing the tumors according to the number of metabolism, we found that the increasing numbers of metabolism subtypes inversely associated with survival outcome.

Conclusion: Warburg type, non-canonical type and mixed types of glucose- and glutamine-dependent metabolism comprised of more metabolically active, biologically aggressive and poor prognostic tumors. Moreover, the increasing subtypes and categories of the metabolism in each tumor significantly associated with poor prognosis.

Effects and classification of vascular resection and reconstruction in pancreatic cancer: experience from a high-volume surgeon

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Background: Vascular invasion in pancreatic cancer is associated with poor prognosis. This study aimed to determine the value of portal vein (PV) /superior mesenteric vein (SMV) resection and reconstruction (PSRR) in pancreatic surgery, and to propose a novel classification.

Methods: From 2010 to 2014, patients underwent pancreatic surgery were prospectively collected. PSRR was performed by a single surgeon and without autologous or artificial vessels. PSRR was further classified into five types based on resection site, and clinicopathological factors and survival were analyzed.

Results: Overall, 60 patients with pancreatic cancer underwent PSRR. PSRR was safe and with acceptable morbidity (23/60). Median survival time was 13.6 months in these patients. Survival was significantly poorer after type V PSRR than after other PSRR types (6.2 vs. 14.8 months median survival, $P<0.05$). Margin status, lymph node metastasis, and chemotherapy were independent risk factors for prognosis.

Conclusions: PSRR is safe and confers a survival advantage in patients with pancreatic cancer with vascular involvement. Morbidity was similar among different PSRR types, but type V PSRR was associated with poor survival in pancreatic cancer patients.

The Expression Profile and Potential Role of EVA1A in Normal and Neoplastic Pancreatic Tissues

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Objectives: EVA1A (eva-1 homolog A) is a novel gene that regulates programmed cell death through autophagy and apoptosis. Our objective was to investigate the expression profiles and potential role of EVA1A in normal and neoplastic human pancreatic tissues.

Methods: The expression pattern of EVA1A in normal pancreatic tissue was examined by indirect immunofluorescence and confocal microscopy. The protein levels of EVA1A in paraffin-embedded specimens from normal and diseased pancreatic and matched non-tumor tissues were evaluated by immunohistochemistry.

Results: EVA1A colocalized with glucagon but not with insulin, demonstrating that EVA1A was located in islet alpha cells. EVA1A was strongly expressed in chronic pancreatitis, moderately or weakly expressed in the plasma membrane and cytoplasm in pancreatic acinar cell carcinoma, and absent in normal pancreatic acinar cells. Although the tissue architecture was deformed, EVA1A was absent in the alpha cells of pancreatic ductal adenocarcinoma, intraductal papillary mucinous neoplasm, mucinous cystadenoma, solid papillary tumors and pancreatic neuroendocrine tumors.

Conclusions: EVA1A protein was specifically expressed in islet alpha cells, suggesting it may play an important role in regulating alpha-cell function. The ectopic expression of EVA1A in pancreatic neoplasms may contribute to their pathogenesis and warrants further investigation.

Keywords: EVA1A; islet cells; pancreatic neoplasms; pancreas; expression profile

Surgical Management of Solid Pseudopapillary Tumor of Pancreas: A 62 Cases Series from a Single Institution

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Purposes: Solid pseudopapillary tumour (SPT) of the pancreas is a rare neoplasm of low malignant potential. This study was designed to evaluate the clinicopathological characteristics of solid pseudopapillary tumor and assess the curative effects of different surgical procedures.

Methods: A retrospective review was performed in 62 patients with this tumor surgically treated between 2003 and 2014. The clinical and pathological features, radiological findings and surgical interventions were analyzed.

Results: 56 females and 6 males were included in this study. Abdominal pain was the most frequent symptom (46.8 %). The most frequent location of SPT was pancreatic head (46.8 %). We performed 6 cases of pancreaticoduodenectomy, 1 case of pancreaticoduodenectomy with pylorus preservation, 3 cases of middle pancreatectomy, 2 cases of middle pancreatectomy with splenectomy, 9 cases of distal pancreatectomy with spleen preservation, 13 cases of distal pancreatectomy with splenectomy, and 25 cases of local tumor excision. 1 case accepted enucleation of the local resection of SPT and liver metastasis. 2 cases accepted distal pancreatectomy with splenectomy plus liver metastasis resection. After mean follow-up of 57 months, no mortality or local recurrence or distant metastasis was found.

Conclusions: Complete resection of the tumor is associated with good survival, even with metastasis. When feasible, a minimized resection, such as enucleation and a segmental pancreatectomy, is a suitable approach, with excellent early and long-term results.

c-jun: a candidate molecular biomarker for predicting the survival of patients with advanced hepatocellular carcinoma treated with sorafenib

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Background: Hepatocellular carcinoma (HCC) ranks as the third leading cause of cancer deaths worldwide. Sorafenib has been shown to provide a survival advantage to the patients with advanced HCC. However, a predictive biomarker has not been developed.

Methods: Inhibitory effects of sorafenib on HCC cell lines were evaluated. Differences in gene expression between cells treated with sorafenib and not treated were investigated using cDNA microarrays. Expressions of c-JUN in the treated cells and HCC cell lines were determined using real-time PCR and Western blot. Pathological specimens from 51 patients with advanced HCC were collected before starting sorafenib treatment, and c-jun expression was measured using immunohistochemical method in HCCs.

Results: c-Jun mRNA and protein levels increased progressively from HCC cells sensitive to sorafenib, to HCC cells resistance to sorafenib. Sorafenib activated c-Jun expression in a dose- and time-dependent manner in the HCC cell lines PLC, and 97H. In patients treated with sorafenib, the expression of C-Jun and phospho-c-Jun in HCC, was significantly higher in the non-responder group than in the responder group. C-Jun and phospho-c-Jun expression in HCC was associated with a decreased time to progression and a poor overall survival.

Conclusions: In conclusion, C-Jun and phospho-c-Jun expression inversely correlated with the therapeutic response to sorafenib, suggesting that c-jun activity may be considered as a new predictive biomarker for response to sorafenib treatment.

Clinical analysis of diagnosis and treatment for pancreatic transectional injury of 13 cases

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Objective: To investigate the diagnosis and treatment of pancreatic transectional injury.

Methods: The clinical data of 13 patients with pancreatic transectional injury from Aug 2004 to Jul 2013 were retrospectively analyzed. Among them, 6 cases were accompanied with other abdominal organ injury. 6 cases of pancreatic transectional injury happened at the neck and 7 of that happened at the body-tail of the pancreas. All of the cases underwent surgical operations. 2 cases with operation on using pancreaticoduodenectomy, 5 cases received proximal closure of the pancreas and Roux-en-Y distal pancreaticojejunostomy, 3 cases treated with proximal closure and distal resection of pancreas plus splenectomy, and 1 case performed by proximal closure and distal resection of pancreas reserving spleen.

Results: 12 patients cured, 1 patient died. The mortality is 7.69%. The main complication after operation was pancreatic fistula. There were 4 cases (30.77%) pancreatic fistula in this group.

Conclusion: Pancreatic transectional injury is a type of severe abdominal injury of which the rate of missed diagnosis is high. And it always accompanied with other abdominal organ injury. Surgical procedures to treat the pancreatic transectional injury should be performed according to the location, degree and accompanied organ injury. Processing the complication after operation is vital for treatment.

Keywords: pancreas; trauma and injury; surgical operation

CLINICAL ANALYSIS OF SURGICAL TREATMENT FOR 1356 CASES OF HEPATIC CYSTIC ECHINOCOCCOSIS

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Objective: To evaluate and discuss the indications and efficacy of the various surgical methods for hepatic cystic echinococcosis (CE).

Methods: The data of 1356 CE cases treated in surgery from 2002 to 2012 in first affiliated hospital of Xinjiang medical university were analyzed.

Results: classic endocystectomy (Group A) was significantly higher than other surgical procedures in the postoperative complications with residual cavity and draining time ($P < 0.01$), the postoperative hospital stay was much shorter than that in liver resection (Group D) ($P < 0.01$). Group A, B and C was superior to Group D in the postoperative hospital stay, blood loss, operation time and postoperative liver function ($P < 0.01$). 1355 CE cases (99.9%) were cured, and only 1 case (0.1%) died.

Conclusions: 1. Total cystectomy can be considered as radical and practicable surgical method for human CE, with better results for control of the CE recurrence and the biliary leakage regarding to the classic endocystectomy, it was also safe, micro-

surgical procedures compared to liver resection. 2. Subtotal cystectomy may not be only extinct residual cavity, but also effectively decrease the risk of the total cystectomy for CE patients, without a dissection potential space between outer wall and porta hepatic, important biliary tract or large vessel.

Clinical analysis of Laparoscopic cholecystectomy in patients with a previous gastrectomy

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Aim: Previous gastrectomy has been considered a relative contraindication to laparoscopic cholecystectomy (LC). The aim of this study was to evaluate the safety and efficacy of LC in patients with a history of gastrectomy and the possible risk factors which leading to severe cholecyst morbidity requiring cholecystectomy in the patients with previous gastrectomy.

Methods: The clinical data of 1022 patients administering LC in our hospital were reviewed retrospectively from Jan 1, 2010 to May 1, 2014, 27 patients (2.6%) had undergone previous gastrectomy: for gastric cancer (n=19) or gastroduodenal ulcer (n=8). We compared the operative time, blood loss, conversion rate, intraoperative bile duct injure rate, diet resumption, and postoperative hospital stay between patients with, and those without, a history of gastrectomy. We compared the sex, age, method of gastroenterostomy, pathology of disease, combining with diabetes mellitus and hypercholesteremia in perioperative period between different severity degree of cholecyst morbidity in the patients with previous gastrectomy.

Results: The operative time was significantly longer ($P < 0.05$) in the patients with a history of gastrectomy. The patients with the interval between gastrectomy and LC more than 5 years, whose operative time was less than the patients whose interval time less than 5 years ($P < 0.05$), which have no statistical differences between the patients without a history of gastrectomy ($P > 0.05$). One patients converse to open cholecystectomy in the group with previous gastrectomy, and 22 patients in the group without previous gastrectomy. The conversion rate has no significant difference between the two groups ($P > 0.05$). There was no significant difference between the two groups in blood loss, conversion rate, intraoperative bile duct injure rate, diet resumption, and postoperative hospital stay ($P > 0.05$). The patients whose pathology type is malignant, administering Billroth II gastroenterostomy or esophagusenterostomy, combineing with diabetes mellitus or hypercholesteremia in previous gatraectomy procedures, the cholecystitis attack frequency, gallstone formation time from first operation, gallbladder polyp combination rate and pancreatitis combination rate in postoperative period were more than the negative group ($P < 0.05$).

Conclusion: Laparoscopic cholecystectomy is a safe and effective treatment for benign diseases of gallbladder in patients with a history of gastrectomy, but the comprehensive preoperative evaluation and skilled technique of surgeon is necessary for this result. To the patients with possible cholecyste morbidity risk

factors, combined administering cholecystectomy in gastrectomy operation may be recommended.

Keywords: gastrectomy; gallbladder stone; Laparoscopic cholecystectomy (LC)

Clinical application of different methods in treatment of cholecystolithiasis combined with chledochoolithiasis

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Objective: To comparative study of the clinical application effect of three methods in treatment of cholecystolithiasis combined with chledochoolithiasis.

Methods: The clinical data of 80 patients with cholecystolithiasis combined with chledochoolithiasis from January 2012 to May 2014 were retrospectively analyzed. According to methods in treatment all patients were divided to three groups: 32 patients in group I underwent laparoscopic cholecystectomy and laparoscopic transcystic common bile duct exploration with choledochoscope (LC+LTCBDEC), 20 patients in group II underwent laparoscopic cholecystectomy and endoscopic sphincterotomy and endoscopic nasobiliary drainage (LC+EST+ENBD), 28 patients in group III underwent laparoscopic cholecystectomy, choledochoscope common bile duct exploration and T tube drainage (LC+LCBDE+ T tube drainage). compared the clinical effects.

Results: The difference in operation time, bleeding volume gastrointestinal function recovery time, hospital time and total cost of hospital were significantly. The rates of Bile leakage in group III and the rates of elevated blood amylase in group II were higher, the difference were significantly, the rates of stone residual in three groups were not statistically significant, the group I was superior than the other two groups in the total effects.

Conclusion: The laparoscopic cholecystectomy and laparoscopic transcystic common bile duct exploration with choledochoscope was more ease, less hurt, faster recovery, less complication and less cost of hospital, it is the first choose methods in treatment of this kind of patient. But the actual method were determined by clinical situations.

Keywords: cholecystolithiasis; chledochoolithiasis; laparoscopic; choledochoscope; transcystic common bile duct exploration; endoscopic

Clinical epidemiological study of gallbladder cancer in Northwestern China from 2009 to 2013

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Objective: To analyze the clinical epidemiological feature of gallbladder cancer in Northwestern China (Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang) from 2009 to 2013.

Methods: A total of 2379 cases of gallbladder cancer in 17 tertiary hospitals from 5 provinces in Northwestern China from January 2009 to December 2012 were reviewed retrospectively. The clinical data was collected by standardized questionnaire with "Clinical epidemiology survey of gallbladder cancer in Northwestern China". The data was imputed and checked with Epi data software and analyzed with SPSS 13.0.

Results: (1) Gallbladder cancer accounted for 1.6%–6.8% of bile tract disease from 2009 to 2013 in Northwestern China, average was 2.7%, the incidence increased significantly compared with survey from 1986–1998 ($P < 0.05$). Gallbladder cancer accounted for 0.4%–0.9% of abdominal surgery, average was 0.7%. The incidence of gallbladder cancer had increased with years. (2) The incidence of gallbladder cancer was higher in the aged females, the ration of female to male was 1.0 to 2.1. The average age of gallbladder cancer was 63.7 ± 11.3 years. The occupation of patients were mainly farmers. (3) 59.3% of the gallbladder cancers were associated with gallstones. (4) The main pathological patterns of gallbladder cancer were moderate and poor differentiated adenocarcinoma, showing an aggressive malignancy. TNM stage IV accounted for 55.1% of all cases, which was associated with the poor prognosis. (4) The curative resection rate was 30.4%.

Conclusions: The incidence of gallbladder cancer has increased in Northwestern China in recent years, it is common in the aged females and mainly at advanced stage. The screening and follow-up of high-risk groups with ultrasound and other methods regularly could increase the early diagnosis rate of gallbladder cancer, aggressive surgical resection combined with other comprehensive treatment could improve the prognosis of patients.

Keywords: Gallbladder cancer; Epidemiology; Northwestern China

Clinical Observation of the Effect of Partial Liver Resection with sequential TACE treatment on Small HCC patients

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Objective: To investigate the efficacy of local hepatic resection combine with sequential transcatheter arterial chemoembolization(TACE) for small hepatocellular carcinoma.

Methods: 56 patients with small hepatocellular carcinoma in the center hospital of JinHua City were analyzed retrospectively from 2006 to 2009. All the patients were divided into two groups, regular hepatic resection group(control group) and local hepatic resection group(therapy group), according to the technique. The clinical data, postoperative complications, the rate of recurrence and survival time between two groups were compared to analyze the efficacy.

Results: The 3 years overall survival rate of therapy group(35) and control group(21) are 32% and 31%, the rate of recurrence is 32% in control group compared with 31% in therapy group, with no significant difference between groups ($P > 0.05$). But the

rate of complications including hepatic failure, pulmonary infection ect after local hepatic resection is 45.7%(16/35) compared with 38.1%(8/21) in control group, with significant difference ($P < 0.05$). Specially, there is no hepatic failure in therapy group, apparently lower than that in control group(3 cases).

Conclusion: Compared with regular hepatic resection, local excision combined with sequential TACE treatment has no advantage in the rate of survival and recurrence, but shows a lower incidence of postoperative complications, so it is an effective choice for the treatment of small hepatocellular carcinoma.

Keywords small hepatocellular carcinoma; local liver resection; TACE

Clinical significance of fibrosis based on Metavir and FIB-4 scores analyses on prognosis of hepatitis B-related hepatocellular carcinoma after curative hepatectomy

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Background: Despite Metavir and FIB-4 scores are used for assessment of liver fibrosis severity, their roles in the outcomes of HCC are unclear. The aim of this study was to investigate the potential prognostic value of the severity of hepatic fibrosis in HBV-HCC patients after curative resection.

Methods: The prognostic roles of Metavir and preoperative FIB-4 scores were examined in a total of 432 HBV-HCC patients underwent curative resection.

Results: Fibrosis staging (Metavir and FIB-4 scores) in training set ($n = 108$) exhibited predictive value for overall survival (OS) and time to recurrence (TTR) by univariate analysis (P value for OS = 0.042 and 0.005; TTR = 0.012 and < 0.001), respectively. Additionally, FIB-4 index was associated with some clinicopathologic variables such as total bilirubin, albumin, creatinine, international normal ratio and tumor size, respectively. In validation set ($n = 324$), cirrhosis (Metavir F4 and FIB-4 III) was also related to the poor prognosis of HCC after curative resection. According to Metavir analysis, neither OS nor TTR was related with non-cirrhotic HCC (F1-3). Importantly, in the subgroups with alpha-fetoprotein (AFP) levels of ≤ 400 ng/ml, FIB-4 index (I / II / III) could discriminate the outcomes of patients with high

or low OS and TTR in both training ($P=0.001$ and <0.001 , respectively) and validation sets ($P=0.021$ and $=0.034$, respectively).

Conclusion: Therefore, cirrhosis defined by Metavir and FIB-4 scores could be used as a simple prognostic marker for the poor prognosis of HBV-HCC after curative hepatectomy.

Keywords: fibrosis; cirrhosis; liver cancer; inflammation; prognosis

Clinical significance of hepatic artery variation in hepatic portal lymphadenectomy

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Objective: This study tries to investigate the recognition and injury prevention strategies of hepatic artery variations during the hepatic portal lymphadenectomy.

Methods: A retrospective analysis was performed among subjects who visited the First Affiliated Hospital of Bengbu Medical College for hepatic portal lymphadenectomy between January 2013 and July 2014. 12 cases of hepatic arterial variation occurred among 62 subjects. The intraoperative treatment and postoperative complications were recorded.

Results: Among 12 cases of hepatic artery variation, there were 3 cases (25.0%) of Michels, Type III, 2 cases (16.7%) of Michels, Type VI, 1 case (8.3%) of Michels, Type IX type, 1 case (8.3%) of Hiatt, Type 6, 2 cases (16.7%) of spatial location variation between right hepatic artery and hepatic duct. 2 cases (16.7%) of left and right hepatic artery originate from common hepatic artery, 1 case (8.3%) of right hepatic artery originate from the gastroduodenal artery. No injury of hepatic artery occurred. 2 cases had postoperative complications, including 1 cases of pancreatic leakage, and 1 cases of incision infection without the occurrence of hemorrhage of postoperative, bile leakage and hepatic abscess and other complications. Patients recover well in general.

Conclusion: Hepatic arterial injury can be significantly reduced by methods that are listed as follows: being familiar with the various types of hepatic artery variations, perfect imaging examinations for inspection and evaluation before surgery, the careful and meticulous operation in surgery.

Keywords: hepatic artery variation; hepatic portal lymphadenectomy; superior mesenteric artery; hepatic arterial injury

Clinical study of FOLFOX-4 regimen for advanced hepatocellular carcinoma patients: experience in a cohort of 14 Chinese patients

Running title: FOLFOX-4 regimen for advanced hepatocellular carcinoma

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Contribution of Authors: Zhi-xin Wang, Si-dong Song and Chang Liu proposed the study.

Zhi-xin Wang, Si-dong Song and Kai Qu performed research and wrote the first draft whom contributed equally to this work.

Zhi-xin Wang, Si-dong Song, Xin-sen Xu, Yong Wan, Yue-lang Zhang and He-ping Shi collected and analyzed the data.

All authors contributed to the design and interpretation of the study and to further drafts. Chang Liu is the guarantor.

Objective: FOLFOX-4 regimen is safe and widely used in patients with colorectal cancer, yielding antitumor activity with little toxicity. To evaluate the effectiveness of FOLFOX-4 regimen in hepatocellular carcinoma, we conducted a retrospective study in advanced HCC patients ineligible for sorafenib.

Methods: Fourteen advanced hepatocellular carcinoma patients received FOLFOX-4 regimen between Jun 2008 and March 2011, were enrolled in our study and analyzed retrospectively. Patients were treated with the FOLFOX-4 regimen, namely oxaliplatin 85 mg/m², ivgtt, d1, leucovorin 200 mg/m², ivgtt, d1, 5-Fu 400 mg/m², iv in Bolus, d1, d2, and 600 mg/m², civ, d1, d2. All patients received the therapy every 2 weeks and a comprehensive evaluation was performed until the last cycle ended. The treatment ended until disease progression or unacceptable toxicity occurred or until a patient chose to discontinue treatment.

Results: All of 14 patients, received 2 to 26 cycles of chemotherapy (total of 107 cycles). The most frequent toxicities were elevation of aminotransferases or bilirubin, anemia, and neurotoxicity for the whole patients enrolled in this study, but no treatment-related death occurred throughout treatment course. Five patients from Child-Pugh A group (62.5%) and three from Child-Pugh B (50.0%) achieved a disease control state (PR + SD), two patients from Child-Pugh A group (28.6%) and two from Child-Pugh B group (40.0%) experienced progressive disease (PD), and no patient achieved a complete response. The median OS (overall survival) of all patients was 7.0 months. The median OS of Child-Pugh A and B group was 9.0 and 5.0 months respectively, and the median TTP (time to progression) in Child-Pugh A and B group was 8.0 and 4.0 months, respectively.

Conclusion: FOLFOX-4 regimen is a feasible systemic chemotherapy regimen, and it shows a promising antitumor activity, good safety and low toxicities in patients with advanced hepatocellular carcinoma.

Keywords: Hepatocellular carcinoma; Cirrhotic patients; Chemotherapy; FOLFOX-4

Comparative study on clinical and pathological characteristics between B-CS associated HCC with HBV cirrhosis associated HCC

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Objective: To compare the differences between Budd-Chiari syndrome (B-CS) associated hepatocellular carcinoma (HCC) with HBV cirrhosis associated HCC on clinical and pathological characteristics, so as to deepen our understanding on B-CS associated HCC.

Methods: The clinical and pathological data of 15 B-CS associated HCC patients and 30 HBV cirrhosis associated HCC patients treated in the First Affiliated Hospital of Zhengzhou University from January 2010 to December 2013 were analyzed retrospectively. We compared the expression of Ki67, CD34, Glypican-3 and the degree of differentiation and clinical stages of HCC, the patients were regularly followed after operation, we also compared the survival time between the two groups.

Results: The Ki67 index, CD34 positive rate, Glypican-3 positive rate in B-CS associated HCC patients were 19.7 ± 14.2 , 73.3%, 86.7% respectively, and in HBV cirrhosis associated HCC patients were 31.2 ± 18.0 , 83.3%, 76.7% respectively. There were statistical differences in the expression of Ki67 ($P=0.037$) between the two groups, but no statistical differences existed in the the expression of CD34, Glypican-3 and degree of differentiation and clinical stages ($P > 0.05$). The postoperative survival rates at 1, 2, 3 years were 93.3%, 80.0%, 41.6% respectively in B-CS associated HCC patients, and 86.3%, 75.5%, 20.7% respectively in HBV cirrhosis associated HCC patients, there were statistical differences in the postoperative survival time ($P=0.034$).

Conclusion: The pathological malignant degree of B-CS associated HCC may not be lower than HBV cirrhosis associated HCC, but the former had a longer survival time after operation.

Keywords: Budd-Chiari syndrome; HBV cirrhosis; Hepatocellular carcinoma; Malignant degree

Comparison of postoperative short-term and long-term outcomes between different surgical procedures after frank biliary rupture of hydatid disease

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Purpose: The purpose of this study was to evaluate postoperative short term and long-term outcomes in intrabiliary rupture of hydatid disease with partial pericystectomy and T-tube decompression, focusing on the relationship between operative procedures and outcomes.

Methods: Between 2000 and 2012 a total of 63 patients underwent partial pericystectomy for frank intrabiliary rupture.

Follow-up results were obtained from 51 patients. Their mean age was 47 years (range 29–66). These patients were divided into two groups based on their operative procedures: group A (2000–2006) 28 patients partial pericystectomy with only single T-tube decompression and group B (2006–2012) comprising 23 patients who underwent subtotal pericystectomy with double T-tube decompression with sustained T-tube and decompression T-tube. Biliary orifices seen in the residual cavity were suture with absorbable sutures. We evaluated the short-term and long-term outcomes in the two groups.

Results: Overall complications were seen in total of 14 patients (27.45%). In group A, 10 patients (35.71%) had complications, which included minor biliary fistula in 3, major biliary fistula in 1, wound infection in 1 while one patient developed postoperative abscess. In long term complication in group A 3 had biliary stricture while one patient with recurrence. In group B, none of the patients developed long-term complications however a total of 4 patients (17.39%) developed short term complications which included 2 minor biliary fistulas 2 wound infection while one patient developed postoperative abscess.

Conclusions: Although a longer follow-up period is necessary, late complications strictures were more frequent in group A than in group B patients. We believe that in subtotal pericystectomy with T-tube decompression a sustain T-tube is essential for the prevention of postoperative cavity infections and biliary strictures.

Keywords: Hydatid disease; Frank intrabiliary rupture; T tube decompression; Postoperative outcomes

Conditional survival of pancreatic ductal adenocarcinoma in surgical and nonsurgical patients

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Background: Conditional survival (CS) could offer reliable prognostic information for patients who survived beyond a specified time since diagnosis when the impact of late effects have the greatest influence on prognosis. We aim to investigate CS for pancreatic ductal adenocarcinoma (PDAC) patients with surgery and nonsurgery.

Methods: A total of 302 Chinese PDAC patients between January 2002 and September 2012 were reviewed for analyses. CS rates were calculated for survivors after surgery and nonsurgery at different time points.

Results: Several clinicopathologic features were associated with OS in each subgroup including curative resection, palliative surgery and nonsurgery, respectively. Both univariate and multivariate analyses showed chemotherapy was a critical predictor for OS regardless of treatment status. Remarkable increase in CS was observed compared to traditional survival estimates. Moreover, CS rates were higher in the curative resected patients than

other cases at the same time points. Importantly, stratification of 1-year CS by CEA, CA19-9 and tumor stage showed lower CEA, CA19-9 and tumor stage associated with favorable 1-year CS over time ($P=0.016$, 0.009 and 0.003).

Discussion: Dynamic CS estimates were more accurate assessment than actual survival for PDAC patients, allowing patients and clinicians to project subsequent survival based on time change.

Keywords: pancreatic cancer; prognosis; survival; carcinoembryonic antigen; CA-19-9 antigen

Correlation between draining pathways of peripancreatic fluid in acute pancreatitis and disease severity on computed tomography

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Objective: The pancreatic fluid spreads from peripancreatic space toward remote spaces along the retroperitoneal interfascial planes in acute pancreatitis, so we explored the correlation between draining pathways of peripancreatic fluid and disease severity on CT images.

Material and Methods: CT images of 62 patients with acute pancreatitis treated in the first half of 2014 were reviewed. Draining pathways on CT images were explored by the multiply reconstructed technology. The distribution of the draining pathways of patients with pancreatitis was studied according to the disease severity obtained on the basis of CT severity index.

Results: As for the extension of the fluid collection, ANOVA shows that there is significant difference for pathways from bilateral interfascial planes to the combined interfascial plane ($F(2, 33) = 13.884$, $P < 0.001$) and for pathways into mediastinum across esophageal hiatus ($F(2, 37) = 4.418$, $P = 0.019$) among the different disease severity, respectively. In terms of pathways into mediastinum across esophageal hiatus, the average number of the moderate group is significant higher than the mild group ($P = 0.034$), while there isn't significant difference between the moderate group and the severe group ($P = 0.142$). Besides, ANOVA shows that there isn't significant difference for opened pathways into mediastinum across aortic hiatus among the mild, moderate and severe pancreatitis (1.14 ± 0.38 routes vs. 1.60 ± 0.97 routes vs. 1.00 ± 0.00 routes), respectively.

Conclusion: The distributing variation of draining routes is a useful observing indicator to the disease severity of acute pancreatitis without the contrast-enhanced CT.

The effectiveness of glutamine enriched nutrition support therapy for patients with severe acute pancreatitis : A meta-analysis

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Objective: To systematically review the effectiveness of glutamine (Gln) enriched nutrition support therapy for patients with severe acute pancreatitis (AP).

Methods: The PUBMED, Embase, Highwire, Cochrane Central Register of Controlled Trials, CBM, CNKI and WanFang Data were searched from inception to March 2014 for randomized controlled trials on Gln for AP. Two researchers independently screened and evaluated literatures, extracted data. Meta-analysis was performed via the software of RevMan 5.2.

Results: 10 RCT that enrolled 433 patients with AP were included in the final analysis. Overall, Gln supplementation manifest great effect on modify the level of Alb [SMD = 1.00, 95%CI (0.50, 1.00), $P < 0.05$] and CRP [SMD = -0.93, 95%CI (-1.25, -0.61), $P < 0.05$], reduce the risk of mortality [RR = 0.34, 95%CI (0.15, 0.76), $P = 0.009$], decrease the rate of complication [RR = 0.56, 95%CI (0.41, 0.77), $P = 0.0003$], shorten the length of hospital stay [SMD = -0.71, 95%CI (-1.10, -0.32), $P = 0.01$], while the hospitalization expenses was not markedly increased [SMD = 0.08, 95%CI (-0.88, 0.95), $P = 0.95$]. The results of subgroup analysis indicate that Parenteral drug delivery is a better choice than enteral for patients with SAP, for patients in the parenteral subgroup enjoy a higher level of Alb [SMD = 1.19, 95%CI (0.61, 1.76), $P < 0.05$] and lower CRP level [SMD = -0.92, 95%CI (-1.50, -0.34), $P = 0.002$], lower mortality rate [RR = 0.34, 95%CI (0.14, 0.84), $P = 0.02$], lower complication rate [RR = 0.543, 95%CI (0.37, 0.80), $P = 0.002$], and shorter length of hospital stay [SMD = -0.53, 95%CI (-0.80, -0.26), $P = 0.0001$], while enteral way have no the effect mentioned above ($P_{All} > 0.05$).

Conclusion: This meta-analysis demonstrates that patients with SAP can benefit from Gln enriched nutrition support and parenteral may be a better choice for drug administration.

Keywords: severe acute pancreatitis; glutamine

Decoy receptor 3 suppresses FasL-induced apoptosis via ERK1/2 signaling in pancreatic cancer cells

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Objectives: Emerging evidences showed that resistance to FasL-mediated apoptosis plays an important role in tumor initiation and development. Decoy receptor 3 (DcR3), identified to interact with FasL, has been proved to be overexpressed in a variety of human malignant tumors. However, the expression of

DcR3 and its correlation with cell proliferation in pancreatic cancer, as well as the signaling pathway of DcR3 impacting on cell growth inhibition induced by FasL are not fully explored.

Materials and Methods: In our present study, we compared the expression of apoptosis related genes between FasL-resistant SW1990 cells and FasL-sensitive Patu8988 cells by microarray analysis. We selected DcR3 among the anti-apoptosis genes, and investigated the regulatory role and related signaling pathway in FasL-induced cell growth inhibition in pancreatic cancer.

Results: Our results demonstrated that resistance of pancreatic cancer cells to FasL induced apoptosis was likely to involve the overexpression of DcR3. Knockdown of DcR3 expression in SW1990 cells by RNAi enhanced the apoptotic effects induced by FasL, and up-regulation of DcR3 expression in Patu8988 cells by rDcR3 had the opposite effect. In addition, DcR3 regulated pancreatic cancer cell proliferation and inhibited apoptosis via ERK1/2 phosphorylation. More importantly, DcR3 expression in pancreatic cancer tissues was also associated with tumor cell proliferation as well as ERK1/2 phosphorylation level in patient samples.

Conclusions: Taken together, our findings indicated that targeting DcR3 by a genetic approach may provide a new strategy for treating pancreatic cancer.

Keywords: DcR3; apoptosis, ERK1/2; pancreatic cancer

Diagnoses and Treatment on 50cases of Hepatic Cystic Echinococcosis Complicated with Cystic Echinococcosis of Chest

Objective: to discuss the influence on one stage or two stage surgical treatments on prognosis in Hepatic cystic echinococcosis complicated with cystic echinococcosis of Chest.

Methods: 50 patients were divided into two groups: Group A is one stage surgical treatments group (underwent operation procedures by abdomino-thoracic incision at the same time), Group B is two stage surgical treatments namely two incision group (first underwent surgical treatment on Pleural cystic echinococcosis, after a period of time of patient's recovery the operation procedure is underwent on hepatic hydatid cyst).

Results: There is no statistical difference between group A and group B in such aspects as age and gender. The total number of drainage tubes, drainage times, average hospital expenses, total operation times, incidence of hypoproteinemia and total intraoperative blood loss are less than group B. There are statistically significant difference between group A and group B ($P < 0.05$) above the mentioned aspects. There is no statistical difference comparing group A with group B ($P > 0.05$) in such aspects as cure rate of other part's complicated hydatid cysts, average hospitalization days and incidence of biliary fistula, bronchial fistula, residual cavity infection, pleural effusion, pneumonia, recurrence rate.

Conclusions: one stage procedure is considered on the occasion such as cyst of dome of liver and same side pleural cyst, uncomplicated cysts. And this occasion as hepatic hydatid cyst and thoracic cavity are isolated by liver and diaphragm, hepatic and pleural cysts are not same side and cysts are large and complicated the two stage procedure is considered. Consequently, taking individualized targeted treatment is the best way to cure such diseases.

Keywords: Hepatic cystic echinococcosis complicated with cystic echinococcosis of chest; One stage operation; Two stage operation; Individualized treatment

DIAGNOSIS AND TREATMENT FOR BILIARY COMPLICATIONS OF HEPATIC CYSTIC ECHINOCOCCOSIS

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Objective: Evaluation the effect of different diagnosis and treatment methods in hepatic cystic echinococcosis (CE) with biliary complications.

Methods: The data of 284 hepatic CE patients with biliary complications and biliary related complications were surgically treated from January 2002 to January 2010 in first affiliated hospital of Xinjiang medical university were analysed.

Results: (1) The diagnosis of biliary complications of hepatic hydatid cyst was difficult on ultrasound and CT, with sensitivity rates of 78.4% and 85.7%, respectively. MRCP was an effective, noninvasive and useful diagnostic tool in difficult cases; ERCP was used as the gold standard in confirmation. Biliary fistulae were seen in 3 patients (10.7%) treated by suturing the rupture site. In the non-sutured group, 17 patients (74%) developed biliary fistulae after surgery ($P < 0.01$). In three patients the fistula was a high-output type (the fistula output was greater than 250 ml/d). (2) CE communicated with the bile duct and (or) infection (210 patients): The cavity-related problems and draining time in group C (no bile duct exploration and decompression) were significantly higher than group A (biliary system explored and decompressed through the cystic duct) and group B (biliary system explored and decompressed through the common bile duct), while cavity-related problems and draining time between the A and B groups showed no significant difference. Biliary tract-related problems in group A was significantly lower than group B ($P < 0.05$).

Conclusions: (1) MRCP was an effective, noninvasive and useful diagnostic tool; ERCP was used only as the gold standard in confirming intrabiliary rupture of liver cystic hydatid disease, and also as an effective technique for treating extended postoperative external biliary fistula. (2) This study indicated that suturing the communication at the rupture site and biliary decompression were effective with low morbidity and mortality rates. (3) Cholangiography and common bile duct exploration through the cystic duct could solve the cavity-related problems while avoiding the T-tube related problems.

Diagnosis and treatment of Budd-Chiari syndrome complicated with hepatocellular carcinoma: a report of 11 cases

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Objective: To investigate the diagnosis and treatment of Budd-Chiari syndrome (B-CS) complicated with hepatocellular carcinoma (HCC).

Methods: Retrospectively explore the clinical data of 11 patients of B-CS complicated with HCC hospitalized in our department from January 2010 to December 2013.

Results: B-CS complicated with HCC was mainly seen in the inferior vena cava obstruction type (6/11) and mixed type (5/11), showing clinical features of inferior vena caval hypertension or/and portal hypertension, such as lower extremity edema, ascites, abdominal wall varicosis, etc. Among the 11 patients, 2 cases were infected with HBV and 1 case with HCV. Serum Alpha fetoprotein (AFP) levels were increased in 10 patients, Among them 4 cases were higher than 1210ng/ml. Single or multiple masses located in the periphery or parenchyma of the liver were seen on imaging examination. In the treatment, patients were treated by percutaneous transluminal angioplasty (PTA) to relieve obstructive status firstly, then 7 cases were treated with transcatheter arterial chemoembolization (TACE), 2 cases with surgical excision, 1 case with TACE and surgical excision sequentially, 1 case with conservative treatment. All patients recovered well, among the 8 patients who were followed up successfully for 14.2 months on average, the survival time were 11 to 34 months with an average of 21.3 months.

Conclusions: B-CS complicated with HCC has no specific clinical manifestations, AFP and imaging examination can provide some basis for its diagnosis, PTA combined with surgical excision or TACE can produce good therapeutic efficacy.

Keywords: Hepatic vein thrombosis; Membranous obstruction of vena cava; Hepatocellular carcinoma; Treatment

DNA-PKcs deficiency sensitizes human hepatoma HepG2 cells to Cisplatin and 5-fluorouracil through suppression of the PI3K/Akt/NF- κ B pathway

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Purpose: The present study was to investigate the effects of DNA-PKcs deficiency on chemosensitivity of human hepatoma HepG2 cells to cisplatin (CDDP) and 5-fluorouracil (5-Fu), and to explore the underlying molecular mechanism.

Methods: After transfection with DNA-PKcs siRNA or control siRNA, HepG2 cells were exposed to combination treatment of CDDP and 5-Fu. The cell viability, DNA damage, cell apoptosis, intracellular Reactive Oxygen Species (ROS) and glutathione (GSH) level, expression of apoptosis related proteins, activity of phosphatidylinositol 3-kinase/protein kinase B (PI3K/AKT) pathway and nuclear factor- κ B (NF- κ B) pathways were assessed.

Results: The combination of CDDP and 5-Fu had a synergistic cytotoxic effect in HepG2 cells in terms of the cell viability, DNA damage, apoptosis and oxidative stress level. DNA-PKcs siRNA could sensitize the HepG2 cells to the combined treatment. DNA-PKcs suppression further reduced the Akt phosphorylation level and Bcl-2 expression in HepG2 cells exposed to CDDP and 5-Fu, but enhanced the expression of pro-apoptotic proteins p53 and caspase-3. Moreover, CDDP could inhibit the transcriptional activity of NF- κ B through degradation of I κ B- α , while 5-Fu alone seemed in some extent increase the NF- κ B activity. The combined treatment with CDDP and 5-Fu resulted in significantly decrease of the transcriptional activity of NF- κ B, which was further aggravated by DNA-PKcs siRNA treatment.

Conclusion: DNA-PKcs suppression had complementary effects in combination with CDDP and 5-Fu treatment in HepG2

cells, which was associated with suppression of NF- κ B signaling pathway cascade, activation of caspase-3 and p53, as well as down-regulation of Bcl-2 and GSH.

Keywords: DNA-PKcs; HepG2 cells; apoptosis; oxidative stress; NF- κ B; PI3K/AKT pathway; Bcl-2; GSH

Early activated hepatic stellate cell-derived molecules reverse acute hepatic injury

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Background: Hepatic stellate cells (HSCs) play a role in hepatic regeneration. We have previously demonstrated that activated HSCs are involved in the proliferation of hepatocytes in acetaminophen (APAP) -induced acute liver injury (ALI).

AIMS: Our goal was to determine if HSCs at different activation stages had different effects on APAP-induced ALI.

Methods: HSCs were isolated from mouse liver and cultured in vitro. Initiation HSCs and perpetuation HSCs were observed by microscope. The protection effects of HSC-derived molecules (HSC-conditioned medium, HSC-CM) were tested in vivo by survival and histopathological analysis. Additionally, a protein array screen and ELISA detected the composition of HSC-CM.

Results: Different morphologies and phenotypes were observed between initiation HSCs and perpetuation HSCs. Initiation HSC-CM provided a significant survival benefit and showed a dramatic reduction of hepatocellular necrosis and panlobular leukocytic infiltrates in mice exposed to APAP. Furthermore, the protein array screen revealed that 7 proteins had a >2-fold difference in concentration comparison of the two groups of molecules.

Conclusions: These data indicate differences in morphology, phenotype, and protein expression between initiation HSCs and perpetuation HSCs and provide the first experimental evidence of the potential medical value of initiation HSC-derived molecules in the treatment of ALI.

Keywords: hepatic stellate cells; initiation and perpetuation; acute liver injury

Exploration of the indications and application of Surgical Treatment for Hepatocellular Carcinoma Patients with Portal Vein Tumor Thrombus based on two PVTT classifications

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Objective: The exact indication of surgery for hepatocellular carcinoma (HCC) patients combined with portal vein tumor thrombus (PVTT) remains controversial. This study aims to investigate the effect of location and extent of PVTT on the prognosis of HCC patients underwent surgery compared with Transarterial chemoembolization (TACE).

Methods: During January, 2009 and December, 2011, 320 HCC patients with PVTT were divided into surgery groups (n=160) and TACE group (n=160) and respectively studied. Two PVTT classifications (I-IV and Vp1-Vp4) were used. The cumulative survival rates of HCC patients with different types of PVTT after surgery were compared with TACE. Also for patients underwent surgery, the postoperative survival rates of HCC patients with different types of PVTT were compared.

Results: Survival after surgery were significantly better than TACE in HCC patients with type I/II or Vp1/Vp2/Vp3 PVTT ($P<0.05$). However, surgery failed to achieve better survival than TACE in HCC patients with type III/IV/Vp4 PVTT ($P>0.05$). For patients underwent surgery, postoperative survival rates in HCC patients with type I/II or Vp1/Vp2/Vp3 PVTT were significantly higher than type III/IV or Vp4 PVTT ($P<0.05$).

Conclusion: Until invades into the main trunk of portal vein, PVTT (I/II or Vp1/Vp2/Vp3) should be recommended as an important indication of surgery for HCC patients. But when the PVTT extends to the main trunk of portal vein or bellow (III/IV or Vp4), HCC patients might be have lost the optimal opportunity of surgery.

Keywords: Hepatocellular carcinoma; PVTT classification; population suitable for surgery; indications for surgery

Effects of suppressing the expression of miRNA-1 on biological behaviors of the hepatocellular carcinoma tumorendothelial cells

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Background: Angiogenesis is crucial in the occurrence, development and prognosis of hepatocellular carcinoma(HCC). Identifyingthespecific molecular markersof tumor vascular endothelial cells can provide a newbasis forantiangiogenic therapy of HCC. The aim of this manuscript was to investigate the effect of miR-1 to tumor endothelial cells (TECs) of human HCC.

Materials andMethods: MiR-1 specific short hairpin RNA (shRNA) was synthesized and cloned into the recombinant lentiviral vector. TECs were divided in to three groups: thecontrol (CON) group consisted of normal TECs without lentiviralinfection, the negative control (NC) group consisted of normal TECs-infected with negative control viruses, and the micro-down (MD) group included normal TECs infected with the miR-1-inhibition virus containing the target gene.Silencing of miR-1 expression wasquantified by reverse transcription-polymerase chain reaction. The proliferation and apoptosis of TECs weredetected by MTT assay and flow cytometry, respectively. The migration and invasion of TECs were detected by transwell assay.

Results: LentiviralMiR-1 shRNA was successfully transduced into TECs, and specifically silenced the expression of miR-1. The results showed that the proliferation was significantly inhibited and the apoptosis was significantly increased in the MD group compared with the CON group and the NC group ($P<0.01$). The ability of migration and invasion of TECs were significantly inhibited in the MD group compared with the CON group and the NC group ($P<0.01$).

Conclusion: Our study demonstrated that miR-1 might be a potential tumor activator. Inhibition of the expression of miR-1 could decrease the proliferation, induce the apoptosis, and inhibit the migration and invasion of TECs of human HCC.

Keywords: MiR-1; Tumor endothelial cells; Hepatocellular carcinoma; Short hairpin RNA

Experience in prevention and treatment of post distal pancreatectomy fistula

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Objective: To explore the proper way of prevention and treatment of pancreatic fistula after distal pancreatectomy.

Methods: The clinical data of 83 patients concerning the baseline before the surgery and perioperative treatment after distal pancreatectomy from January 2007 to May 2014 were reviewed retrospectively, the perioperative data of 19 patients who showed pancreatic fistula were analyzed.

Results: Of 83 patients who underwent distal pancreatectomy, 19 showed pancreatic fistula, the incidence rate was 22.9%. 17 patients were cured by expectant treatment (89.5%), and 2 patients were cured by radiotherapy, 1 patient underwent reoperation due to perioperative hemorrhage, 1 patient dead, the death rate was 5.2%.

Conclusions: The incidence of pancreatic fistula after distal pancreatectomy is still high. The prevention of pancreatic fistula after distal pancreatectomy lies in proper management of pancreatic stump and perioperative care and routine drainage of the pancreatic stump combined with nutritional support is radical in the treatment of pancreatic fistula. New treatment is to be found to manage the pancreatic fistula after distal pancreatectomy.

Keywords: Distal pancreatectomy; Pancreatic fistula; Post-operative complications

Expression of vitamin D receptor as a potential prognostic factor and therapeutic target in pancreatic cancer

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Background: Vitamin D insufficiency and deficiency were common among patients with pancreatic carcinoma, but epidemiologic studies have shown inconsistent results on vitamin D intake/circulation level and pancreatic cancer risk.

Methods: The present study examined the local expression of vitamin D receptor (VDR) in pancreatic normal and cancer tissues from a cohort of 61 patients and analyzed the potential correlation between VDR and pathological characteristics including disease prognosis.

Results: Among 61 pairs of normal and cancer specimens, VDR was detected in all normal tissues and abundantly expressed in 62.5% (15/24) of cancer tissues with high differentiation, but were significantly lower or hardly detectable in 75.7% (28/37) of tissues with moderate or low differentiation ($P=0.004$). Moreover, high VDR expression was detected in 63.6% (14/22) of small tumors (≤ 2.5 cm) and only 25.6% (10/39) of large tumors (>2.5 cm) ($P=0.06$).

Conclusion: In conclusion, the expression of VDR could be a potential prognostic factor for patients with pancreatic adenocarcinoma, and its effects should be examined in the prospective study. Vitamin D analogues, like EB1089, may provide a useful therapeutic choice for patients with high VDR in tumor but low vitamin D in circulation.

Keywords: Vitamin D; Pancreatic Cancer; receptor; prognosis

Fast track for open hepatectomy: a systemic review and meta-analysis

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Background: Liver resection (LR) is preferred treatment for malignancies or benign masses of liver. Using multiple elements, fast track (FT) program was introduced to abdominal surgery associating with fast functional recovery and shorter hospital length of stay (LoS). This meta-analysis aims to evaluate the effect of FT program for patients following liver resection.

Methods: We searched the PubMed/Medline, Cochrane Central Register of Controlled Trials (CENTRAL), Embase for trials up to November 2014 to compare the FT program to the conventional group. The main outcome was assessed of complication rate (including liver specific or general complication rate), thirty-day postoperative mortality, readmission rate and the length of hospital stay.

Results: Four randomized control trials (RCTs) and three cohort trials (CTs) were to make a quantitative synthesis including 1,027 patients. The LoS was reduced following FT groups (weighted mean difference [WMD], 2.24 days; 95% CI 3.69–0.79; $P < 0.005$). No significant differences were noted in overall complication (risk ratio [RR], 0.94; 95% CI, 0.79–1.12; $P = 0.49$), mortality (RR, 0.63; 95% CI, 0.19–2.15; $P = 0.46$) and readmission rate (RR, 0.99; 95% CI, 0.54–1.79; $P = 0.97$). However, the general complication showed a difference favoring FT group (RR, 0.68; 95% CI, 0.49–0.95; $P = 0.03$).

Conclusions: This review, firstly using the quantitative synthesis in FT program following LR, indicates that FT program can shorten the length of hospital stay and accelerate the postoperative recovery in a safe and effective ways without increasing in mortality, morbidity and readmission rate.

Keywords: Fast track program; liver resection; hepatectomy; liver cancer.

Gallbladder sarcomatoid carcinoma: four cases report and literature review

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Objective: To investigate the clinical characteristics, treatment and prognosis of gallbladder sarcomatoid carcinoma.

Methods: The clinical data of 4 patients of gallbladder sarcomatoid carcinoma who were admitted to the Department of Hepatobiliary surgery, the First Affiliated Hospital of Xi'an Jiaotong University, College of Medicine from January 2008 to December 2012 were retrospectively analyzed. The related literature was reviewed.

Results: 4 cases of sarcomatoid carcinoma account for 0.86% of gallbladder carcinoma during the same period in our hospital. Two patients were female and two were male. The average age was 66.3 ± 11.8 years. All cases were associated with gallstones. Clinical symptom is given priority to with upper abdominal pain. Surgical procedures included two curative resections and two palliative resections. Postoperative follow-up is still alive in the former two patients, survival time were 82 and 34 months respectively, and the other 2 died of 2 months and 11 days postoperative respectively.

Conclusions: Gallbladder sarcomatoid carcinoma is a rare form of gallbladder malignancy. The radical resection is still the only possible cure of treatment approaches for patients with gallbladder sarcomatoid carcinoma.

Keywords: Gallbladder carcinoma; Sarcomatoid carcinoma; Treatment; Prognosis

Hepatic inflow block with pringle's measurement increases effects of radiofrequency ablation on the normal rabbit liver

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Objective: To investigate whether the hepatic inflow block with pringle's measurement can increase effects of radiofrequency ablation (RFA) on the normal rabbit liver.

Methods: 24 normal rabbits were randomly divided into three groups: group A ($n = 8$) underwent sham operation; group B ($n = 8$) received RFA along; group C ($n = 8$) received RFA on the condition of hepatic inflow block with pringle's measurement. RFA was made on left liver lobes for 4 minutes with therapeutic temperature of 90°C in groups B and C. Histological samples were obtained from left liver lobes of all three groups at the distances of 0.5cm, 1.0cm and 1.5cm from the RFA center for liver pathological examinations. Live function including ALT and AST was tested in the three groups above 1, 3 and 5 days after RFA.

Results: There were no significant changes in liver histology in group A. However, the numbers of complete liver tissue necrosis at the distances of 0.5cm, 1.0cm and 1.5cm from the RFA center were 8, 2, 0 and 8, 7, 0 in groups B and C respectively ($P < 0.05$). As compared to group A, rabbits in group C shown slightly damaged but reversible liver function postoperatively.

Conclusion: Hepatic inflow block significantly increases effects of RFA with slight damage in liver function.

Keywords: Radiofrequency ablation; Liver; Rabbits; Pathology; Hepatic function

High expression of microRNA-197 is associated with the aggressive malignant behavior of gallbladder carcinoma

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Object: The prognosis of gallbladder cancer (GBC) is still poor despite recent advances in diagnostics and therapeutic strategies. Although the development of miRNA-based therapeutics represents a new strategy in cancer treatment, and miR-197 has been shown to associate with carcinogenesis in various types of cancers. The aim of this study was to investigate the clinical significance of miR-197 expression and the biological functions of miR-197 in GBC.

Method: and result The expression levels of miR-197 in GBCs and gallbladders with pancreaticobiliary maljunction (PBM) were assessed by quantitative reverse transcription-polymerase chain reaction (qPCR). The relationship between the expression levels of miR-197 and clinicopathological features of GBCs was analyzed. Human GBC cell lines were transfected with miR-197 inhibitors or mimics, and the effects on proliferation and invasion were assessed. miR-197 was significantly overexpressed in GBCs when compared with that in gallbladders with PBM ($P=0.003$) and normal gallbladders ($P=0.02$). The high expression level of miR-197 in GBCs was significantly associated with the presence of lymph node metastasis ($P=0.02$) and a poor prognosis ($P=0.01$). In vitro assays showed that abnormal expression of miR-197 significantly enhanced GBC cell proliferation and invasion.

Conclusion: High miR-197 expression correlates with the aggressive behavior of GBCs, and miR-197 may become a prognostic marker and therapeutic target for GBC.

High intratumoral regulatory T lymphocytes relates to poor prognosis while high peritumoral CD8 positive T cells relates to long-term survival for pancreatic ductal adenocarcinoma after pancreatectomy

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Objective: To investigate the clinical significance of regulatory T cells (Tregs) and CD8+ T cells in the tumor microenvironment, and analyze their relation with the prognosis of pancreatic ductal adenocarcinoma (PDAC) after resection.

Background: Data: The prognosis of PDAC remains extremely poor, and the overall 5-year survival rate is only 6%. Recent studies have focused on the role of lymphocytes in PDAC progression to explore novel therapy methodology.

Methods: In a consecutive series of 92 patients, Tregs and CD8+ T cells in regimens were analyzed in our institute. Clinicopathological and survival data related to Tregs and CD8+ T cells either intratumoral or peritumoral were analyzed.

Results: CD8+ T cells are more frequently seen in peritumoral (36.68 ± 9.45 cells/high power field (HPF) rather than intratumoral microenvironment (16.07 ± 6.25 cells/HPF, $P<0.001$). Oppositely, CD4+Foxp3+ Tregs are more regular in intratumoral (4.05 ± 5.86 cells/ HPF) rather than peritumoral microenvironment (2.56 ± 2.31 cells/HPF, $P<0.001$). Both of them showed no relationship with other clinicopathologic factors ($p>0.05$), respectively. Patients with low intratumoral Tregs had a longer median disease free survival (DFS) compared to patients with high intratumoral Tregs (22.2 vs. 11.2 months, $P<0.001$). And patients with more peritumoral CD8+ T cells had a longer median overall survival (OS) compared to patients with low numbers of peritumoral CD8+ T cells (31.0 vs. 14.2 months, $P<0.001$). Multivariate analysis demonstrated that intratumoral Tregs (HR 3.39, $P=0.010$) and peritumoral CD8+ T (HR 0.10, $P<0.001$) are related to disease-free survival and overall survival, respectively.

Conclusion: Intratumoral regulatory T lymphocytes negatively relate to DFS while peritumoral CD8+T cells positively relate to OS for PDAC after pancreatectomy.

Hydrogen-rich Saline Protects against Ischemia/Reperfusion Injury in Grafts after Pancreas Transplantations by Reducing Oxidative Stress in Rats

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Short title: Hydrogen Protects Against Pancreas I/R Injury

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Purpose: This study aimed to investigate the therapeutic potential of hydrogen-rich saline on pancreatic ischemia/reperfusion (I/R) injury in rats.

Methods: Eighty heterotopic pancreas transplantations (HPT) were performed in syngenic rats. The receptors were randomized blindly into the following three groups: the HPT group and two groups that underwent transplantation and administration of hydrogen-rich saline (HS, >0.6 mM, 6 ml/kg) or normal saline(NS, 6 ml/kg) via the tail vein at the beginning of reperfusion (HPT+HS group, HPT+NS group). The two kinds of saline is only administered to the recipients at the time of graft reperfusion. Six rats in the sham operation(SO) group underwent laparotomy only. Samples from the pancreas and blood were taken at 12 hours after reperfusion. The protective effects of hydrogen-rich saline against I/R injury were evaluated by determining the changes in histopathology and measuring serological parameters, oxidative stress-associated molecules, and proinflammatory cytokines.

Results: Administration of hydrogen-rich saline produced notable protection against pancreatic I/R injury in rats. Histopathological improvements and recovery of impaired pancreatic function were observed. In addition, TNF- α , IL-1 β and IL-6 were

reduced markedly in the HPT+HS group. Additionally, there were noticeable inhibitory effects on the pancreatic malondialdehyde level and considerable recruitment of SOD and GPx, which are antioxidants.

Conclusion: Hydrogen-rich saline treatment significantly attenuated the severity of pancreatic I/R injury in rats, possibly by reducing oxidative stress and inflammation.

The Prognostic role of Aging on Patients with Hepatocellular Carcinoma

Running title: Prognostic Aging in HCC

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Article category: Research Articles

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Objective: To compare the clinicopathological features and prognosis between younger and aged patients with HCC.

Methods: We analyzed the outcome of 451 HCC patients underwent liver resection, transcatheter arterial chemoembolization and radio frequency ablation, respectively. ROC curve analysis was performed to determine the cut-off value of age. Then risk factors for aged and younger patients' survival were evaluated by multivariate analysis, respectively.

Results: By ROC curve analysis, the patients who were older than 55 were defined as the older group (ROC area 0.60; $P=0.001$). The overall survival for aged patients was significantly worse than those younger patients (Log rank $P<0.001$). The younger patients had similar liver functional reserve but more aggressive tumor factors than aged patients. Multivariate analysis showed that the elevated levels of AST ($P=0.047$, HR=1.453, 95%CI: 1.006-2.098), lower albumin ($P<0.001$, HR=1.982, 95%CI: 1.351-2.910), tumor size ($P=0.004$, HR=1.841, 95%CI: 1.212-2.797) and higher AFP level ($P=0.044$, HR=1.465, 95%CI: 1.010-2.126) were independent prognostic factors for aged patients, while only elevated levels of AST ($P<0.001$, HR=2.285, 95%CI: 1.493-3.496) and higher AFP level ($P<0.001$, HR=2.928, 95%CI: 1.863-4.604) were independent prognostic factors for younger patients.

Conclusions: Age is a risk factor to determine the prognosis of patients with HCC. Aged patients who have good liver functional reserve are still encouraged to receive curative therapy.

Keywords: HCC; age; prognosis; multivariate analysis

The value of multi-slice spiral CT in radical surgery of hepatic echinococcosis cystic

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Objective: Through analyzing the Multi-slice spiral CT (MSCT) imaging of vascular and biliary influenced by hepatic cystic echinococcosis(HCE), we evaluated the value of MSCT with its three-dimensional image reconstruction.

Methods: 38 cases with HCE for preoperative diagnosis of the disease confirmed by radical surgery were collected in this study. All cases underwent multi-phase scanning with 64-slices CT, three-dimensional image reconstruction of hepatic vessels were performed. All the imaging dates were acquired before surgery. The relationships between cyst and the vessels/bile ducts were compared with the findings during operation.

Results: 48 lesions were detected by MSCT before surgery. The spatial relationships between lesions and the vessels were showed in first grade hepatic artery(20 cases), first grade portal vein(22 cases), Inferior macular vein (10 cases). in second grade hepatic artery(26 cases), second grade portal vein(27 cases) and hepatic vein(31 cases). The pericystectomy was performed in 38 patients, the mean operate time was 3.5 ± 0.4 hours, the mean blood loss was 120 ± 18.1 ml, the mean hospital stay was 7.61 ± 1.6 days, no recurrence, no death occurred in the follow-up.

Conclusion: MSCT with its three-dimensional technic showed a high accuracy in assessment of spatial relationship between vessels, biliary duct and lesions. It provided comprehensive imaging information for surgery.

Keywords: Cyst Echinococcosis; Preoperative evaluation; Three-dimensional reconstruction

Tumor size associated with the prognosis of hepatocellular carcinoma after Liver Resection

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Background and Aim: Accumulating evidence indicates that tumor size has been associated with prognosis of various cancers. The purpose of the present study was to analyze the association of tumor size with long-term survival and disease-free survival after liver resection for hepatocellular carcinoma (HCC).

Methods: This retrospective analysis included 172 patients after primary liver resections for HCC from Dec. 2002 to Dec. 2011 in the First Affiliated Hospital of Xi'an Jiaotong University. Demographics, laboratory analyses, and histopathology data were analyzed. A suitable cut-off value for tumor size was selected using the receiver operating characteristic (ROC) curve analysis, and the cut-off value of 5.75 cm was used in this study. Therefore, 172 patients were separated into two groups: those with tumor size less than 5.75 cm in diameter (small HCC; $n=85$) and those with tumor size larger than 5.75 cm (big HCC; $n=87$). Cox proportional hazard model was used for univariate analysis and multivariate analysis. Kaplan-Meier curve and log-rank test were used for survival analysis.

Results: The two groups were homogeneously distributed. Median survival (24 months vs. 39 months; $P < 0.001$), overall 5-year survival (22.9% vs. 72.5%; $P < 0.001$) and 5-year disease-free survival (21.9% vs. 66.3%; $P < 0.001$) were significantly poorer in the big HCC group compared to the small HCC group. However, the recurrence rate (75.9% vs. 32.9%; $P < 0.001$) of big HCC group was higher than small HCC group.

Conclusions: The diameter of tumor was an independent risk factor affecting the prognosis of hepatocellular carcinoma after primary liver resection. Tumor size larger than 5.75 cm was an adverse predictor of disease-free and overall survival. Early comprehensive treatment for hepatocellular carcinoma patients can improve the prognosis after liver resections.

Keywords: Hepatocellular Carcinoma; Tumor Size; Liver Resection; Prognosis

Hydrogen-rich water protects against acetaminophen-induced hepatotoxicity in mice

Running title: Hepatoprotective effect of hydrogen

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Aim: To investigate the hepatoprotective effects and mechanisms of hydrogen-rich water in acetaminophen (APAP)-induced liver injury in mice.

Methods: Hydrogen-rich water (HRW, 5 ml/kg body weight, twice a day at 8 a.m. and 5 p.m.) or normal saline (NS) was administered intraperitoneally for 3 days after APAP (500 mg/kg body weight) injection in male C57BL/6 mice.

Results: APAP treatment significantly depleted hepatic glutathione (GSH), increased serum aspartate aminotransferase (AST), alanine aminotransferase (ALT), bilirubin, alkaline phosphatase (ALP), lactate dehydrogenase (LDH), malonyldialdehyde (MDA), myeloperoxidase (MPO), serum TNF- α and IL-6, tissue 4-hydroxynonenal, protein nitrotyrosine and Connexin 32 (Cx32) levels, and decreased hepatic activity of superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GSH-px). However, the treatment of HRW significantly alleviated APAP-induced oxidative stress and inflammation by increasing GSH content, decreasing serum TNF- α and IL-6, tissue MDA and MPO, and retaining the activity of SOD, CAT and GSH-px in the liver. Furthermore, HRW treatment could maintain the structural stability of endoplasmic reticulum and mitochondria. Meanwhile, HRW promoted the hepatocyte proliferation and liver regeneration after APAP administration. HRW also remarkably inhibited CX32 expression, CYP2E1 activation and phosphorylation of c-Jun-NH₂-terminal protein kinase (JNK).

Conclusion: Hepatoprotective effects of HRW against APAP-induced acute toxicity were mediated either by inhibition of oxidative stress and inflammation or its promoting liver regeneration capacity. These results supported that HRW was a potent hepatoprotective agent.

Keywords: Hydrogen; Acetaminophen; ROS; Liver regeneration; Connexin 32

Hypothermic machine perfusion reduces the incidence of biliary complications and hospital length of stay after human liver transplantation: A meta-analysis

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Background: The shortage of organ donors has led to increased transplantation of organs from extended criteria donors (ECD). Hypothermic machine perfusion (HMP) is designed to mitigate the deleterious effects of simple cold storage (CS) on the quality of preserved organs, particularly when the donor is in a marginal status. In clinical liver transplantation, HMP is in still its infancy.

Methods: We compared the transplant outcomes in patients receiving livers with either HMP or CS graft preservation. Articles from the PubMed, Web of Science, and Cochrane Library databases were searched and all studies reporting outcomes from HMP versus CS methods of liver preservation were included in this meta-analysis. The parameters analyzed included the incidence of early allograft dysfunction (EAD), primary nonfunction (PNF), vascular complications, biliary complications, hospital length of stay and one-year patient survival.

Results: A total of three studies qualified for the review, involving 59 and 58 liver grafts with HMP or CS preservation, respectively. The incidence of biliary complications was significantly reduced with an odd ratio (OR) of 0.28 (95% CI 0.11 to 0.70, $P = 0.006$) and hospital length of stay was significantly reduced with a mean difference (MD) of -3.38 (95% CI -5.34 to -1.42, $P = 0.0007$) in HMP preservation compared to CS. However, there was no difference in the incidence of EAD (risk difference -0.12, 95% CI -0.26 to 0.01, $P = 0.08$), PNF (OR 0.47, 95% CI 0.04 to 5.44, $P = 0.54$), vascular complications (OR 0.98, 95% CI 0.21 to 4.53, $P = 0.97$), and one-year patient survival (OR 1.21, 95% CI 0.40 to 3.64, $P = 0.74$) between HMP and CS preservation.

Conclusions: HMP was associated with a reduced incidence of biliary complications and a decreased hospital length of stay, but it was not associated with the incidence of EAD, PNF, vascular complications and one-year patient survival.

Identification of micro-27a targeted gene in pancreatic cells

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Objective: To identify the miR-27a targeted by experiment.

Methods: The bioinformatic softwares were used to predict the potential targets of miR-27a. Then, the recombinant plasmid were reconstructed. Dual Luciferase reporter system was used to determine the luciferase activity, and Western blot

was used to measure the expression the targeted gene protein. Results: SMAD4 was selected as the candidate gene of miR-27a by softwares prediction. Dual luciferase reporter gene assay system showed that miR-27a decreased Luciferase activity in cells co-transfected with pmirGLO-SMAD4 (wt) ($P < 0.05$), compared to negative control, although significant difference of luciferase activity was not observed in cells co-transfected with pmirGLO-SMAD4 (mut) between the two groups. Western blot analysis showed that the protein level of SMAD4 was down regulated in pancreatic Cancer cells transfected with miR-27a mimics in comparison with pancreatic cancer cells transfected with negative control.

Conclusion: SMAD4 is the target gene of miR-27a in the pancreatic cancer.

Keywords: pancreatic cancer; miR-27a; SMAD4

IL-8-Positive Tumor-Infiltrating Inflammatory Cells Are a Novel Prognostic Marker in Pancreatic Ductal Adenocarcinoma Patients

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Purpose: Pancreatic ductal adenocarcinoma (PDAC) is notorious for 20 % resection rate and 3 to 6-month median survival time. Tumor-infiltrating inflammatory cells (TIIC) in PDAC are thought to initiate and exacerbate the invasion and metastasis. We believed Interleukin (IL) -8, whose expression profiles in the inflammatory cells of PDAC tissues may have prognostic values. Inflammatory suppression may be a novel treatment for PDAC patients.

Methods: We used two groups of PDAC patients, one of which was expression patterns of cytokines in 200 patients samples by immunohistochemistry (IHC). Another 40 IL-8 serum levels were using Human IL8 assay. The prognostic values of the variables were assessed by Kaplan-Meier and Cox regression analyses.

Results: Our study showed PDAC patients with high levels of IL-8-positive TIICs had significantly worse prognosis than those with low levels ($P = 0.009$). Controlling other independent factors, the relative hazard ratio for PDAC patients with higher IL-8-positive TIIC levels compared with those with lower TIIC levels was 1.588 (95% CI, 1.04 to 2.42). The IL-8 expression levels in the neoplastic cells were uncorrelated with the prognosis (HR, 1.291; 95% CI, 0.840 to 1.921). High IL-8 serum concentration in PDAC patients was correlated with high IL-8-positive TIIC levels and tumor stages ($P = 0.002$ and $P = 0.004$), but not with high IL-8 levels in the neoplastic cells ($P = 0.802$).

Conclusion: Higher IL-8-positive TIIC levels in PDAC tumors indicate poorer prognosis and positively correlate with serum IL-8 concentrations, both of which can be prognostic maker and IL-8-positive TIIC can be the novel target in the treatment of PDAC.

Keywords: Pancreatic adenocarcinoma; Tumor-infiltrated inflammatory cell; Interleukin-8; Inflammatory suppression

Indication of Liver Transplantation for Hepatocellular Carcinoma: a Single Center Retrospective Analysis with the Hangzhou Criteria

Running title: Indication of Liver Transplantation for HCC

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Objective: To evaluate the role of the Hangzhou criteria (HC) in screening preoperative receptors for liver transplantation (LT).

Methods: A retrospective analysis was performed for 54 patients with hepatocellular carcinoma (HCC) among the 184 consecutive LTs at our institution between 2002 and 2009. We analyzed the survival rate and recurrence rate of the patients selected by different criteria, such as the Milan criteria (MC), UCSF criteria and HC.

Results: There was no significant difference in the 1-, 2- and 3-year overall survival rates and tumor-free survival rates between the MC (n=24; 83%, 73%, 67% and 82%, 72%, 66%, respectively), UCSF (n=29; 82%, 73%, 59% and 82%, 73%, 62%, respectively) and HC (n=34; 82%, 68%, 50% and 75%, 65%, 56%, respectively), but more patients (n=10) within HC could receive LT. There was also significant difference ($P < 0.01$) in the 1-, 2-, and 3-year overall survival rates and tumor-free survival rates between those who were within the HC and who were beyond the HC (n=20; 60%, 15%, 5% and 30%, 15%, 5%, respectively). However, the recurrence rate of the patients screened by the HC was significantly higher compared with those screened by the MC ($P < 0.05$).

Conclusion: Although the recurrence rate differed between the two groups (MC versus HC), the overall survival rate of the patients screened by the HC were not decreased. Furthermore, more HCC patients were given the opportunity to receive LT and thus achieved a favorable long-term survival.

Keywords: Liver Transplantation; Hepatocellular Carcinoma; Indication; Survival rate

Using microwave technology under choledochoscopy to treat bile duct polyp and bile duct tumor

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Objective: To explore microwave technique under

Objective: To investigate the treatment of bile duct polyp and bile duct tumor under choledochoscopy.

Methods: to treat 61 patients of bile duct polyp and bile duct tumour with microwave technology under the choledochoscope: ①To bile duct polyp and bile duct tumor, we biopsy the lesions firstly ②then introduction coaxial antenna through the operation hole in the choledochoscope, be sure to make the antenna radiation head out of choledochoscope at least 1cm, so as to avoid thermal damage to cholangioscope; ③working power was 90 - 120w, 3-5 seconds / time; ④punch the antenna head into polyps and polypoid lesions, then pass power to make polyps and

lesions whitish, evaporation, and repeated several times so that the whole polyp charred and reduced to disappear; ⑤use the radiation head cut the small pedicle of polyps at the help of the bending, rotation force of choledochoscope

Results: ①60 cases of bile duct polyps was treated with microwave under the endoscope, all the bile duct lesions disappeared after microwave treatment, no recurrence was occurred at the post-operation choledochoscope examination or T tube imaging check. ②one case of intraoperative cholangioscopy was revealed tumor like masses near the right hepatic the 2nd duct opening, we move the tumor firstly, then applied the microwave to burn tumor residues, at the follow-up of 58 months, the patient had no relapsed. ③All patients in this group had no significant complications, such as bleeding, perforation and others, the endoscope was suffered no damage after using, it's image display is still excellent.

Conclusion: To treat bile duct polyp and bile duct tumor with microwave under choledochoscopy is a safe and effective method, the method was combined both advantages of microwave technology and cholangioscopy, expanded the application fields of choledochoscopy and microwave technology, so it is worthy to be popularized.

Keywords: microwave; cholangioscopy; bile duct polyp; bile duct tumour; treatment

Laparoscopic common bile duct exploration and primary suture for the treatment of fifty-three patients with common duct stones

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Objective: To analyze the reasons of complications after laparoscopic common bile duct exploration and primary suture (LBEPS) to treat the patients with common bile duct stones, and to explore the strategies for prevention and treatment.

Methods: One hundred and thirty two patients with common duct stones and gallbladder stones treated by Laparoscopic common bile duct exploration and primary suture were analyzed retrospectively from December 2009 to October 2014.

Results: One hundred and thirty two patients patients, 13 cases of bile leakage, accounting for 9.84%, of which 12 patients were cured by conservative treatment, surgery one case again by laparoscopic exploration. Residual choledocholithiasis two cases, the incidence of 1.52%. One case of recurrent choledocholithiasis 0.76%. One case of postoperative abdominal bleeding, 0.76%, conservative treatment. Followed up for 2 months to 4 years 10 months, no postoperative biliary stricture cases.

Conclusions: Bile leakage was the most common complication after LBEPS. Strictly grasping surgical indication, seriously preoperative imaging evaluation, skillful Choledochoscope technology and precisely stitching could reduce the postoperative complications of LBEPS.

Keywords: laparoscopic common bile duct exploration and primary suture(LBEPS); Choledochoscope; Common Bile duct stones; Postoperative complications

Value of measurement of standard remnant liver volume in the evaluation of liverreserve function in patients with alveolar echinococcosis in high altitude area

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Objective: To investigate the relationship between the size of standard remnant liver volume (SRLV) and liver insufficiency after liver resection in high altitude area.

Methods: Sixty-seven patients with Alveolar echinococcosis who underwent liver resection from January 2010 to October 2014 at People's Hospital of Qinghai province were included in our study, measuring the remnant liver volume, the standard remnant liver volume and the Standard remnant Liver volume ratio, According to postoperative liver function in patients with compensatory grouping condition, compare different standard remnant liver volume proportion of differences between groups, and groups again according to the standard remnant liver volume ratio, comparison between groups in postoperative liver function, the differences between the incidence of incidence of moderate and severe compensatory.

Results: Postoperative patients with hepatic insufficiency (SRLVR<50%) and postoperative patients with normal liver function (SRLVR > 50%), compared with postoperative hepatic insufficiency rates were 40.1% and 5.7%, respectively. ($P=0.013$), groups of SRLVR<50% postoperative liver function, high incidence of severe compensatory.

Conclusion: RLV, SRLV, SRLVR are influence factors of postoperative patients with alveolar echinococcosis liver function is compensated, the greater the volume of liver resection, remnant volume is smaller, the higher the incidence of compensatory liver function is not complete. **Keywords:** High altitude area, alveolar echinococcosis, standard remnant liver volume, liver reserve function.

Laparoscopic common bile duct exploration for elderly patients with choledocholithiasis: Primary closure or T-tube drainage

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Background: Laparoscopic common bile duct exploration (LCBDE) has become the main methods for treating choledocholithiasis with gallbladder stones through the development of minimally invasive surgery. The objective of the study was to assess the safety and effectiveness of primary closure or T-tube drainage after LCBDE for for elderly patients.

Methods: Between January 2011 and December 2014, a series of 170 patients above 65 years old who underwent LCBDE to treat choledocholithiasis was retrospectively analyzed. The patients were divided two groups: primary closure (PS=92) or T-tube drainage (TD=78).

Results: In the 170 cases of the elderly patients, 86% patients with senile diseases, including cardiovascular and cerebrovascular diseases, hypertension, diabetes and chronic lung disease. The operation of LCBDE were all successful. There was

no mortality and no blood transfusion in operation. Operation time was 87–190 minutes and the amount of bleeding 20–100 ml. Postoperative hospitalization time were 5–12 days. Postoperative hospitalization time 5–12 days. Intraoperative bleeding, hospitalization cost were no significant difference between the two groups. The mean operating time was much shorter in PS group than in TD group ($P < 0.05$). The length of postoperative hospital stay was longer in TD group than in PS group. The number of outside hospital followed up significantly lower in PS group. Overall postoperative complications were no different between TD group (3.85%) of PS group (4.34%) in PS group. The incidences of bile leakage complications were insignificantly lower in TD group (1.28%) comparing PS group (3.26%).

Conclusion: LCBDE treatment for elderly patients with CBD stones is safe and effective to obtain a better returns. We should consider patient systemic conditions, bile duct function and inflammatory changes to choose Laparoscopic primary closure or T-tube drainage.

Keywords: laparoscopic common bile duct exploration; elderly patients; choledocholithiasis; Primary closure; T-tube drainage

Emergency laparoscopic appendectomy effect on pancreatic endocrine function in patients with diabetes

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Objective: To explore the impacts of emergency laparoscopic appendectomy on pancreatic endocrine function in type 2 diabetic patients, and compare with open operation in order to provide evidences about choice of operation method for type 2 diabetic patients with abdominal emergency surgical.

Methods: To choose 76 cases of type 2 diabetic patients with acute suppurative appendicitis, According to the different operation methods, they are divided into two groups as follow: 41 cases in laparoscopic surgery group (group A), 35 cases in laparotomy surgery group (group B). Respectively testing the changes of patients' blood glucose, serum insulin and C peptide in 15 min before the surgery (T1), 15 min intraoperative period (T2), 30 min intraoperative period (T3), 30 min after surgery, analysis of the effect of different operation methods on the changes of blood glucose, serum insulin, serum C peptide with patients (T4).

Results: The levels of blood glucose, serum insulin and C peptide of A, B two groups in T1, T2 and T3 are higher, but the levels in T4 is declined. In T2, T3 period, increased of blood glucose, serum insulin, serum C peptide in laparoscopic operation group by small steps compared with open operation group; The difference was statistically significant ($P > 0.05$).

Conclusion: Emergency laparoscopic appendectomy has little effect on pancreatic endocrine function, the indexes in laparoscopy group fluctuate less than the open surgery group, may be beneficial for patients with pancreatic endocrine function of protection from diabetes

Keywords: laparoscopic; endocrine; surgery; diabetic

Laparoscopic hepatectomy is associated with a higher incident frequency in hepatolithiasis patients

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Purposes: The primary concern regarding laparoscopic hepatectomy in hepatolithiasis patients is surgical safety, which may be high in current practice.

Methods: Hepatolithiasis patients who underwent laparoscopic and laparotomic hepatectomies were retrospectively studied after being matched for age, location of gallstones, liver resection, and underlying liver conditions at a ratio of 1: 1 (n = 44 in each group). The rates of intraoperative incidents and postoperative complications were examined using validated classification and grading systems. The primary outcome measure was the procedure-related complication/mortality rate.

Results: Laparoscopy was converted to open surgery in three patients (6.8%). The length of the operation for laparoscopic hepatectomy was significantly longer than that for laparotomic hepatectomy (277.5 min [range, 190–410 min] vs. 212.5 min [140–315 min], $P < 0.001$). The two groups had similar intraoperative blood loss (367.5 mL [150–1200 mL] vs. 392.5 mL [200–1400 mL], $P > 0.05$) and transfusion frequencies (13.6% vs. 18.2%, $P > 0.05$). The laparoscopy group had a higher percentage of patients with at least one intraoperative incident compared with the laparotomy group (22.7% vs. 6.8%; $P < 0.05$). Vascular events occurred in nine patients (20.5%) undergoing laparoscopy and two patients (4.5%) undergoing laparotomy (OR, 5.4 [95%CI, 1.1–26.7], $P < 0.05$).

Conclusions: Laparoscopic hepatectomy is associated with a higher risk of intraoperative vascular incidents in hepatolithiasis patients compared to laparotomy.

Keywords: Hepatolithiasis; hepatectomy; laparoscopy; laparotomy; intraoperative incidents; case control

Laparoscopic right hemihepatectomy for liver diseases

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Objective: To assess our initial experience with laparoscopic right hemihepatectomy in treating liver diseases.

Methods: 11 patients who underwent right laparoscopic hemihepatectomy between 2006 and 2014 were included in this retrospective study.

Results: Among the total 11 operations: one case was hand-assisted with small incision; one case was converted to open surgery and 9 cases were totally laparoscopic procedures, of which 6 patients underwent traditional approach and 3 patients underwent an anterior approach. The surgical time was 270–549 min [mean, 366.4 ± 81.6]. Operating time for dissecting hepatic porta was 30–75 min [mean, 52.5 ± 15.7]. Operating time for liver

resection was 60–160 min [mean, 117.8±35.9]. Operative blood loss was 600–3000 ml [mean, 1240.7 ± 772.0]. The postoperative ALT level increased by 302–557U/L [mean, 385.6±85.4], and decreased to a normal level in 5–11 days [mean, 7.1±2.0]. The postoperative hospital stay was 8–18 days [mean, 11.4±2.7]. The postoperative time for ambulation, diet and flatus was 2–4, 1–4 and 2–4 days respectively. There were no serious complications in this series.

Conclusion: Our experience demonstrated that the laparoscopic right hemihepatectomy was safe and efficient in treating liver diseases.

Keywords: laparoscopic right hemihepatectomy; Liver diseases

Diagnosis and treatment of infantile hemangioma of the liver in adults: report of 7 cases

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Objective: To summarize the main clinical and pathological features of the infantile hepatic hemangioendothelioma (IHHE) in adults and to improve the level of diagnosis and treatment of the disease.

Methods: From January 2003 to December 2013 at Eastern Hepatobiliary Surgery Hospital in Shanghai, a total of 10 patients were underwent surgical resection for IHHE. The clinical and pathological features of 7 adult patients were retrospectively analyzed, except for 3 child patients.

Results: Routine blood tests, including those for tumor markers, hepatitis B surface antigen, were normal. All patients were positive for CD34. All preoperative imaging examination show solitary lesion, but preoperative diagnosis remains unclear. 5 patients were asymptomatic. All patients were followed up regularly, showed no tumor recurrence until August 2014.

Conclusion: IHHE in adults is extremely rare. Without hepatitis Background and tumor markers were negative, combined with CT and MRI findings, excluding cavernous hemangioma, diagnosis can be considered in an adult.

Keywords: Hemangioendothelioma; Hepatic neoplasm; Adult; Pathology; Clinical; analysis

Late infection of pancreatic necrosis: a separate entity in necrotizing pancreatitis with low mortality

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Background & Objective: Several studies have examined on the timing of the onset of infected necrosis and organ failure. The duration of these two complications and the effects of different durations of these two complications have not been mentioned.

Our aim was to investigate the durations of these two complications and the corresponding effects of the different durations.

Methods: A post-hoc analysis was performed on a prospective database containing 578 patients with necrotizing pancreatitis. The patients who received intervention were divided into subgroups based on different durations of the two complications, and the outcomes were compared.

Results: A total of 578 patients with pancreatic necrosis or only peripancreatic necrosis were included. Intervention was performed in 283 of the 578 patients. Organ failure occurred at a median of 4 days after onset, and most occurred within 14 days (86%). Infected necrosis occurred at a median of 27 days after onset, and most occurred after 14 days (99%). The mortality rate in patients with late infection (occurred after 30 days) was lower than in the early (infection occurred within 30 days) group (3% vs. 22%, $P < 0.05$). The mortality rates were 44% in patients with organ failure that persisted until first intervention and 8% in patients without preoperative organ failure ($P < 0.001$). The mortality rate in patients with long duration (>7 days) of organ failure before intervention was higher than in patients with short duration (≤ 7 days) of organ failure (31/99 vs. 18/184; $P < 0.001$). Patients who died had significantly higher preoperative modified Marshall score [median and range: 5 (0–10) vs. 1 (0–7); $P < 0.001$] and longer duration of organ failure before intervention [median and range: 15 days (0 day to 59 days) vs. 5 days (0 day to 73 days); $P < 0.001$] than survivors (Table 4). Patients who died had similar duration of infected necrosis before intervention [median and range: 8 days (0 day to 15 days) vs. 7 days (0 day to 14 days); $P = 0.49$] with survivors.

Conclusion: Patients with late infection of pancreatic necrosis showed significantly better prognosis than patients with early infection. The duration of organ failure before intervention was correlated with mortality of necrotizing pancreatitis.

Keywords: acute pancreatitis; duration; infection; organ failure

Clinical application of precise liver resection techniques in surgical treatment for giant hepatic hemangioma

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Objective: To evaluate the clinical value of precise liver resection in the surgical treatment for giant hepatic hemangioma.

Methods: Between Jan 2002 and Jan 2014, 123 patients with giant hepatic hemangioma were included in the study. 63 patients received conventional surgery; others received resection with precise liver resection techniques combined autologous blood transfusion and controlled low central venous pressure. The results were analysed with student t test, Wilcoxon rank sum test, χ^2 test and Fisher's exact test.

Results: Blood loss, autologous blood transfusion rate, major morbidity and hospital stay significantly were less in group with precise liver resection ($P < 0.05$). However, There was no difference between the two groups about mean operation time and symptoms remission rate.

Conclusions: Using autologous blood transfusion techniques and controlled low central venous pressure, Patients with

giant hepatic hemangioma can have a good prognosis with precise liver resection.

Keywords: Precise liver resection; Hepatic hemangioma; Autologous blood transfusion; Controlled low central venous Pressure

Machine perfusion vs cold storage of livers: A meta-analysis

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Aim: A meta-analysis of organ preservation in pig and rat models was conducted to determine the advantages of machine perfusion.

Methods: We compared the outcomes in experimental models receiving donation after cardiac death (DCD) livers preserved using machine perfusion (MP) or static cold storage (CS) preservation by conducting a systematic review and meta-analysis. The PubMed, EMBASE and Medline databases were searched by us. All studies that reported outcomes including MP vs CS preservation were further considered for inclusion in the meta-analysis. In this study involving two animal species, a standardized mean difference (SMD) and a 95% confidence interval (CI) were calculated to compare the pooled data between groups that underwent preservation via MP or CS prior to liver transplantation.

Results: A total of 24 studies involving MP preservation in two species (rat and pig) were included in the meta-analysis. The MP preservation of livers obtained from DCD donors can reduce the levels of AST, ALT, LDH, and hyaluronic acid (HA); decrease changes in liver weight; and increase the bile production and portal vein flow (PVF) synchronously by standardized mean (95% confidence interval) differences of -1.56 (-2.02-1.11), -2.22 (-3.01-1.43), -1.71 (-2.58-0.84), -1.92 (-3.01-0.82), -1.74 (-3.23-0.24), 1.10 (0.01-2.18), and 1.38 (0.39-2.38), respectively, compared to CS preservation. However, no significant differences were observed in the levels of ALP and histologic changes between the two preservation methods using standardized mean (95% CI) differences of -0.17 (-0.96-0.61) and -1.04 (-3.13-1.04), respectively. Funnel plots of these data suggested that there was no statistical evidence of publication bias among the studies.

Conclusion: MP preservation of DCD livers is superior to CS in experimental animals with respect to reducing hepatocellular, biliary epithelial and sinusoidal endothelial cell damage.

microRNA-34a inhibits epithelial mesenchymal transition in human cholangiocarcinoma by targeting Smad4 through transforming growth factor-beta/Smad pathway

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Background: Extrahepatic Cholangiocarcinoma (EHCC) is one of the uncommon malignancies in the digestive system which is characterized by a poor prognosis. Aberrations of miRNAs have been shown involved in the progression of this disease. In this study, we evaluated the expression and effects of miR-34a on EHCC.

Methods: miR-34a expression levels were detected in EHCC tissues, normal bile duct (NBD) specimens of patients and Cholangiocarcinoma(CC) cell lines by quantitative Real-Time polymerase chain reaction (qRT-PCR). Relationships between miR-34a with clinical characteristics of EHCC patients were further analyzed. Computational search, functional luciferase assay and western blotting were further used to demonstrate the downstream target of miR-34a in CC cells. Immunohistochemistry was carried on to identify the downstream target gene of miR-34a in EHCC patients. Cell invasion and migration assays were further applied to confirm the anti-carcinogenesis effects of miR-34a through the downstream target.

Results: miR-34a expression was significantly decreased in human EHCC tissues and CC cell lines when compared with the normal bile duct tissues. miR-34a is found correlated with the migration and invasion in EHCC patients. Smad4 is over-expressed in most of the EHCC patients and is further demonstrated as one of the downstream targets of miR-34a, which is involved in the progression of EHCC. Moreover, activation of miR-34a suppresses invasion and migration through TGF- β /Smad4 signaling pathway by epithelial-mesenchymal transition (EMT) in vitro.

Conclusions: Taken together, our results suggest that miR-34a inhibits invasion and migration by targeting Smad4 to suppress EMT through TGF- β /Smad signaling pathway in human EHCC.

Keywords: Cholangiocarcinoma; miR-34a; Smad4; epithelial-mesenchymal transition; Transforming growth factor-beta

The application of MR diffusion-weighted imaging in differentiating pancreatic carcinoma from mass-forming pancreatitis

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Objective: To investigate the value of MR diffusion-weighted imaging (DWI) in differentiating pancreatic carcinoma from mass-forming pancreatitis.

Methods: 15 patients with pancreatic carcinoma (group A), 15 cases with mass-forming pancreatitis (group B) and 31 normal volunteers (group C) underwent routine MRI and echo-planar DWI (EPI/DWI) using b value of 1000s/mm²/s. Signal intensities on DWI were compared between three groups and apparent diffusion coefficient (ADC) values of three group were calculate and qualitatively analyzed comparatively among group.

Results: The ADC values were (1.84±0.05) ×10⁻³mm²/s, (1.99±0.14) ×10⁻³mm²/s, (1.38±0.23) ×10⁻³mm²/s in group A, B and C, respectively. The ADC values of group B was higher than that of group C (t=5.13, P<0.05).

Conclusion: DWI provides an important supplement to the routine MRI in differentiating pancreatic carcinoma from mass-forming pancreatitis.

Keywords: pancreas; pancreatic carcinoma; pancreatitis; MR imaging

Nab-paclitaxel plus S-1 showed increased anti-tumor activity in patient-derived pancreatic cancer xenograft mouse models

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Purpose: To investigate the antitumor activity of nab-paclitaxel plus S-1 in patient-derived pancreatic cancer xenograft mouse models, and to explore biomarkers that could predict drug efficacy.

Methods: Human pancreatic cancer tissues were implanted into nude mice, and the xenografted tumors were passaged and expanded. The 3rd generation tumor-bearing mice were randomized into four treatment groups: (1) control; (2) S-1; (3) nab-paclitaxel; (4) S-1 plus nab-paclitaxel. Resected tumors were tested by immunohistochemistry for the expression of thymidylate synthase (TS), orotate phosphoribosyltransferase (OPRT), dihydropyrimidine dehydrogenase (DPD), secreted protein that is acidic and rich in cysteine (SPARC), human epidermal growth factor receptor-2 (HER2), collagen-1 and CD31.

Results: Tumor growth inhibition (TGI) of S-1 group, nab-paclitaxel group, and combination group was 69.52%, 86.63%, 103.56%, respectively ($P < 0.05$). The efficacy of S-1 is better in TS negative, OPRT positive, and DPD negative tumors. The efficacy of nab-paclitaxel is better in HER2 positive tumors. Collagen-1 was decreased, and CD31 was increased in tumors treated with nab-paclitaxel and S-1 plus nab-paclitaxel compared with control or S-1.

Conclusions: This preclinical study showed that S-1 plus nab-paclitaxel exerted significantly better antitumor activity than S-1 or nab-paclitaxel alone. TS, OPRT, and DPD were possibly biomarkers of S-1, and HER2 of nab-paclitaxel.

Keywords: Pancreatic neoplasms; Drug therapy; Animal model; Biological markers

Neuropilin-1 expression in gallbladder carcinoma and its implications for tumor progression

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Objective: To investigate the expression and mechanism of Neuropilin-1 in gallbladder carcinoma, and explore its correlation with prognosis.

Methods: A total of 91 patients with gallbladder carcinoma, 60 patients with acute cholecystitis and 60 patients with chronic cholecystitis in the First Affiliated Hospital of Xi'an Jiaotong University from Jan 2008 to Jan 2013 were collected. SP immunohistochemical method was used to detect the expression of neuropilin-1 protein in these patients. Statistical analysis of correlation between the expression of NRP-1 and clinical features and prognosis was made.

Results: The expression of NRP-1 in gallbladder carcinoma was higher than those in acute cholecystitis and chronic cholecystitis ($P < 0.05$). NRP-1 mainly expressed in the surface of cancer cells, it may act as a co-receptor of TGF- β . The expression of NRP-1 was closely related with the tumor grades and AJCC staging. Kaplan-Meier survival analysis showed that NRP-1 expression related with the prognosis of patients ($P < 0.05$), COX multivariate analysis confirmed that the expression of NRP-1 had independent prognostic significance ($P < 0.05$).

Conclusion: NRP-1 is associated with the occurrence and development of gallbladder, it can be used as an auxiliary index to judge prognosis.

Keywords: Neuropilin-1; Gallbladder carcinoma; prognosis

NEW RECOGNIZATION OF THE NATURAL HISTORY AND GROWTH PATTERN OF HEPATIC HEMANGIOMA IN ADULTS: A COHORT STUDY

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Background & Aim: Surgical indications for hepatic hemangiomas are still not clearly defined due to limited data on their natural history. This prospective cohort study aimed to investigate the natural history and growth pattern of hepatic hemangioma in adults.

Methods: From April 2010 to March 2013, adult patients with hepatic hemangioma who had no prior treatment were enrolled. A routine follow-up was performed to observe the natural history and the tendency to cause complications of the lesions.

Results: A total of 236 patients were enrolled in the study. The median size of hemangiomas was 4.5 cm (range 0.6–19.2 cm). During a median follow-up period of 48 months (range 3–266 months), 61.0% patients had hemangiomas increased in size, 23.7% patients had stable lesions, and 8.5% patients had hemangiomas decreased in size. The peak growth period of hemangiomas was in patients < 30 years age (0.46 ± 0.41 cm per year) and the growth rate decreased significantly after 50 years of age (0.21 ± 0.40 cm per year). Hemangiomas with size < 2 cm had the lowest growth rate (0.16 ± 0.42 cm per year). The peak growth rate of hemangiomas size was 8–10 cm (0.80 ± 0.62 cm per year), then decreased rapidly to 0.47 ± 0.91 cm per year while the hemangiomas > 10 cm. Only 9 patients had severe symptoms caused by

hemangioma. No patients presented with hemangioma-related complications.

Conclusions: Majority of hepatic hemangiomas have the tendency to increase in size but rarely cause complications. All the hemangiomas can be safely managed by observation, and surgery is only considered for patients with severe complications.

Open Right Hemicolectomy: Lateral to medial or medial to Lateral Dissection?

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Background: Despite the uptake of minimal access techniques, it has not become universal, and many established specialist surgeons continue to perform open surgery with excellent outcomes. However, no manuscript was found that compared the clinical outcomes of the lateral to medial and medial to lateral dissection for open right hemicolectomy. Therefore, the present study aimed to compare the surgical outcomes between the two approaches in open right hemicolectomy.

Methods: From June 2008 and June 2012, 531 patients who underwent open right hemicolectomy with pathologically confirmed met the eligibility criteria of the study. The population was divided into 2 groups: right hemicolectomy using a lateral approach (RL); right hemicolectomy using medial approach (RM). 327 patients who was performed right hemicolectomy by RL, and right hemicolectomy by RM was performed in 204 patients. Patients in the RL group were randomly matched to patients who underwent RW using a multivariate case-matched method, so 300 patients in the RL group and 150 patients in the RM group were enrolled into the study. We compared the two groups in terms of clinicopathological characteristics, operation time, operative blood loss, postoperative hospital stays, Number of lymph nodes harvested, Number of lymph nodes metastasized, postoperative TNM staging, recovery variables (bowel sounds, passage of gases, wound infection), recurrence pattern, 3-year survival and 5-year survival.

Results: A total of 450 patients were evaluated: RL: 300 (66.7%); RM: 150 (33.3%); No differences in recovery parameters were observed between the right hemicolectomies. The operation time and blood loss were significantly less when a medial approach was used for right hemicolectomy (RL: 166.39 min vs RM: 139.53 min, $P < 0.05$; RL: 62.7ml VS RM: 53.9 ml; $P < 0.01$). No differences in the number of lymph nodes harvested and metastasized were found between lateral and medial approach in right hemicolectomy. No differences in the post-operative TNM staging were found. The patients received medial to lateral approach operation were achieved better survival rate when compared with those received lateral to medial approach.

Conclusions: The use of a medial approach in open right hemicolectomy provides short-term and less operative blood less benefits compared with a lateral approach; moreover, it gives oncologic results similar to those achieved with a lateral approach.

Keywords: colorectal cancer; right hemicolectomy; medial approach; lateral approach

The efficacy evaluation for pancreatic uncinate process resection by using the robotic operation system

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Objective: To discuss and evaluate the clinical effects of pancreatic uncinate process resection by using the robotic operation system.

Methods: 6 patients who underwent pancreatic uncinate process resection were analyzed retrospectively in our hospital from December 2010 to December 2013.

Results: All the cases were finished successfully with no further conversion to laparotomy. The average age was 51.7 years old (40–64), 3 patients were male and 3 were female; the average operation time was 143.3 min (100–200min); the average bleeding during surgery was 80ml (30–150ml); the average hospital stay after surgery was 23.8d(13–44d); 2 patients suffered pancreatic leak(grade B) while 1 patient suffered pancreatic leak(grade C) and pulmonary infection, but no patient died. The pathology results were as follows: 4 IPMN, 1 islet cell tumor and one was SPT. During current follow up from 2 months to 2 years, there was no rehospitalization or reoccurrence of tumors.

Conclusion: Pancreatic uncinate process resection by using robotic operation system is safe process of surgery with a high success rate. Compared with open and laparoscopic surgery, it has more advantages. However, the occurrence rate of pancreatic fistula after surgery is still high.

Keywords: Pancreatic uncinate process tumors DaVinciTM robotic operation system Local resection

The experimental study on different suture way and suture material for the influence of the gallbladder wall repair

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Objective: To explore the influence of different suture way and different suture material for gallbladder wall repair.

Methods: 12 health experiment beagle, male and female unlimited, weight between 10 to 13 kg, randomly divided into 2 groups. cutting gallbladder full-thickness in gallbladder different locations and suturing on different stitching way and suture material, respectively. Among them, the absorbable suture group 6: the gallbladder wall discontinuous seromuscular suture and gallbladder wall discontinuous full-thickness suture. The ordinary silk suture group 6: the gallbladder wall discontinuous full-thickness suture. Postoperation 10 days, we observe tissue repair on the stitching. HE staining and immunohistochemical observation of proliferating cell nucleus antigen (PCNA) and alpha smooth muscle actin (alpha SMA) from the experiment beagle gallbladder wall stitching tissue.

Results: (1) The experiment beagle with different stitching way and suture material, tissue repair of gallbladder wall was better. (2) the ordinary silk suture group compared with the absorbable suture group, the gallbladder wall repair was complete but the inflammatory response was heavier and the presence of small amounts of necrotic tissue. (3) On the absorbable suture group, the discontinuous seromuscular suture compared with the discontinuous full-thickness suture, gallbladder wall repair was complete, inflammation is lighter. (4) The ordinary silk suture group compared with the absorbable suture group, the gallbladder wall thickness was increases from repair healing and has significant difference. (5) The ordinary silk suture group compared with the absorbable suture group, PCNA positive cell rate and alpha SMA were increased and has significant difference.

Conclusion: The experiments study show that the gallbladder wall the discontinuous seromuscular suture is a safe and effective suture way. The absorbable suture material is better than the ordinary silk suture material.

Keywords: Gallbladder; Absorbable Suture Material; Animal Experiment

Postoperative hepatitis B virus reactivation and surgery-induced immunosuppression in patients with hepatitis B-related hepatocellular carcinoma

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Purpose: To find out the relationship between postoperative immunosuppression and hepatitis B virus (HBV) reactivation (PHR) in hepatocellular carcinoma (HCC) patients who treated with hepatectomy.

Methods: In this prospective study, 135 patients scheduled for hepatic resection to treat HBV-related HCC were analyzed for immunosuppression and PHR. As a control group, 45 patients who were scheduled for resection to treat hepatic hemangioma were analyzed in the same way.

Results: Of the HCC patients, 26 (19.3%) suffered PHR. The following were identified as significant risk factors for PHR: HBV-cAg S1 positivity [hazard ratio (HR) = 404.82, $P=0.004$], high preoperative total bilirubin level (HR=186.38, $P=0.036$), small preoperative proportions of CD3-CD16+CD56+ T cells (HR=0.01, $P=0.014$) and CD19+ B cells (HR=0.02, $P=0.016$), blood transfusion (HR=157.03, $P=0.006$) and high liver cirrhosis S score (HR=270.45, $P=0.004$). On postoperative day 3, the lymphocyte profile for PHR patients indicated decreased much larger immune function than the profile for non-PHR patients (T cells: CD3+, CD3+CD4+, CD3+CD8+; B cells: CD19+; IgG, IgA, C3, C4). By postoperative day 7, the lymphocyte profile of PHR patients had improved but not faster than in the non-PHR group (T cells: CD3+, CD3+CD4+, CD3-CD16+CD56+; IgM, C3; C4; CRP).

Conclusion: PHR may be associated with resection-induced immunosuppression in HCC patients. Preoperative antiviral therapy may be useful for reducing the risk of PHR and improve postoperative immune function in HBV-related HCC patients.

Keywords: Hepatocellular carcinoma; hepatitis B virus; postoperative reactivation; surgery; immune function

The Expression and Clinical Significance of S100A9 Protein in Gallbladder Carcinoma

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Objective: To investigate the expression and clinicopathologic significance of S100A9 protein in gallbladder carcinoma(GBC).

Method: The paraffin specimens were collected from the First Affiliated Hospital of Nanchang University, including 64 cases of GBC tissues, 42 cases of chronic cholecystitis tissues and 15 cases of normal tissues.Expression of S100A9 protein in different gallbladder tissues were detected by using SP immunohistochemistry(IHC), and the relationship between S100A9 protein expression and the clinicopathologic parameters of GBC was analyzed by SPSS19.0.

Results: The expression level of S100A9 protein was clearly up-regulated in GBC compared with the non cancerous tissue($P<0.05$). The S100A9 expression level in GBC was correlated with TNM stage, histologic differentiation and LN metastasis ($P<0.01$ or $P<0.05$), but not correlated with the patient age and gender ($P>0.05$).

Conclusion: S100A9 may play an important role in the occurrence, development, invasion and metastasis of GBC. Measurement of S100A9 expression could be a tool for early detection of GBC in benign lesions as well as population screening, and the development of gene therapy to target S100A9 can be applied to GBC and may hold promise to improve patient survival.

Keywords: S100A9; Gallbladder cancer; Immunohistochemistry; Tumor markers

Postoperative hepatitis B virus reactivation in hepatitis B-related hepatocellular carcinoma in patients with preoperative undetectable HBV-DNA levels

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Purpose: This study aimed to clarify the incidence of postoperative hepatitis B virus (HBV) reactivation (PHR) and its risk factors in hepatocellular carcinoma (HCC) patients with preoperative HBV-DNA levels <500 IU/mL. Thus, to figure out the significance of antiviral therapy on liver function recovery after hepatectomy.

Methods: In this prospective study, 74 patients with preoperative HBV-DNA levels <500 IU/mL scheduled for hepatectomy to treat HBV-related HCC were analyzed.

Results: Of the 74 HCC patients enrolled, 16 (21.6%) HCC patients suffered PHR. Among 54 HCC patients who were not given preoperative antiviral therapy, 15 (27.0%) patients suffered

PHR. While only 1 patient suffered PHR among 20 HCC patients who were given preoperative antiviral therapy. The following were identified as independent risk factors for PHR: resection margin less than 1.0 cm [Odds Ratio (OR) = 0.003, $P=0.016$], no preoperative antiviral therapy (OR = 13.952, $P=0.027$). Albumin ($P=0.016$), alanine aminotransferase ($P=0.048$) for PHR patients indicated a slower recovery than non-PHR patients. Patients with preoperative antiviral therapy had a faster recovery of albumin ($P=0.035$).

Conclusion: Resection margin less than 1.0 cm and no preoperative antiviral therapy were risk factors contributed to PHR. PHR was common found after hepatectomy in HBV-related HCC patients with preoperative HBV-DNA levels < 500 IU/mL. Preoperative antiviral therapy could significantly decrease the incidence of PHR, which may also improve liver function than patients without preoperative antiviral therapy as well.

Keywords: Hepatocellular carcinoma; hepatitis B virus; postoperative reactivation; entecavir; antiviral therapy.

Predicting early allograft dysfunction and survival after living donor liver transplantation: the role of the postoperative cholesterol

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Aim: Many studies have confirmed that serum cholesterol concentration was associated with underlying liver damage and reflected the synthesis capacity of liver. However, the role of cholesterol level on evaluating graft function and predicting survival has not been discussed.

Methods: A total of 231 consecutive recipients who underwent living donor liver transplantations from May 2002 and January 2014 were included in our study. Patients were stratified into cholesterol < 1.42 mmol/L group (57 recipients) and cholesterol ≥ 1.42 mmol/L group (174 recipients) according to the serum cholesterol level on postoperative day 3 based on receiver operating characteristic curve analysis. The clinical characteristics and postoperative short-term and long-term outcomes were compared between the two groups.

Results: Recipients with cholesterol < 1.42 mmol/L experienced more severe preoperative disease conditions, a higher incidence of postoperative early allograft dysfunction (38.5% vs 10.3%, $P < 0.001$), 90-day mortality (28.1% vs 10.9%, $P = 0.002$) and severe complications (29.8% vs 17.2%, $P = 0.041$) compared to recipients with cholesterol ≥ 1.42 mmol/L. The multivariate analysis found that cholesterol < 1.42 mmol/L had a 4.08-fold (95% CI, 1.83–9.11, $P = 0.001$) and 2.72-fold (95% CI, 1.23–6.00, $P = 0.013$) greater risk of developing early allograft dysfunction and 90-day mortality, but was not a risk factor for severe complications. Patients with TC < 1.42 mmol/L had poorer overall recipient and graft survival rates at 1-, 3-, and 5-year than patients with TC ≥ 1.42 mmol/L (67%, 61% and 61% vs 83%, 71%

and 69%, $P = 0.025$; 65%, 59% and 59% vs 81%, 68% and 66%, $P = 0.026$, respectively). Cox multivariate analysis showed that TC < 1.42 mmol/L was an independent predicting factor for total recipient survival (HR = 2.043, 95% CI, 1.173–3.560, $P = 0.012$) and graft survival (HR = 1.905, 1.115–3.255, $P = 0.018$).

Conclusion: TC < 1.42 mmol/L on postoperative day 3 was an independent risk factor for postoperative early allograft dysfunction, 90-day mortality, recipient and graft survival. It reflected the synthesis capacity of the graft and was a precise marker for postoperative short-term and long-term outcomes.

The favorable value of TGF- β 1 and ELF in hepatocellular carcinoma

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Background: Tumor suppression of Transforming Growth Factor (TGF- β) signaling pathway requires an adaptor protein, Embryonic Liver Fodrin (ELF). Disruption of ELF expression resulted in mislocalization of Smad3 and Smad4, then disruption of TGF- β signaling. However, the prognostic significance of ELF for hepatocellular carcinoma (HCC) hasn't been clarified. This study aimed to investigate whether measuring both TGF- β 1 and ELF provides a more powerful predictor for HCC prognosis than either marker alone.

Methods: TGF- β 1 and ELF protein were detected by immunohistochemistry. The relationship between TGF- β 1/ELF expression and patients' clinicopathologic factors was analyzed. The association between TGF- β 1/ELF expression and disease-free survival and overall survival was analyzed by Kaplan-Meier curves, the log-rank test, and Multivariate Cox regression analyses.

Results: The expression of TGF- β 1 in HCC tissues was significantly higher than that in normal liver tissues. Conversely, the expression of ELF in HCC tissues declined markedly. ELF protein was correlated with HBsAg, tumor size, tumor number, TNM and recurrence. Data also indicated a significant negative correlation between ELF and TGF- β 1. Patients with high TGF- β 1 expression or/and low ELF expression appeared to have a poor postoperative disease-free survival and overall survival compared with those with low TGF- β 1 expression or/and high ELF expression. Furthermore, the predictive range of ELF combined with TGF- β 1 was more sensitive than that of either one alone.

Conclusions: TGF- β 1 and ELF protein are potential and reliable biomarkers for predicting prognosis in HCC patients after curative resection. Our current study is the first to demonstrate that prognostic accuracy of testing can be enhanced by their combination.

Keywords: transforming growth factor; embryonic liver fodrin; hepatocellular carcinoma; prognosis; biomarkers

Preoperative assessment of hilar cholangiocarcinoma by 18F-FDG PET/CT

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Objective: The purpose of the current study was to evaluate the value of 18F-FDG PET/CT in staging hilar cholangiocarcinoma.

Methods: 30 patients who were evaluation for hilar cholangiocarcinoma by PET/CT were retrospectively analyzed. The study analyzed the operative and pathological results in each case for tumor-node-metastasis staging and the number of SUVmax. Results: 14(46.7%) patients were underwent radical surgery, 16(53.3%) were accepted palliative operation or PTBD treatment. 4(13.3%) of them were proved to be cystic duct carcinoma which infiltrate hilar. Sensitivity and specificity for the detection of tumor, regional lymph node metastases and distant metastases were 100.0% and 0%, 62.5% and 90.0%, and 66.7% and 85.0% respectively. The SUVmax in the primary tumor was not significantly ($P > 0.05$) in each case for tumor-node-metastasis staging.

Conclusions: PET/CT imaging was found to count for detection of lymph node and distant metastasis in hilar cholangiocarcinoma, for some patients could avoid surgical exploration, and the numbers of SUVmax of different staging tumors were not significantly.

Keywords: Hilar cholangiocarcinoma; positron emission computed tomography; tumor staging

Preoperative neutrophil-to-lymphocyte ratio predicts recurrence of patients with single nodule small hepatocellular carcinoma following curative resection

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Background: Preoperative neutrophil-to-lymphocyte ratio (NLR) has been identified as a predictor for the recurrence of hepatocellular carcinoma (HCC), but the cut-off of NLR is inconsistent in various studies. We investigated the prognostic value of preoperative NLR in the single nodule small HCC (SHCC) patients after curative resection.

Methods: Using X-tile for cutpoint, the prognostic roles of preoperative NLR were examined in a total of 222 single nodule SHCC patients underwent curative resection.

Results: All patients were divided into the low-NLR subgroup ($NLR \leq 2.1$) and the high-NLR subgroup ($NLR > 2.1$) by X-tile. Preoperative NLR showed predictive value for time to recurrence (TTR) and overall survival (OS). Moreover, NLR was associated with age, total bilirubin, white blood cell counts and HBsAg,

respectively ($P = 0.049, 0.012, < 0.001$ and 0.011 , respectively). Furthermore, NLR could discriminate the outcomes of patients in the subgroups with alpha-fetoprotein (AFP) levels of ≤ 400 ng/ml. Importantly, postoperative transcatheter arterial chemoembolization (TACE) had close relationship with OS ($P = 0.001$) and TTR ($P = < 0.001$).

Conclusions: Therefore, Preoperative NLR, divided by X-tile for the cutpoint, was a simple prognostic marker for the patients with single nodule SHCC after curative resection. Postoperative TACE might be an effective adjuvant treatment algorithm for the single nodule SHCC patients.

Keywords: liver cancer; inflammation; neutrophil; lymphocyte; prognosis

The impact of combined vascular resection and analysis of prognostic factors for hilar cholangiocarcinoma: a single-center experience

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Aim: To evaluate the safety and efficacy of vascular resection and to analyze prognostic factors in the surgical management of hilar cholangiocarcinoma (HCCA)

Methods: From January 2005 to December 2012, 164 HCCA patients underwent surgical exploration in our institution. Clinicopathological data and surgical outcomes were retrospectively analyzed. The patients were divided into three groups based on vascular resection: group 1: patients without vascular resection; group 2: patients with portal vein resection alone; and group 3: patients with hepatic artery resection. The survival and complication rates were compared among these groups. Univariate and multivariate analysis were performed to determine critical prognostic factors.

Results: Among the 164 patients, 30 patients were unresectable, and 134 patients underwent tumor resection with or without hepatectomy. Twenty patients underwent combined portal vein or hepatic artery resection and reconstruction. The 1-, 3-, and 5-year survival rates were 79.4%, 56.2%, and 35.7%, respectively, in group 1; 62.5%, 46.3%, and 31.3%, respectively, in group 2; and 63.6%, 40.9%, and 27.3%, respectively, in group 3 ($P = 0.735$). No significant differences were found among the three groups with regard to survival and complication rates ($p > 0.05$). Multivariate analysis showed 3 adverse factors related to survival: lymph node metastasis, tumor size (> 2.5 cm), and a positive resection margin.

Conclusion: Combined resection and reconstruction of the hepatic artery and/or portal vein in HCCA patients is a safe procedure that improves survival. Lymph node metastasis, tumor size > 2.5 cm and a positive resection margin were vital poor prognostic factors in HCCA patients.

Keywords: vascular resection; hilar cholangiocarcinoma; prognosis

The impact on the proliferation of liver cancer cells by RNA interference-induced downregulation of ADAR1

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Objective: To observe The impact on the proliferation of liver cancer cells by RNA interference-induced down-regulation of ADAR1.

Methods: Small interfering RNA(siRNA) was transfected into liver cancer cell SMMC-7721.The effects on ADAR1 expression were detected with RT-PCR and western blotting. Cellular proliferation was determined by methyl thiazol tetrazolium(MTT) assay.

Results: After cell transfected by 24, 48, 72h, the ADAR1 mRNA expression in experimental group were 0.592 ± 0.086 , 0.264 ± 0.018 , 0.486 ± 0.063 , significantly lower compared with other groups($P<0.05$); there was no statistically significant difference between the control and blank groups($P>0.05$). ADAR1 protein expression in the experimental group were 68.4 ± 7.9 , 24.3 ± 4.2 , 41.7 ± 5.8 , statistically significant($P<0.05$); After transfection with siRNA, the proliferation ability of SMMC-7721 cells was enormously inhibited($P<0.05$).

Conclusion: ADAR1 mRNA and protein levels showed a significant decreased by RNA interference, proliferation of SMMC-7721 cells also significantly inhibited.

Keywords: RNA interference; ADAR1; Liver cancer

Preoperative prognostic nutritional index is an Independent Prognostic Factor for Hepatocellular Carcinoma After Hepatic Resection

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Background: The prognostic nutritional index (PNI), which is calculated based on the serum albumin concentration and peripheral blood lymphocyte count, is a useful tool for predicting short-term and long-term postoperative outcome in patients undergoing cancer surgery. However, few studies have investigated PNI in hepatocellular carcinoma (HCC) surgery. We aimed to determine whether PNI was prognostic in HCC following hepatic resection.

Methods: This retrospective study included 322 patients, who underwent resection for HCC. The prognostic nutritional status was calculated on the basis of admission data as follows: $10\times$ serum albumin (g/dl) + $0.005\times$ total lymphocyte count (per mm³). Preoperative PNI, demographics, and clinical and pathological data, disease free survival, overall survival were analyzed.

Results: Low PNI (≤ 45) correlated with age, BMI < 18.5 , Cirrhosis, complete tumor encapsulation, recurrence. In multivariate analysis, preoperative low PNI was an independent prognostic factor for survival, Kaplan–Meier analysis and the log rank test revealed that low PNI was significantly associated with poor survival. subgroup analysis showed PNI ≤ 45 predicted poor prognosis

whether HBV positive or not. But PNI ≤ 45 only predicted early recurrence and poor OS when cirrhosis was present

Conclusions: Preoperative PNI is a independent predictor of worse prognosis for patients with HCC after hepatic resection, especially for those with HBV infection

Primary culture and identification of cancer-associated fibroblasts in human gallbladder carcinoma

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Objective: To investigate the purification and identification of gallbladder cancer-associated fibroblasts(CAFs).

Methods: The primary gallbladder CAFs were obtained by tissue culture and digestion methods. The cells were purified by using differential sticking wall method, the primary cells were identified by morphological observation and immunocytochemistry.

Results: Gallbladder CAFs were isolated successfully by both tissue culture and enzyme digestion methods The primary cells expressed fibroblast marker Vimentin and activation marker α -SMA, also expressed vascular endothelial growth factor A (VEGFA).

Conclusion: The primary culture of gallbladder CAFs can be performed successfully, enzyme digestion methods is more convenient and efficient than tissue culture method.

Keywords: Gallbladder carcinoma; Cell primary culture; Cancer-associated fibroblasts

Primary proteomic studies of Solid pseudopapillary tumor of pancreas and searching for potential tumor markers using iTRAQ approach

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Abstract

Objective: Solid pseudopapillary tumor of pancreas (SPT) is a kind of low-grade malignant tumor. For SPT, The pathogenesis of the disease and tissue origin is still poorly understood at present. SPT related specific tumor biomarkers are also lack. Isobaric tags for relative and absolute quantitation (iTRAQ) is a novel technique for proteome analysis. These studies were in order to understand the different protein expression between SPT tissue and normal pancreatic tissue by using iTRAQ technique, and to explore the pathogenesis and potential tumor biomarker of SPT.

Methods: SPT tumor samples were obtained from nine patients suffering from SPT, each specimen including tumor tissues and normal pancreatic tissue was used as experimental specimen, and then we used iTRAQ technology integrated with liquid chromatography-tandem mass spectrometry (LC-MS/MS) analysis to identify differentially expressed proteins in SPT specimens. The studied proteins were blasted against KEGG genes

(human) to retrieve their KEGG orthology identifications and were subsequently mapped to pathways in KEGG

Results: A total of 1171 proteins with a threshold of a 1.5-fold change and a P value ≤ 0.05 between SPTP tissue and matched normal pancreas tissue were identified for bioinformatics analysis. We observed that many endoplasmic reticulum-associated proteins were altered. Four representative proteins (Msi2, DKK4, EPHX2, JUP) were identified by MS with significant difference.

Conclusions: This study established aniTRAQ technology integrated with LC-MS/MS approach for proteomic research of solid pseudopapillary tumor of pancreas. The endoplasmic reticulum stress may play an important role in SPTP tumorigenesis. Msi2, DKK4, EPHX2 and JUP could be considered as potential tumor markers.

Keywords: solid pseudopapillary tumor of pancreas; iTRAQ; pathogenesis; biomarker

The Comparison of Surgical Patients with Primary Hepatic Squamous Cell Carcinoma or Adenosquamous Carcinoma and Surgical Patients with hepatocellular carcinoma

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Purpose: There are still several controversies and ambiguities in the aspects of primary hepatic squamous cell carcinoma and primary hepatic adenosquamous carcinoma. To further clarify the specific features of these two infrequent diseases and provide beneficial propose for clinical decision, we did this retrospective study.

Methods: We reviewed the clinical features and outcomes of 3 primary hepatic squamous cell carcinoma (SCC) patients and 6 primary hepatic adenosquamous carcinoma (ASC) patients from January 1998 to December 2011 in Eastern Hepatobiliary Surgery Hospital in China. Meanwhile, 40 hepatocellular carcinoma (HCC) patients and 26 metastatic hepatic SCC or ASC patients who were hospitalized in the same period were also reviewed to make a comparison. In order to find out the definite survival information of SCC and ASC patients, 30 previous studies containing 37 primary hepatic SCC (16) and ASC (21) patients were reviewed, and their information of survival was analyzed together with the included patients in our hospital.

Results: Serum tumor markers showed significant differences between primary hepatic SCC/ASC and HCC patients, especially for serum alpha fetal protein (AFP) level and carbohydrate antigen 19-9 (CA 19-9). On the pathologic performance, primary SCC/ASC tumor was rarely accompanied with tumor capsule. They presented peripheral hepatic lymph node metastasis more likely, and showed low proportion of microvascular invasion. The median survival time of primary hepatic SCC/ASC patients after liver resection (LR) was 15 months. And the 1, 3, 5-year survival rates after LR were 60%, 24%, 12%. Significant difference was not discovered when compared them with HCC patients ($P=0.294$). The median survival time after LR for primary SCC and ASC patients was respectively 23 months and 13 months.

Conclusion: The comprehensive application of some clinical characteristics, histopathologic features and imaging findings may be useful for us in making definite diagnoses for primary hepatic SCC and ASC patients preoperation. And the treatment

of liver resection was effective for those patients who met the selection criteria for liver resection.

Keywords: hepatic squamous cell carcinoma (SCC); adenosquamous carcinoma (ASC); hepatocellular carcinoma (HCC)

The correlation of preoperative blood platelet count and prognosis of patients with hepatocellular carcinoma after hepatectomy

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Objective: Recently, several studies have demonstrated that blood platelet counts were closely related with the tumor growth and metastasis. However, the relationship between preoperative platelet and the prognosis of hepatocellular carcinoma (HCC) remains unresolved. The aim of this study is to elucidate the predictive value of preoperative blood platelet count in HCC patients under hepatectomy.

Methods: The clinical data of 172 HCC patients who received hepatectomy was retrospectively analyzed. The optimal platelet (PLT) cut-off was determined according to the receiver operating characteristic (ROC) analysis. All patients were divided into low PLT group and elevated PLT group according to the cutoff, and the clinical features of these two groups were comparatively analyzed using student's t test. Meanwhile, the overall survival (OS) and disease free survival (DFS) were analyzed using the Kaplan-Meier method and Log-rank test. The risk factors of postoperative survival and recurrence were also investigated using univariate and multivariate Cox regression analysis.

Results: 172 HCC patients treated with hepatectomy in our hospital was enrolled in this study. The PLT cutoff was determined at $157 \times 10^9/L$ according to the ROC curve analysis. 121 patients were in low PLT group, and 51 patients had an elevated PLT. The ascites ($P=0.027$) and portal vein tumor thrombosis ($P=0.042$) had statistical difference. Follow-up results showed that the median survival was 31 months (range: 1-120 months), the median disease-free survival was 20 months (range: 1-117 months). The median survival of patients with a low PLT was 35 months compared with 25 months of patients with an elevated PLT. The K-M curve and Log-rank test showed that 1-, 3-, 5-year survival rate ($\chi^2=10.172$, $P=0.001$) and the disease-free survival rate ($\chi^2=39.269$, $P<0.001$) has a significance difference ($\chi^2=4.52$, $P=0.033$). Multivariate Cox regression analysis showed that an elevated PLT was an independent factor affecting the survival rate of HCC after hepatectomy ($P=0.003$).

Conclusion: Preoperative PLT count was an important prognostic factor to predict prognosis of patients with hepatectomy.

Keywords: hepatocellular carcinoma; platelet count; liver resection; prognosis

The Down-regulation of PDGF-D in The Process from Fibrosis to Hepatocellular carcinoma

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Objective: the platelet-derived growth factors (PDGFs) has been investigated in various cancer. PDGF-D, a newly identified isoform of PDGFs, show considerable research prospect. We evaluated the prognostic significance of PDGF-D in HCC with fibrosis.

Methods: PDGF-D mRNA levels were analyzed in 40 paired liver tumor and adjacent tissues using RT-PCR. Immunohistochemical staining was performed using a human PDGF-D antibody on the same 40 paired specimens. Protein levels of PDGF-D were quantified by immunoblotting.

Results: PDGF-D mRNA expression levels were lower in HCC tissues than in matched adjacent tissues. Consist with RT-PCR, in HCC tissues, PDGF-D of Immunostaining also show low expression compare with adjacent tissues. Immunostaining revealed that PDGF-D is localized along the fibrotic septa of the periportal- and perisinusoidal areas.

Conclusion: Low PDGF-D expression is potentially present in the Process from Fibrosis to Hepatocellular carcinoma

Keywords: Prognosis; HCC; PDGF-D; fibrosis

The effect of ischemia reperfusion on multidrug resistance phenotype of hepatocellular carcinoma cells

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Objective: To investigate the relationship between ischemia reperfusion and multidrug resistance phenotype of hepatocellular carcinoma by detecting the expression of MDR1, P-gp, MRP2, LRP and cellular proliferation inhibition rate after ischemia reperfusion in HepG2 cell line and HepG2/ADM cell line.

Methods: Both the two cell lines were experienced continuous perfusion or ischemia reperfusion. RT-PCR was used to determine the expression of MDR1 and MRP2. The level of P-gp, LRP were assessed by Western blot. The cellular proliferation inhibition rate induced by ADM, 5-Fu was analyzed by MTT.

Results: For HepG2 cell line, compare to continuous perfusion group, the expression level of MDR1, MRP, P-gp, LRP was significance increased in ischemia reperfusion group ($P < 0.05$), the

cellular proliferation inhibition rate was lower. But for HepG2/ADM cell line, there was no difference between continuous perfusion group and ischemia reperfusion group ($P > 0.05$).

Conclusion: Ischemia reperfusion could increase the expression level of MDR genes, MDR proteins and lead to resistance to antineoplastic drugs in HepG2 cell line, it was involved in the formation of multidrug resistance.

Keywords: Hepatocellular carcinoma cells; Ischemia reperfusion; Multidrug resistance

The effects of BDNF on transplanted- tumor of liver cancer cell line Bel-7402 in nude mice

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Objective To investigate the effects of exogenous BDNF on the growth of transplanted tumor of Bel-7402 in nude mice.

Methods: For establishing mouse transplanted tumour model, 0.9% sodium chloride solution and exogenous BDNF were injected subcutaneously into nude mice of control group and BDNF group respectively for the purpose of establishing mouse transplanted tumour model, and growth rate of tumor was detect (including size and weight), the expression level of mRNA and protein of Bcl-2 was investigated by RT-PCR and Western Blot.

Results: Transplanted human liver cancer were developed in all nude mice, growth of tumor was significantly promoted by BDNF. The tumor volume and weight in BDNF group were significant more than control group ($P < 0.05$). (3) RT-PCR and Western Blot showed that BDNF could up-regulate the expression of mRNA and protein of Bcl-2 in transplantation tumor.

Conclusions: (1) Exogenous BDNF can promote the growth of transplantation tumor. (2) Exogenous BDNF can up-regulate the expression of Bcl-2 gene in transplanted tumor.

Prognostic Significance of CDT1 and PCNA for Hepatocellular Carcinoma Patients with surgical resection

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Aim: DNA replication is the central procedure in cell proliferation, aberrant DNA replication may be an important driving force of oncogenesis. DNA replication factors CDT1 and PCNA are indispensably replication factors, essential for initiation and the elongation phase of DNA replication, the two key step of DNA replication in cell cycle. This study aimed to investigate

the potential value of CDT1 and PCNA in primary hepatocellular carcinoma development and prognosis prediction.

Methods: Expressions of CDT1 and PCNA were determined in tissue samples from 122 patients with primary hepatic carcinoma by using tissue immunohistochemistry. The relationships of CDT1 and PCNA with patients' clinicpathologic characteristics were assessed by the Mann-Whitney test. Associations between expressions of CDT1 and PCNA were evaluated by linear regression analysis. The prognostic roles of CDT1 and PCNA in hepatocellular carcinoma were evaluated by Cox regression and Kaplan-Meier analysis.

Results: CDT1 and PCNA expressions were significantly higher in hepatocellular carcinoma tissues than in corresponding cancer adjacent tissues. Furthermore, the overexpressions of this two DNA Replication Factors were dominantly correlated with tumor size, capsule integrity and venous invasion. Univariate and multivariate analyses identified CDT1 and PCNA overexpression as prognostic markers for overall and disease-free survival. Patients with low expressions of CDT1 and PCNA showed a low cumulative recurrence rate and a high disease-free and overall survival compared those with high CDT1 and PCNA expressions. Moreover, combination these two DNA Replication Factor exerted a marked degree of evaluating prognosis.

Conclusions: CDT1 and PCNA are overexpressed in hepatocellular carcinoma tissue and their combination is valuable as ideal prognostic indicators for HCC patients with surgical resection.

Keywords: CDT1; PCNA; HCC; prognosis

Progressive Balloon Dilatation Following Hepaticojejunostomy Improves Outcome of Bile Duct Stricture after Iatrogenic Biliary Injury

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Short title: HJPBD for Bile Duct Stricture

Background: Iatrogenic biliary stricture (IBS) is a disastrous complication of cholecystectomy. Although the endoscopic treatments are well accepted as initial attempts for IBS, surgical hepaticojejunostomy (HJ) is often necessary for a considerable proportion of patients. However, the anastomotic stricture after HJ also occurs.

Methods: In the present study, a new procedure, progressive balloon dilation following HJ (HJPBD), was designed and utilized in the IBS treatment. We retrospectively compared HJPBD with the traditional HJ in term of the outcomes when used for IBS treatment.

Results: Between January 1997 and December 2009, 112 patients with IBS attributed to cholecystectomy enrolled in our hospital were treated with surgical reconstruction with either HJ (n=58) or HJPBD (n=54). Of the 58 patients in HJ group, 48 patients (82.8%) had a successful outcome, while 52 out of 54 patients (96.3%) in HJPBD group achieved success. The successful surgical reconstruction rates were significantly different

between these two groups, with a further improved outcome in patient undergone progressive balloon dilation following HJ. Additionally, 8 of the 10 failure cases in HJ group were successfully rescued by HJPBD procedure.

Conclusions: Our findings suggest that the new procedure of HJPBD could be successfully applied to IBS patients, and significantly improve the outcome of IBS reconstruction.

Keywords: Iatrogenic biliary strictures; cholecystectomy; balloon dilation; hepaticojejunostomy

Protective effects of Luteolin against acetaminophen-induced acute liver failure in the mouse

Running title: Hepatoprotective effect of Luteolin

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Aim: The objective of this study was to investigate corresponding anti-oxidative and anti-inflammatory activities of Luteolin, using acetaminophen-treated mice as a model system.

Methods: Male C57BL/C mice were randomly divided into three groups (n=6 each). Control group were given orally PBS. APAP group were given orally APAP 300 mg/kg suspended in DW. Luteolin-treated group were given orally APAP and Luteolin (50 mg/kg/day, 3days before APAP administration) suspended in DW. 16 hours after APAP administration, the liver and serum were collected to determine the liver injury.

Results: Luteolin administration significantly decrease acetaminophen-induced serum ALT, AST, TNF- α , IL-6, MDA levels, as well as GSH depletion and decrease of SOD. Luteolin restore SOD, GSH and GSH-px activities and depress the expression of pro-inflammatory factors, such as iNOS, TNF- α , NF- κ B, IL-6, respectively. Moreover, Luteolin down-regulate acetaminophen-induced Nitrotyrosine (NT) formation and ER stress.

Conclusion: These results suggest the anti-oxidative, anti-inflammatory and anti-ER stress properties of Luteolin towards acetaminophen-induced liver injury in mice.

Keywords: Luteolin; Acetaminophen; ROS; inflammatory; ER stress

Radiological score for hemorrhage in the patients with portal hypertension

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Goal: To analyze the risk factors from radiological indices for hemorrhage in the patients with portal hypertension and weight risk factors.

Methods: We retrospectively analyzed all cases of portal hypertension with hepatitis B from June 2008 to June 2014 in Nanjing Drum Tower hospital. Patients with hepatocellular carcinoma, portal vein thrombosis, or portal hypertension with other causes, such as autoimmune hepatitis, pancreatitis, or hematological diseases were excluded.

Results: Ninety-eight patients were recruited and divided into hemorrhage and non-hemorrhage groups. There were no statistical differences in clinical indexes such as age, prothrombin time, serum albumin, serum creatinine, serum sodium, hema-meba, and blood platelet count. However, the differences were statistically significant in total bilirubin, hemoglobin, and liver function with the p values of 0.023, 0.000, and 0.039 respectively. For radiological indices, hemorrhage was correlated with diameter of inferior mesenteric vein ($P=0.0528$), posterior gastric vein ($P=0.0283$), and esophageal varices scores ($P=0.0221$). Logistic procedure was used to construct the model with stepwise selection and finally inferior mesenteric vein, posterior gastric vein, esophageal varices, and short gastric vein were enrolled into the model. These veins were scored according to the diameters and the rates of hemorrhage increased with the score. We then validated the model with 26 patents from July 2014 to December 2014. The AUC value was 0.8849 in ROC curves for this radiological model.

Conclusions: A risk model was constructed including inferior mesenteric vein, esophageal varices, posterior gastric vein, and short gastric vein. This radiological scoring model may be a valuable indicator for hemorrhage of portal hypertension.

Research of the Correlation between Pancreaticobiliary Maljunction and Extrahepatic Biliary System Carcinoma

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Objective: To explore the correlation between pancreaticobiliary maljunction (PBM) and biliary carcinoma, including gallbladder carcinoma and extrahepatic biliary duct carcinoma.

Methods: We retrospectively analyzed the clinical data and magnetic resonance cholangiopancreatographic results of 857 consecutive patients who underwent magnetic resonance cholangiopancreatography (MRCP) in our hospital from January 2008 to December 2009. We measured the length of common ducts and the confluence angle. Eventually, 67 cases were diagnosed as PBM. In order to evaluate the correlation between PBM and extrahepatic biliary system carcinoma, we randomly drew 78 cases from the 790 cases without PBM as the controls.

Results: 56.72% (38 cases) were diagnosed as biliary carcinoma in 67 cases of PBM, while 14.10% (11 cases) were diagnosed as biliary carcinoma in controls. The biliary carcinoma incidence in cases with PBM was significantly higher than that in cases without PBM ($\chi^2=22.27$, $P<0.05$). In cases of PBM complicated with biliary carcinoma, no correlation was found between PBM confluence types and the differentiation of biliary carcinoma ($\chi^2=2.70$, $P>0.05$).

Conclusion: PBM is closely related to extrahepatic biliary system carcinoma, while there was no correlation between PBM confluence types and the differentiation of biliary carcinoma.

Keywords: Pancreaticobiliary maljunction; magnetic resonance cholangiopancreatography; Biliary carcinoma

Research on hepatic-resection combined with selective decongestive devascularization of gastrosplenic region in hepatocellular carcinoma with moderate/severe portal hypertension

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Objective: To evaluate the safety, feasibility and clinical efficacy of hepatic-resection combined with selective decongestive devascularization of gastrosplenic region (SDD-GSR) in hepatocellular carcinoma (HCC) with moderate/severe portal hypertension.

Methods: Clinical data of 18 patients of HCC with moderate/severe PHT from July 2000 to May 2013 were retrospectively analyzed. Patients were divided into two groups according to the surgical procedures. With hepatic-resection, 11 patients underwent splenectomy, and paraesophagogastric devascularization (A group); 7 patients underwent selective decongestive devascularization of gastrosplenic region and paraesophagogastric devascularization (SDD-GSR) (B group). The platelets and bilirubin between preoperation and post-operation 7 d, 30 d, perioperative temperature, operation duration, intra-operative blood loss, complication about portal thrombosis, pleural and abdominal effusion, infection of incisional wound, intra-abdominal hemorrhage, perioperative death and gastrointestinal bleeding were analyzed respectively.

Results: After operation, the PLT counts in the blood samples were significantly higher than before (A group $P=0.001$, B group $P<0.001$); 30 d post-operation, the PLT levels in the A group were significantly higher than B group ($P=0.03$); 14 d post-operation, temperature in the A group were significantly higher than B group ($P=0.001$). There were no significant difference between the two groups liver functions (serum bilirubin) ($P=0.911$), intraoperative blood loss and operation related complications ($P=0.87$).

Conclusion: The hepatic-resection combined with selective decongestive devascularization of gastrosplenic region (SDD-GSR) seems to be a safe and feasible procedure for hepatocellular carcinoma with moderate/severe portal hypertension and provides satisfactory short-term efficacy.

Keywords: hepatocellular carcinoma portal hypertension surgical procedures

Research on inhibition of drug-resistant nude mouse model with pancreatic carcinoma by multidrug resistance antisense oligonucleotides and 5-FU-MAMS

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Objective: To investigate the reversal the multidrug resistance(MDR) by MDR gene mdrl antisense oligonucleotides (ASON) and 5-Fluorouracil magnetic albumin microspheres(5-FU-MAMS) magnetic targeted therapy the human pancreatic cancer in nude mouse model.

Methods: To construct SW1990/Fu and experimental model using nude mouse, to investigate the targeted therapy effects of mdrlASON and 5-FU-MAMS.

Results: 5-FU-MAMS magnetic response was good, it could be well localized in the tumor tissue and markedly inhibit the growth of tumor. The inhibitory rate of tumor size was 85%, and that of tumor weight was 87.74%. which can effectively degrade proliferating index and accelerate cell death of tumor cell. There were significant differences as compared with other groups($P < 0.01$).

Conclusion: Mdr1 ASON and 5-FU-MAMS had outstanding reverse effect drug fast on human pancreatic carcinoma model in nude mouse.

Keywords: 5-FU-MAMS; mdrlASON; Pancreatic Carcinoma

Risk factors and outcomes of postoperative pancreatic fistula after pancreaticoduodenectomy: an audit of 532 consecutive cases

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Background: Pancreatic fistula (PF) remains the most challenging complication after pancreaticoduodenectomy (PD). The purpose of this study was to identify the risk factors of PF and delineate its impact on patient outcomes.

Methods: We retrospectively reviewed clinical data of 532 patients who underwent PD and divided them into PF group and no PF group. Risk factors and outcomes of PF following PD were examined.

Results: PF was found in 65 (12.2%) cases, of whom 11 were classified into ISGPF grade A, 42 grade B, and 12 grade C. Clinically serious postoperative complications in the PF versus no

PF group were mortality, abdominal bleeding, bile leak, intra-abdominal abscess and pneumonia. Univariate and multivariate analysis showed that blood loss ≥ 500 ml, pancreatic duct diameter ≤ 3 mm and pancreaticojejunostomy type were independent risk factors of PF after PD.

Conclusions: Blood loss ≥ 500 ml, pancreatic duct diameter ≤ 3 mm and pancreatico-jejunostomy type were independent risk factors of PF after PD. PF was related with higher mortality rate, longer hospital stay, and other complications.

Keywords: pancreatic fistula; pancreaticoduodenectomy; risk factor; outcome

Risk factors of gallbladder carcinoma

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Objective: To investigate the risk factors of gallbladder carcinoma and provide the proof for the prevention and control of gallbladder carcinoma efficiently.

Methods: A total of 802 cases of gallbladder cancer (gallbladder carcinoma group) who were admitted to the Department of hepatobiliary surgery, the First Affiliated Hospital of Medical College of Xi'an Jiaotong University from February 2008 to March 2013 were retrospectively analyzed. The clinical data of other 815 patients without gallbladder carcinoma (control group) were collected to conduct the controlled study. Data were statistically analyzed by the non-conditional Logistic regression.

Results: The age, occupation, BMI, number of births, postmenopausal age, blood type, history of cholecystolithiasis and chronic cholecystitis were the independent risk factors of gallbladder carcinoma (OR=4.79, 2.26, 7.16, 0.06, 0.17, 3.66, 9.77, 28.63, 49.98, $P < 0.05$).

Conclusions: Age (50-70 years old), farmer, BMI > 27.0 , number of birth ≥ 3 times, postmenopausal age > 50 years old, blood type A, chronic cholecystitis and cholecystolithiasis were the high risk factors of gallbladder carcinoma. For patients with high risk factors, regular follow-up is necessary for early diagnosis and treatment. Cholecystectomy should be recommended to the patients with cholecystolithiasis.

Keywords: Gallbladder carcinoma; Risk factors; Case-control study

Role of Mini-invasive Technique in Treatment of Infective Pancreatic Necrosis

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Objective: To evaluate the efficacy of mini-invasive technique in the treatment of infective pancreatic necrosis.

Methods: A retrospective analysis was performed for 32 patients with infectious pancreatic necrosis who were consecutively treated using mini-invasive technique. The treatment process was divided into four steps. The percutaneous catheter drainage(PCD) was performed for all patients at the first step; The patients with poor efficacy underwent mini-incision drainage (MID) at the second step; the patients who still had poor efficacy underwent video-assisted debridement (VAD) surgery at the third step; at last, the laparotomy was performed at the fourth step. The number of surgeries, the treatment duration, the cure rate, the complication rate and total mortality at each treatment step were recorded and statistically analyzed.

Results: From January 2012 to June 2014, 32 patients with acute pancreatitis and infectious pancreatic necrosis were consecutively treated using mini-invasive technique. The patients had an average age of 50.5 ± 2.8 years. 4 patients had acute necrotic collection (ANC), 28 patients had walled-off pancreatic necrosis (WOPN). 6 patients had organ dysfunction failure which lasted more than 48 hours. 30 patients underwent PCD at the first step, and two patients were directly treated with VAD surgery at the third step due to the fact that no puncture approaches were found in them. 1-3 times of puncture were made for 30 PCD patients, and the cure rate was 37.5% (12/32). 18 patients with uncontrolled infection underwent MID at the second step. The time intervals between the first PCD and MID were 4-14 days in uncured patients. 7 patients were cured after MID treatment, and the cure rate was 21.9% (7/32). Among 11 MID patients who were uncured, one patient died of multiple organ dysfunction failure (MODF), and the remaining 10 patients underwent VAD surgery at the third step. The time intervals between MID and VAD were 7-19 days in uncured patients, and the cure rate of VAD patients was 37.5% (12/32). No patients underwent laparotomy, and the overall mortality was 3.1% (1/32). The complication rate was 9.4% (3/32), and all complications were cured by non-surgical treatment.

Conclusion: The mini-invasive technique can be used as the preferred treatment for infective pancreatic necrosis and is likely to replace the traditional laparotomy surgery for removing pancreatic necrosis

S-adenosyl-L-methionine for the treatment of chronic liver disease: a systematic review and meta-analysis

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Background & Aims: It has been well established that S-adenosyl-L-methionine (SAME) is the principal methyl donor in methyltransferase reactions and that SAME supplementation restores hepatic glutathione (GSH) deposits and attenuates liver injury. However, the effectiveness of SAME therapy in chronic liver disease has not been adequately addressed.

Methods: We searched globally recognized electronic databases, including PubMed, the Cochrane Database and EMBASE, to retrieve relevant randomized controlled trials (RCTs) of chronic liver disease published in the past 20 years. We then performed a systematic review and meta-analysis of the enrolled trials that met the inclusion criteria.

Results: Twelve RCTs from 11 studies, which examined 705 patients, were included in this research. For liver function, certain results obtained from data synthesis and independent comparisons demonstrated significant differences between the levels of total bilirubin (TBIL) and aspartate transaminase (AST). However, no studies identified significant differences regarding alanine transaminase (ALT) levels. An analysis of the adverse events and long-term prognosis also indicated no significant differences between the SAME and the placebo groups. In a subgroup analysis of gravidas and children, several of the included data indicated that there was a significant difference in the pruritus score. Furthermore, the results regarding ursodeoxycholic acid (UDCA) and stronger neo-minophagen C (SNMC) indicated that both treatments were more effective than SAME was in certain chronic liver diseases.

Conclusions: SAME could be used as the basis of a medication regimen for liver function improvement because of its safety. However, SAME also demonstrated limited clinical value in the treatment of certain chronic liver diseases.

Keywords: S-adenosyl-L-methionine, chronic liver disease, randomized controlled trials, systematic review, meta-analysis

Seeking Benefits from the da-Vinci robotic system assisted minimally invasive pancreatic surgery for both doctors and patients

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Objective: To analysis the benefits from da-Vinci robotic system assisted minimally invasive pancreatic surgery to both doctors and patients.

Methods: Review the clinical data summary of the 282 patients, underwent da-Vinci robotic system assisted minimally invasive pancreatic surgery in our hospital (child in 86 cases, distal pancreatectomy in 111 cases, mid-pancreatectomy in 48 cases, partial tumor resection in 22 cases and Beger's surgery in 15 cases). Explore the diversities in the choice of the robotic surgical instruments, the appliance of the intraoperative technique and the type of the digestive reconstruction to tumors in different locations of the pancreas. Further integrate the patients clinical data (operative duration, anastomosis lasting, intraoperative blood lose, incision size, postoperative hospital stay and complications), in order to reflect the value of da-Vinci robotic surgical system in minimally invasive pancreatic surgery.

Results: Among these 282 patients, 202 cases were benign (71.6%), however other 80 cases were malignant (28.4%). 6 cases (2.1%) were convert to laparotomy. Reoperation were needed due to bleeding in 9 cases (3.2%). The spleen-preserving rate was 81.2% in benign distal pancreatic tumors.

Conclusions: The da Vinci robotic system assisted minimal invasive surgery is safe, feasible and curative in various pancreatic tumors, benign and malignant. It shows significant

advantages in improving the spleen-preserving rate in benign distal pancreatic tumors. Now the operative time is significantly curtailed owing to the past mature experience. Particularly and obviously, we believe that both the surgical time and intraoperative trauma could be decreased significantly by da Vinci system compared with laparotomy in distal pancreatectomy and partial tumor resection. Also, we find irreplaceable values whether in reducing the patients' intraoperative exposure, or saving the medical and human resources. Da Vinci robot-assisted minimally invasive pancreatic surgery is a win-win for both doctors and patients.

Serum cytokeratin 19 fragment (CYFRA 21-1) is a novel and reliable biomarker for pancreatic cancer

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Background: Upregulated serum cytokeratin 19 fragment (CYFRA 21-1) has been reported in advanced pancreatic cancer (PC) patients received palliative chemotherapy; however, clinical significance of CYFRA 21-1 in other stages of PC remained elusive.

Aims: Present study aimed to explore the clinical value of CYFRA 21-1 for PC.

Methods: Serum CYFRA 21-1, carbohydrate antigen 19-9 (CA19-9) and carcinoembryonic antigen (CEA) were quantitated preoperatively, on postoperative 7th day and during follow-up in 50 consecutive PC patients and 21 benign controls. The receiver operator characteristic (ROC) curves of biomarkers were analyzed. Level of CYFRA 21-1 was correlated with patients' clinicopathologic features and follow-up data.

Results: CYFRA 21-1 was significantly upregulated in PC patients regardless of clinical stages. Expression difference of CYFRA 21-1 existed among TNM stages. Based on the maximal Youden index, cutoff value of CYFRA 21-1 (ng/mL) was selected as 2.91 (sensitivity, 70.0%; specificity, 95.2%). When compared with other biomarkers, CYFRA 21-1 showed better discrimination performance than CEA; it also had larger area under the ROC curve (AUC) than that of CA19-9, though it didn't reach significance; it wasn't inferior to the combination of these three biomarkers. CYFRA 21-1 declined significantly after curative resection and re-elevated when tumor recurred. Titer of CYFRA 21-1 was correlated with TNM stages and tumor aggressiveness, including adjacent organ invasion, regional lymph nodes metastasis, vascular and perineural invasion; it was an independent predictor for 1-year recurrence-free survival and overall survival on multivariate analysis.

Conclusion: Serum CYFRA 21-1 represents a reliable diagnostic and prognostic biomarker for PC.

Should we abandon the AFP in the surveillance of hepatocellular carcinoma?

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Authors' specific contributions: Wei Chen: Participated in designing and writing of the paper and data analysis. Xinsen Xu: Participated in revision of the paper and data analysis. Yanyan Zhou: Participated in data collection. Lingqiang Zhang: Participated in data collection. Zhixin Wang: Participated in data collection. Ruichen Miao: Participated in data collection. Yong Wan: Participated in revision of the paper. Yafeng Dong: Participated in revision of the paper. Chang Liu: Participated in research design.

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Objective: To investigate the impact of serum AFP level on the prognosis of HCC.

Methods: The clinical data of 149 patients who received hepatectomy were retrospectively analyzed. All patients were divided into negative AFP group, low AFP group, elevated AFP group according to the preoperative serum AFP level. Then the clinical pathology features were comparatively analyzed. The median overall survival, median disease-free survival, overall survival rate and disease-free survival rate were compared. Finally, the risk factors of postoperative survival and disease-free survival were investigated through multivariate regression analysis.

Results: The tumor size of three groups has statistical difference ($\chi^2=4.856$, $P=0.009$). The tumor size of negative AFP group was significantly smaller than the low AFP group and elevated AFP group ($P=0.009$). Following-up results showed that the median disease-free survival has significant difference ($P=0.008$) between the three groups. Compared with the elevated AFP group, the AFP negative group has a longer median disease-free survival ($P=0.027$). The 1-, 3-, 5-year overall survival rate ($\chi^2=3.928$, $P=0.047$) and the 1-, 3-, 5-year disease-free survival rate ($\chi^2=7.036$, $P=0.007$) between the three groups had a statistic difference. Multiple regression analysis showed that AST >53.5IU/L, tumor diameter >5cm and AFP >400ng/ml are the independent risk factors affecting the postoperative prognosis of HCC after liver resection. AST >53.5IU/L, tumor size >5cm and lymph node metastasis are the independent risk factors affecting the postoperative recurrence of HCC with hepatectomy.

Conclusions: Preoperative serum AFP level has predictive value for the prognosis of HCC. We shouldn't abandon the AFP in the surveillance of hepatocellular carcinoma.

Keyword: hepatocellular carcinoma; alpha-fetoprotein; liver resection; prognosis

Significance of typing of tumor thrombosis in assessment of efficacy of recombinant human endostatin in transcatheter arterial chemoembolization(TACE) for primary liver cancer patients with portal vein tumor thrombosis

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Objective: To evaluate the significance of typing of tumor thrombosis in assessing efficacy of recombinant human (rh) endostatin in transcatheter arterial chemoembolization(TACE) for primary liver cancer(PLC) with portal vein tumor thrombosis.

Methods: 60 patients with PLC which accompany with type I-III portal vein tumor thrombus separately were enrolled and randomly divided into two groups. In TACE group(group A), 26 received regular TACE without endostatin every 1-3 months. And in endostatin+TACE group (group B), endostatin 30mg was combined with lipiodol during TACE in 34 patients.

Results: The median survival time of group A and group B was (12.48±1.64) months and (15.18±1.63) months, and the overall survival(OS) rate of group B was significantly higher than in the group A. For patients with type I portal vein thrombus in group A and group B, the median survival time was (11.57±2.09) months and (15.46±2.48) months, and the difference between OS rates was remarkable ($P=0.008$). The median survival time of patients with type II thrombus in group A and group B was (14.41±3.46) months and (15.85±2.77) months, no significant differences were found in OS rates ($P=0.470$). And in patients with type III thrombus, median survival time was (10.00±1.96) months and (12.00±1.13) months in group A and group B, there was no significant difference between the OS rates.

Conclusion: Typing of tumor thrombosis can help to determine the treatment plan and assess the prognosis of HCC patients with tumor thrombosis in the portal vein. With the combination of rh-Endostatin, the effect of TACE for primary liver cancer with portal vein thrombosis was improved in some aspects. For patients with type I portal vein tumor thrombus, median survival time was prolonged and the OS rate was increased. But there was no significant evidence shows that the efficacy of TACE for patients with type II and type III thrombus was improved.

Keywords: primary liver cancer (PLC); transcatheter arterial chemoembolization(TACE); typing of tumor thrombosis; vascular endothelial growth factor (VEGF); endostatin; portal vein tumor thrombus(PVTT)

Study on the interference of the expression of Oct4, Nanog gene in Pancreatic Cancer Stem Cells in vivo and vitro

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Objective: To study the variations of biological characteristics of pancreatic cancer stem cells (PCSCs) in vivo and in vitro, the expression of Oct4 and Nanog genes was silenced by specific shRNA in PANC-1 stem cells cell.

Methods: The CD44+CD24+ESA+ pancreatic cancer stem cells were sorted out on a BD FACS Aria II machine, and the expression of Oct4 and Nanog in PCSCs were detected on both transcriptional and translational level. The expression of Oct4 and Nanog genes in PCSCs were silenced by lentiviral vector, and the interfering efficiency was detected by FQRT-PCR and western blot assay. Observe the proliferation, migration and invasion ability of PCSCs influenced by Oct4 and Nanog by the transwell and CCK8 assay. The ectopic xenograft model of nude mice was established via subcutaneous and intraperitoneal injection of PCSCs silenced with specific shRNA, PCSCs and PANC-1 cells into BALB/c nude mice, respectively. And the influences of silencing the expression of Oct4 and Nanog genes on tumorigenicity, drug resistance and invasiveness were observed in vivo.

Results: The PCSCs accounted for 0.1-0.8% in PANC-1 cells, Oct4 and Nanog expression are significantly prominent in subsets of PCSCs ($P<0.05$). The proliferation, migration and invasion ability of PCSCs were decreased significantly than the control group by silencing Oct4 and Nanog ($P<0.05$). In vivo, the tumorigenicity and invasiveness of PCSCs were significantly decreased after Oct4 and Nanog were silenced, and the drug tolerance was reduced in nude mice.

Conclusion: Oct4 and Nanog was significantly higher expression in subsets of PCSCs. The lentiviral vector-mediated silence for Oct4 and Nanog has a great impact on the biological characteristics of PCSCs in both vitro and vivo.

Keywords: Pancreatic Cancer; Cancer stem cells; Oct4; Nanog; gene silencing

Surgical treatment of primary hepatocellular carcinoma: 451 cases in primary hospital

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Objective: To appreciate the effect of surgical treatment on primary hepatocellular carcinoma in primary hospital.

Methods: Clinical data of 451 HCC underwent surgical treatment from January 2008 to December 2013 were retrospectively analyzed.

Results: 451 cases include male 359 and 92 female, the mean age 52.68±12.3 years. The mean operation time was 135.2 minutes, and mean bleeding volume 568ml, mean blood transfusion 364ml. The perioperative mortality was 1.33%(6/451). The rate of postoperative complication was 30.8%(139 cases). The 1-, 3-, 5-year overall survival rate was 81.2%, 65.3%, 35.4%. Survival time over 5 years in 141 cases. The 1-, 3-, 5-year overall survival rate of patients with small HCC were 88.4%, 72.4%, 53.6%. The 1-, 3-, 5-year overall survival rate of patients with large HCC (diameter ≥5cm) were 75.7%, 60.5%, 18.8%. The 1-year overall survival rate of HCC with diameter over 10cm was 70.9%. There were 8 cases with super large HCC diameter ≥20cm, and 1 of them survived 2 years, 1 for 16 months, 1 died in perioperative period, lost of follow up in 1 patient.

Conclusion: Surgical treatment is safe and feasible with full preoperative assessment, precise hepatectomy and perioperative management.

Keywords: Hepatocellular neoplasm; Hepatectomy; Prognosis

Survival status and prognostic factors of hilar cholangiocarcinoma patients after operation

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Objective: To investigate survival status and prognostic factors of hilar cholangiocarcinoma(HC) patients after operation.

Methods: Two hundreds and thirty- three cases of HC patients who were treated in our hospital were admitted for the study, the clinical data and follow-up results of the patients were retrospectively analyzed. The clinical and pathological factors of different surgical methods on prognosis were analyzed, and the factors were included in the COX regression model to analyze the risk factors of survival of the patients with HC.

Results: Kaplan-Meier showed that the survival rates of 1 year, 2 years and 3 years after operation of patients were 74.3%, 33.1% and 14.6%; had no statistical difference in age, gender, total bilirubin and prognosis of the patients ($P>0.05$); While tumor type, tumor differentiation, lymph mode metastasis, portal vein invasion, infiltration, caudate lobe and preoperative biliary drainage showed a statistical difference in HC patients ($P<0.05$); The different method of operation of R0, R1, R2 and tumor biopsy only showed a significant statistical difference in the survival time of the patients ($P<0.05$); The results of COX risk analysis showed that there was a statistical difference in the effect of surgical methods, tumor type, portal vein invasion and lymph node on the survival time ($P<0.05$), which means that the factors above were the independent risk factors for HC patient survival.

Conclusions: It should be given more attention on surgical methods, tumor type, portal vein invasion and lymph node when the HC patients received the clinical treatment to improve the rate of survival.

Keywords: Hilar cholangiocarcinoma(HC); survival; COX risk model

Systematic Review and Meta-Analysis: Adjuvant Antiviral Therapy for HBV-Related Hepatocellular Carcinoma after Curative Treatment

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Background: The role of adjuvant antiviral therapy for hepatitis B virus (HBV) -related hepatocellular carcinoma (HCC) after curative treatment remains controversial.

Aim: To further investigate the effect of adjuvant antiviral treatment and to determine the optimal nucleot(s) ide analogue (NA) treatment strategy after curative therapy in patients with HBV-related HCC.

Methods: A comprehensive electronic search was performed. All controlled trials comparing antiviral treatment with placebo or no treatment for HBV-related HCC after curative treat-

ment were included. The pooled hazard ratios (HRs) and 95% confidence intervals were calculated using Stata 12.0 software. The relative efficacy of different NA strategies was calculated via an indirect treatment comparison method .

Results: Twenty-one studies containing 8072 patients were included. NAs were found to significantly improve recurrence-free survival (RFS) and overall survival (OS), despite apparent heterogeneity. Sensitivity analysis confirmed the reliability of the result of the cohort studies. Alternatively, for interferon, a moderate but non-significant benefit was found. Based on adjusted indirect comparisons among three NA strategies(entecavir, lamivudine and adefovir), entecavir displayed moderate but non-significant superiority to the other NA in improving RFS. No tendency favouring a specific NA regimen was found for OS.

Conclusion: Adjuvant antiviral therapy provided promising but not robust benefits to patients with HBV-HCC after curative treatment. Although direct comparisons of the relative efficacy of different adjuvant antiviral strategies are lacking due to ethical issues, our indirect comparison method may provide useful information.

Keyword: hepatocellular carcinoma; antiviral treatment; curative; survival; meta-analysis

SYSTEMATIC REVIEW AND META-ANALYSIS OF PROPHYLACTIC ABDOMINAL DRAINAGE AFTER PANCREATIC RESECTION

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Aim: To investigate whether prophylactic abdominal drainage is necessary after pancreatic resection.

Methods: PubMed, Web of Science, and the Cochrane Library were systematically searched to obtain relevant articles published up to January 2014. Publications were retrieved if they met the selection criteria. The outcomes of interest included mortality, morbidity, postoperative pancreatic fistula (POPF), clinically relevant pancreatic fistula (CR-PF), abdominal abscess, reoperation rate, the rate of interventional radiology drainage and the length of hospital stay. Subgroup analyses were also performed for pancreaticoduodenectomy (PD) and for distal pancreatectomy. Begg's funnel plot and the Egger regression test were employed to assess potential publication bias.

Results: Nine eligible studies were identified, involving a total of 2794 patients and were included in this meta-analysis. 1373 patients received prophylactic abdominal drainage, while the remaining 1421 patients did not receive prophylactic abdominal drainage. A fixed-effects model meta-analysis showed that placement of prophylactic drainage did not have beneficial effects on the clinical outcomes of patients including morbidity, POPF, CR-PF, reoperation, interventional radiology drainage and length of hospital stay ($P>0.05$). In addition, prophylactic drainage did not significantly increase the risk of abdominal abscess. Overall analysis showed that omitting prophylactic abdominal drainage resulted in higher mortality after pancreatectomy (OR: 1.56; 95%CI: 0.93, 2.92). Subgroup analysis of PD showed similar results to those in the overall analysis. Elimination of prophylactic abdominal drainage after PD led to a significant increase in mortality (OR: 2.39; 95%CI: 1.22, 4.69; $P=0.01$).

Conclusions: Prophylactic abdominal drainage after pancreatic resection is still necessary. Randomized controlled trials assessing the value of prophylactic drainage after PD and DP are needed to provide more powerful evidence.

The analysis of diagnosis and treatment for gastrointestinal hemorrhage after pancreaticoduodenectomy

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Objective: To investigate the causes and features of gastrointestinal hemorrhage after pancreaticoduodenectomy (PD), and to provide the diagnostic methods and treatments for this complication.

Methods: The clinical data of 389 patients who underwent PD from Jan 2002 to Sep 2013 in our hospital were retrospectively analyzed. Among them, there were 272 male and 162 female patients, average age was (65.03 ± 10.07) years old. The mode of procedure was standard PD or pylorus-preserving PD and the Child's reconstruction of digestive tract. Etiology of gastrointestinal haemorrhage, diagnostic methods and treatment strategy was analysed.

Results: There were 5 cases (1.29%) of gastrointestinal haemorrhage during the perioperative period after PD. There was no death case because of gastrointestinal haemorrhage. The bleeding reason of the total cases were pancreaticojejunal anastomosis 2 and gastroduodenal anastomosis 3. In order to control this kind of complication, open abdominal operation alone was performed on 1 patient, endoscopic titanium clamping coagulation management was performed on 2 patients, vascular interventional therapy was performed on 1 patient.

Conclusion: Gastrointestinal hemorrhage after PD always have something to do with the technical procedure during the operation. Interventional angiography and endoscopy hold both the diagnostic and therapeutic value. Timely and decisive reoperation is an necessary management to the cases in which the above two methods are failure.

Keywords: Pancreaticoduodenectomy; Gastrointestinal tract; Postoperative hemorrhage

The application of a two-point fixed, multisite running-through, double-lumen drainage tube in pancreaticoduodenectomy

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Objective: To investigate the influence of the application of a novel drainage tube in pancreaticoduodenectomy on postoperative complication rates.

Methods: The clinical data of 150 patients that underwent pancreaticoduodenectomy from January 2009 to July 2011 in our hospital were analyzed, and all the surgeries were performed by a single surgery team. In 57 surgeries that were performed from January 2009 to August 2009, a traditional drainage tube was placed; in 93 surgeries that were performed from September 2009 to July 2011, a novel two-point fixed, multisite running-through, double-lumen drainage tube was placed. The incidence and grade of postoperative pancreatic fistula (POPF), and the incidence of biliary leakage, delayed gastric emptying, bleeding and death within 30 days after the surgery were monitored.

Results: In the traditional drainage tube group, 17 patients had POPF (29.82%), of whom seven patients had Grade A POPF (12.28%), seven patients had Grade B POPF (12.28%), and three patients had Grade C POPF (5.26%). In the novel drainage tube group, 22 patients had POPF (23.66%), of whom 19 patients had Grade A POPF (20.43%), three patients had Grade B POPF (3.23%), and no patient had Grade C POPF. The differences of Grade B and Grade C POPF rate between the two groups were statistically significant ($P < 0.05$). Regarding the incidence of postoperative biliary leakage, delayed gastric emptying, bleeding and death, no significant differences between the two groups were observed ($P > 0.05$).

Conclusions: The application of the novel two-point fixed, multisite running-through, double-lumen drainage tube in pancreaticoduodenectomy was safe and reliable, and reduced the incidences of high grade POPF.

Keywords: Pancreaticoduodenectomy; drainage tube; complications; pancreatic fistula

The clinic study of De novo malignancy post-liver transplantation in 14 patients

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Objective: To analyze the clinical characteristics, risk factors, prevention of de novo malignant tumors after liver transplantation.

Methods: Fourteen patients receiving liver transplantation were identified to have de novo malignancies. The clinical characteristics and survival of these patients were retrospectively reviewed.

Results: Among 14 cases, 11 were male and 3 female. The mean age at diagnosis of cancer was 43.5 years old (ranging from 34 to 62 years old). The average time from transplantation to diagnosis of cancer was 57.5 months (ranging from 18 to 108 months). The distribution of tumor histological types included colon cancer, lung cancer, esophagus cancer, lymphoma, nasopharyngeal cancer, liver cancer (5 positive for HBV), parotid carcinoma, bone metastases from thyroid cancer, non-Hodgkin lymphoma and Laryngeal cancer. Nine cases have hepatitis B. 5 cases received operation, 6 cases underwent chemotherapy or interventional chemotherapy, and 4 cases received radiotherapy. 6 cases have been surviving for a long time and 8 cases dead.

Conclusion: De novo malignancies following organ transplantation has been suggested as one of a major cause of late mortality. De novo malignancy after OLT was related to smoking, gender, and low immune function by immunosuppression agent. Solid tumors should be removed and receive chemotherapy or radiotherapy as early as possible. Early diagnosis and treatment are very important to improve the prognosis.

Keywords: liver transplantation; de novo malignancy; risk factors

The clinical analysis and literature review of liver retransplantation

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Objective: Summary the incidence, etiology and survival analysis of the liver retransplantation.

Methods: Retrospective analyzed the literatures of the retransplantation and summary the incidence, etiology and causes and survival analysis of the liver retransplantation.

Results: The incidence of liver retransplantation was 4.0% in our country. The main cause of the liver retransplantation was biliary complications (51.5%), then were hepatitis and liver cancer recurrent recurrence (14.6%), hepatic vessel complications (14.2%), rejection reaction (11.2%), the primary graft no function(6.9%). Infections (52.8%) which had high incidence in liver retransplantation, is the main cause of death of liver retransplantation. Perioperative effective anti-infection treatment for liver retransplantation, the characteristics of individualization immunosuppression protocols, and postoperative active anti-infection treatment can improve the success rate of liver retransplantation.

Conclusion: Effective grasps the causes and prognosis of liver retransplantation, indications, and postoperative positive anti-infection treatment, can improve the survival rate of the liver retransplantation.

Keywords: Liver Retransplantation; Causes; Survival Analysis

The comparative analysis of clinical characteristics between the hyperlipidemic and non-hyperlipidemic severe acute pancreatitis

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Objective: Comparison analysis the clinical characteristics between the hyperlipidemic and non-hyperlipidemic severe acute pancreatitis (SAP).

Methods: collect the 121 cases of SAP patients in our hospital from January 2009 to January 2013, there were 31 case of hyper-

lipidemic SAP(H-SAP group) and 90 case of non-hyperlipidemic SAP (NH-SAP group), analyze clinical characteristics, complications and mortality.

Results: There were no differences in gender composition, age, ranson score, and the rates of operation, pancreatic encephalopathy, ARDS and damage of liver function ($P > 0.05$), but in body mass index (BMI), TG and serum glucose, H-SAP group are higher than that in NH-SAP group($P < 0.05$). And the rates of MODS, stress ulcer, renal failure and shock in H-SAP group were higher than those in NH-SAP group ($P < 0.05$). The mortality of H-SAP group is higher than NH-SAP group ($P < 0.05$).

Conclusions: hyperlipidemic SAP are more serious than non-hyperlipidemic. The key to prevention and treatment of hyperlipidemia SAP is to reduce the inducement of hoisting serum triglyceride and cut down the serum triglyceride.

Keywords: hyperlipidemia; severe acute pancreatitis (SAP); complications

The expression of CD4⁺IL-17⁺ cells in pancreatic cancer and its relationship with the clinic pathological parameters and survival time of the patients

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Objective: To investigate the clinical significance of CD4⁺IL-17⁺ cells in tumor microenvironment of pancreatic cancer patients.

Methods: Immunohistochemistry (IHC) was performed to detect IL-17⁺ cells in 51 pancreatic tumor tissues, as well as expression of CD34 and VEGF in 20 tumor tissues. The relationship between the expression of IL-17⁺ cells in tumor tissues and tumor angiogenesis, clinic pathological parameters, and survival time of pancreatic cancer patients were analyzed.

Results: The percentage of CD4⁺IL-17⁺ cells in tumor tissues was positively correlated with microvessel density (MVD) and the expression of VEGF in tumor tissues ($P < 0.05$). IL-17⁺ cells was shown to mainly locate in cytoplasm, and the frequency of positive cells in tumor tissues was higher than corresponding adjacent normal tissues ($P < 0.05$). The presence of IL-17⁺ cells in tumor tissues was associated with tumor, node, and metastasis (TNM) stage and lymph node metastasis ($P < 0.05$), but not with patient sex, age, tumor size, tumor location, histological grade, and local invasion ($P > 0.05$). Of the 51 pancreatic cancer patients, follow up was successful for 50 (98.0%). The follow up period was 2-67 months, and the mean survival time of these patients was 16.6 ± 4.8 months. Patients with higher levels of intratumoral IL-17⁺ cells had significantly shorter survival time than patients with lower levels of intratumoral IL-17⁺ cells ($P < 0.05$). The univariate analysis show tumor size, TNM stage, lymph node metastasis, and levels of intratumoral IL-17⁺ cells were associated with survival, but multivariate analysis show only TNM stage were independent prognostic factor for survival.

Conclusions: The distribution of CD4⁺IL-17⁺ cells in tumor tissues was positively correlated with tumor angiogenesis. The expression of IL-17⁺ cells in tumor tissues was related with the clinic pathological parameters (TNM stage and lymph node metastasis) and survival time of the patients. CD4⁺IL-17⁺ cells may be served as one of the important immune indicators for predicting the prognosis of pancreatic cancer patients.

Keywords: Pancreatic cancer; CD4⁺IL-17⁺ cells; Immunohistochemistry; Tumor microenvironment; Prognosis

Prognostic value of AFP response in advanced hepatocellular carcinoma patients treated with sorafenib: a meta-analysis

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Background: In advanced hepatocellular carcinoma (HCC) patients receiving sorafenib, the prognostic value of imaging-based Response Evaluation Criteria in Solid Tumors (RECIST) is questioned. To examine the prognostic value of alterations of the tumor marker α -fetoprotein (AFP) in these patients, a meta-analysis was carried out.

Methods: Systematic literature searches were applied to PubMed, Embase and Web of Science databases until Sep, 2014. Seven studies (352 patients) were included in this meta-analysis. Hazard ratios (HR) with its 95% confidence interval (CI) of AFP response was pooled by use of a random effect model and stratified by potential confounders.

Results: The combined data suggested that AFP response was associated with better progression-free survival (PFS) (hazard ratio [HR], 0.29; 95% CI, 0.19–0.45) and better overall survival (OS) (HR, 0.45; 95% CI, 0.34–0.59). No matter the cut-off value of AFP response was 1.2, 1.0 or 0.8, AFP response could predict better PFS and OS. Similarly, no matter the detection timepoint was 4 weeks, 6 weeks or 8 weeks, AFP response could play the same role.

Conclusions: AFP response indicates a better prognosis for advanced HCC patients treated with sorafenib.

Keywords: Hepatocellular carcinoma; AFP response; Sorafenib; Meta-analysis

Mesenchymal stem cells loaded Collagen-Chitosan scaffold with Hepatocyte growth factor for hepatic tissue engineering

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Aim: This study was undertaken to evaluate the therapeutic potential and mechanism of BMSCs on the hepatocyte growth factor (HGF) loaded Collagen-Chitosan scaffold (CCs) in liver tissue engineering.

Methods: Marrow stromal cells (MSCs) are particularly attractive candidates for future clinical applications of stem cell-based therapy for liver disease. Alkaline phosphatase, glycogen staining, 7- α hydroxylase and albumin concentration were used to evaluate cell differentiation. Additionally, gene expression profiles, gene interaction, gene ontology analysis and pathway analysis were examined.

Results: Based on the above analysis, we found that MSCs loaded Collagen-Chitosan scaffold were effective for stimulating hepatic regeneration. MMP9, certain pathways in cancer and phosphoproteins may play important roles in cell differentiation.

Conclusion: Together, these results suggest that HGF-infused CCs are capable of providing suitable support for BMSCs growth and differentiation and are a promising method for the development of tissue-engineered liver.

Keywords: HGF; Collagen; Chitosan; BMSCs; liver tissue engineering

A novel prognostic score in hepatocellular carcinoma: based on liver function, tumor burden and inflammation factors

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Authors' specific contributions:

Wei Chen: Participated in designing and writing of the paper and data analysis.

Xinsen Xu: Participated in revision of the paper and data analysis.

Yanyan Zhou: Participated in data collection.

Lingqiang Zhang: Participated in data collection.

Runchen Miao: Participated in data collection.

Yong Wan: Participated in revision of the paper.

Yafeng Dong: Participated in revision of the paper.

Chan Liu: Participated in research design.

Background: The aims of this study was to explore a novel score system based on the factors including liver function, tumor burden and the underlying inflammation to predict the prognosis of hepatocellular carcinoma, and to compare the prognostic value of α -fetoprotein (AFP) and platelet to lymphocyte ratio (PLR).

Methods: Data for 284 hepatocellular carcinoma (HCC) patients were retrospectively analyzed. The prognostic ability of several factors was compared with the area under the receiver operating characteristics curve (AUC). A univariate and mul-

tivariate analysis were performed to determine the prognostic factors of the patients with HCC. A novel score system based on liver function, tumor burden and the underlying inflammation (function-tumor-inflammation score, FTIs) was constructed.

Results: Follow-up results demonstrated that the median overall survival (OS) and disease-free survival (DFS) was 21.5 (range: 1–120) months and 13 (range: 1–117) months. In patients with single tumor, absent portal vein tumor thrombus, and size < 5 cm, the AUC for FTIs were 0.602, 0.619, 0.615, respectively. With respect to the AFP and PLR, the AUC were 0.465, 0.492, 0.443, and 0.557, 0.569, 0.595, respectively. Multivariate Cox regression analysis showed that a high FTI score was an independent factor affecting the overall survival of HCC ($P < 0.001$).

Conclusion: The results show that FTIs is an independent risk factor associated with the OS of patients with HCC, with higher prediction value compared with other prognostic factors.

Keywords: Hepatocellular carcinoma; Prognosis; Inflammation; Liver function; Tumor burden; Score system

D-Meld as a predictor of post liver transplant prognosis in recipients with HBV infection: a single center experience

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Background: Balancing donor and recipient risk factors and optimizing donor to recipient match is critically important to achieve acceptable long-term survival after liver transplantation. The purpose of this study was to determine the prognostic significances of D-MELD score (donor age \times Model for End-stage Liver Disease score) in end-stage liver disease patients after transplantation.

Methods: In present study, we retrospectively evaluated the records of 1103 liver transplants for recipients with HBV infection and explored the relationship between D-MELD and patient survival.

Results: We found that both high MELD score and advanced donor age were significantly associated with post-transplant survival. After allocating the patient into three subgroups based on D-Meld scores (Class A ≤ 400 , Class B [400–799], Class D [800–1199], Class D [1200–1599], Class E ≥ 1600), we found that D-Meld score was negatively associated with overall survival of patients after transplant, and D-Meld over 1600 had the worst outcome (cumulative 5-year overall survivals < 50%, $P < 0.05$).

Conclusion: This statistic is simple and helpful in predicting outcome after liver transplantation. Applying D-MELD score to eliminate some donor to recipient matches who have inferior outcome might effectively improve the survival rate following liver transplantation.

Jejunal Interposition Reconstruction in Pancreas-Sparing Segmental Duodenectomy for Large or ductal extension Ampullary Duodenal Neoplasms

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Running title: Jejunal interposition reconstruction for ampullary adenoma.

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Objective: Total papillectomies are indicated in benign ampullary duodenal neoplasms or early stage of malignancy without lymph node metastasis through endoscopic or open procedure. Transduodenal ampullectomy is the frequently-used method. However, it may be not suitable for large or ductal extension ampullary duodenal neoplasms. In this article, we introduce a surgical method to treat this kind of ampullary duodenal neoplasms.

Methods: A wide Kocher maneuver is performed to expose the second portion of the duodenum. Carefully dissect the duodenum from the pancreatic head. Then a 2cm longitudinal incision is performed in the anterior wall of the duodenum to visualize the duodenal papilla and the tumor. Resect the segmental duodenum at least 1 cm from the margin of the tumor. Then incise the sphincter of the duct close to the pancreas. Select the comparable length of jejunum 20–30 cm away from the Treitz ligament to prepare jejuna interposition. Anastomosis with the duodenum should be performed in retrocolic position. Adduct the interval sphincter muscle between the openings of BD and MPD to modify one opening of two ducts. The reconstruction of BD and MPD with the interposition jejunum is in the form of duct-to-mucosa anastomosis.

Results: As an organ-preserving procedure, it can restore the nature channel of the ingested food and guarantee wide free margin without the limitation of tumor size.

Conclusion: Jejunal interposition reconstruction in pancreas-sparing segmental duodenectomy is technically straightforward and feasible for treatment early stage large or ductal extension ampullary duodenal neoplasms.

Open Right Hemicolectomy: Lateral to medial or medial to Lateral Dissection?

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Background: Despite the uptake of minimal access techniques, it has not become universal, and many established specialist surgeons continue to perform open surgery with excellent outcomes. However, no manuscript was found that compared the clinical outcomes of the lateral to medial and medial to lateral dissection for open right hemicolectomy. Therefore, the present study aimed to compare the surgical outcomes between the two approaches.

Method: From June 2008 and June 2012, 531 patients who underwent open right hemicolectomy with pathologically confirmed met the eligibility criteria of the study. The population was divided into 2 groups: right hemicolectomy using a lateral approach (RL, 327); right hemicolectomy using medial approach (RM, 204). Patients in the RL group were randomly matched to patients who underwent RW using a multivariate case-matched method, so 300 patients in the RL group and 150 patients in the RM group were enrolled into the study. We compared the two groups in terms of clinicopathological characteristics, operation

time, operative blood loss, postoperative hospital stays, Number of lymph nodes harvested, postoperative TNM staging, recovery variables, and 5-year survival.

Results: The operation time and blood loss were significantly less when a medial approach was used for right hemicolectomy. No differences in the number of lymph nodes harvested, postoperative TNM staging and recovery parameters were found between lateral and medial approach in right hemicolectomy.

Conclusions: The use of a medial approach in open right hemicolectomy provides short-term and less operative blood loss benefits compared with a lateral approach.

The Role of TGF β 1 and Smad4 Gene In The Process of Epithelial Mesenchymal Transition (EMT) In Cholangiocarcinoma

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Objective: To investigate the effects of TGF β 1 and Smad4 in TGF β 1-Smad signal transduction pathway on the expression of Snail gene, Slug gene, Vimentin and E-Cadherin, so as to define the role of TGF β 1 and Smad4 gene in the process of epithelial mesenchymal transition (EMT) in cholangiocarcinoma and provide a theoretical basis for the drug therapy of cholangiocarcinoma.

Methods: First, Pre-experiment: Firstly, using the Western Blot method to verify the expression of the Smad4, E-Cadherin, Vimentin in cholangiocarcinoma cell line RBE. Secondly, to test the infection efficiency of pLV7 lentiviral for cholangiocarcinoma cell line RBE, and screen the minimum amount of virus which can make the infection efficiency reach 80% at least as the experimental condition of next step. Second, Construction of Smad4 gene RNAi lentiviral vector: The specific shRNA fragment were designed then synthesized according to Smad4 gene, then connected to pMagic 7.1 plasmid, transformed E. coli. The plasmid were identified with agarose gel electrophoresis and gene sequencing. Finally lentiviral RNAi vector were packaged into HEK-293T cells. In the meantime negative control lentiviral vectors were constructed. And, making them infect the cholangiocarcinoma cell line RBE, detecting the effect of interference, to determine the next step experiment. Third, Experimental packet and test of target genes and protein: In the experimental group were divided into 6 groups: RBE cells group, RNA interference cell group, NC group, RBE cells + TGF β 1 treated group, RNA interference + TGF β 1 treated group, NC + TGF β 1 treated group. Using Real time PCR and Western Blot to detect the differences of the expression of Smad4, Snail, Slug, E-Cadherin and Vimentin in every group when cells were being cultured for 24h and 48h.

Results: First, the expression of Snail and Slug gene was up-regulated and the expression of E-Cadherin and Vimentin was down-regulated after the down-regulation of Smad4 gene expression in human cholangiocarcinoma cell line RBE ($P < 0.05$). Second, the expression of Vimentin, Smad4 and Slug gene was up-regulated and the expression of E-Cadherin was down-regulated ($P < 0.05$) but no significant difference between the expression of Snail gene ($p > 0.05$) in human cholangiocarcinoma cell line RBE after the concentration of TGF β 1 was increased in cell culture fluid. Third, Smad4 gene was downregulated while increasing TGF β 1 concentration in the cell culture medium than Snail and Slug gene was up-regulated and the expression of E-Cadherin was down-regulated and Vimentin was down-

regulated when they were at the treatment of 24h and it was up-regulated when they were at the treatment of 24h ($P < 0.05$).

Conclusion: TGF β 1 play an important role in the process of EMT in cholangiocarcinoma through TGF β signal transduction pathway, and the participation of Smad4 cannot alone but required with other signaling pathway induced the EMT in cholangiocarcinoma. So that to illustrate that can interfere the mechanism of EMT in cholangiocarcinoma through regulation of TGF β 1 and Smad4.

Keyword: TGF β 1; Smad4; cholangiocarcinoma; EMT

Prophylactic pancreatic stent placement reduce the risk of pancreatitis after endoscopic retrograde cholangiopancreatography: a meta analysis

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Running title: Pancreatic stent and ERCP

Objective: The aim of this meta-analysis is to determine whether prophylactic pancreatic stent placement reduces the risk of post-ERCP complications.

Method and Materials: Articles on the role of pancreatic stent placement in prevention of post-ERCP complications were identified from PubMed, Web of Science and EMBASE databases. The pooled effect was assessed by either fixed effects model or random effects model, which is based on the heterogeneity.

Results: 18 articles with 3300 patients were selected. Meta analysis identified that compared with no-stent placement group, there are lower incidence of pancreatitis (8.4% vs. 17.0%; OR=0.347; 95% CI 0.232-0.519; $P < 0.001$), decreased overall serum amylase level (SMD=-0.924; 95% CI: -1.669 to -0.179; $P = 0.015$), reduced risk of post-ERCP abdominal pain (12.5% vs. 18.8%; OR=0.369; 95% CI: 0.154 - 0.886; $P = 0.026$) in stent placement group. The incidence of hyperamylasemia (34.9% vs. 33.5%, OR=0.872; 95% CI: 0.572 - 1.329; $P = 0.523$) and hospital stay for treating post-ERCP pancreatitis (SMD=-2.265; 95% CI: -4.760 to 0.230; $P = 0.07$) were not significantly different.

Conclusions: Pancreatic stent placement reduces rate of post-ERCP pancreatitis, serum amylase level and abdominal pain. Pancreatic stent insertion is a safe and effective method for preventing post-ERCP complications.

Keywords: pancreatic stent; ERCP; pancreatitis; complications; meta analysis

EUS, the best way in diagnose of small stones in distal segment of CBD

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Background: Common bile duct (CBD) stone is a kind of common disease in clinical, although most of them can be clearly diagnosed with the help of percutaneous ultrasound. But in the clinical we found some of the bile duct stones, especially those located in the distal segment of CBD and with a small size which can't be seen with the traditional non-invasive methods percutaneous ultrasound, CT scan and even MRCP, and for these patients, the physical examination would be negative, and the intro and extra-bile duct may be not expend. Thus, an accurate, noninvasive, and safe method would be highly advantageous. Endoscopic ultrasound (EUS) is emerging as a reliable method. This article underline the advantages of EUS in patients' diagnose who present with possible common bile duct stones.

Methods: In our department, after collect and manage the clinical data of 11 patients who are suspected have CBD stones or other distal segment block when the traditional methods can't make a clear diagnose were recommended to take EUS examination.

Results: 15 patients in our department were recommended to have EUS examination, 11 of them with mild dilated CBD (with a diameter from 8mm to 17mm), 10 of them have TBIL raised (with the TBIL from 33umol/l to 102.5umol/l). All of them have serum alkaline phosphatase go up. The diagnosis reached after EUS examination: CBD stones in 7, with the diameter from 3mm to 8mm, CBD sludge in 4, benign biliary stricture in 4 respectively. All the patients diagnosed with CBD stones and CBD sludge were underwent ERCP after the EUS.

Conclusions: EUS is a useful diagnose method for patients with dilated CBD, bilirubin or ALP rise but can't give a clear diagnose with the help of percutaneous ultrasound, CT scan or MRCP, especially those patients with small stones and sludge in distal segment of CBD.

Keywords: Endoscopic ultrasound; diagnose; common bile duct stones

Analysis of Surgical Treatment for 113 Cases of Hilar Cholangiocarcinoma

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Objective: To explore the early diagnosis, clinical classification, preoperative evaluation, the options of surgical approach and clinical efficacy of surgical treatments for patients with hilar cholangiocarcinoma.

Methods: Clinical data of 113 patients with hilar cholangiocarcinoma in the Affiliated Hospital of Qingdao University from June 1999 to June 2009 were studied retrospectively. There were 55 males and 58 females with mean age of 61 years old. The informed consents of all patients were obtained and the ethical committee approval was received. After admission, patients undergo a comprehensive medical examination, routine liver function, tumor markers and imaging. All patients were confirmed by imaging and / or pathology diagnosis. Depending on the disease were treated with radical resection, palliative resection, internal drainage and external drainage. After follow-up of patients accepted. The survival of patients with different surgical treatments were analyzed and compared using Kaplan-Meier method and Log-rank test.

Results: Serum total bilirubin (TB) levels of 7-593μmol / L, the median level of 275μmol / L. 98 cases of elevated CA199, CEA increased in 36 cases. Underwent preoperative abdominal CT scan examination, plus cook abdominal CT examination in 57 cases, while 82 cases ultrasound examination, the line MRCP 21 cases, 8 cases of ERCP line. Adenocarcinoma in 27 cases, 31 cases moderately differentiated adenocarcinoma, poorly differentiated adenocarcinoma in 23 cases, 5 cases of undifferentiated carcinoma, complex carcinoma (moderately differentiated adenocarcinoma + undifferentiated carcinoma) in 1 case. Bismuth-Corlette clinical type I type 19.5% (22/113), type II 11.5% (13/113), IIIa type of 18.5% (21/113), III b type 16.0% (18/113), IV type 34.5% (39/113). 113 cases of hilar cholangiocarcinoma patients, radical resection accounted for 46.9% (53/113), palliative resection were 25.7% (29/113), the drainage accounted for 16.8% (19/113), external drainage accounted for 10.6% (12/113); surgical resection rate 72.6% (82/113). All patients who died three cases, which died of upper gastrointestinal bleeding in 1 case, 2 patients died of liver failure. 4 cases of upper gastrointestinal bleeding, hepatic encephalopathy in 5 cases, 2 cases of liver failure, bile leakage in 18 cases, 3 cases of abdominal infection, 11 cases of pleural effusion, wound infection and dehiscence in 7 cases. Follow-up of 6 months to 5 years, with a median follow-up time of 2.5 years. Radical surgery group median survival was 29 months in patients while palliative surgery group was 14 months, the drainage group was 11 months and the external drainage group was 9 months. The radical resection group 1, 3, 5-year survival rates were 76%, 39%, 11% while the palliative resection group were 74%, 21%, 4%, the internal drainage group were 35%, 2%, 0, the external drainage group were 28%, 0, 0. Difference in survival of patients with four groups was statistically significant ($\chi^2 = 21.367, P < 0.05$).

Conclusion: Should pay more attention to early symptoms of hilar cholangiocarcinoma, especially for high-risk patients. Early diagnosis, more complete preoperative evaluation and selection of the appropriate surgical approach helps to improve outcomes and survival rates of patients with hilar cholangiocarcinoma.

Keywords: Hilar cholangiocarcinoma; surgical treatment; diagnosis; preoperative evaluation; prognosis

A meta-analysis study of laparoscopic versus open splenectomy with or without esophagogastric devascularization in the management of liver cirrhosis and portal hypertension

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Objective: The aim of this meta-analysis was to determine whether laparoscopic splenectomy (LS) and laparoscopic splenectomy and esophagogastric devascularization (LSED) were the minimally invasive alternative for portal hypertension.

Methods: A meta-analysis of comparative clinical trials was performed to assess our questions mentioned above. Pubmed, ScienceDirect and Springerlink were searched.

Results: A total of 725 patients with liver cirrhosis and/or portal hypertension from eight published comparative trials were included. The operation time in laparoscopic group was more than one in open group [WMD 35.24 (16.74, 53.74); $P < 0.001$]. However, there were less intraoperative blood loss [WMD -194.84 (-321.34, -68.34); $P = 0.003$] and postoperative hospital stay [WMD -4.33 (-5.30, -3.36); $P < 0.001$] in laparoscopic group. Incidence of complications was similar in both groups. In the subgroup studies about LS versus OS, no significant differences were found in operation time, intraoperative blood and complication rates. The postoperative hospital stay in LS group was decreased apparently [WMD -4.07 (-4.93, -3.21); $P < 0.001$]. Although the operation time of LSED was longer [WMD 43.23 (17.13, 69.32); $P = 0.001$], LSED was associated with less intraoperative blood loss [WMD -189.26 (-295.71, -82.81); $P < 0.001$] and postoperative hospital stay [WMD -5.41 (-7.84, -2.98); $P < 0.001$]. Meta-analysis did not favor either LSED or OSED in term of complication rates.

Conclusion: The result of this meta-analysis were in favor of LS and LSED for being a safe, minimally invasion alternative for patients with liver cirrhosis and portal hypertension.

Keywords: laparoscopic splenectomy; esophagogastric devascularization; liver cirrhosis; portal hypertension; Clinical papers/trials/research

The protective effects of trypsin inhibitor on hepatic ischemia / reperfusion injury (HIRI) and liver graft survival

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Background: Liver ischemia reperfusion injury (IRI) is a common cause of liver graft nonfunction or function failure post transplantation. Trypsin inhibitor Ulinastatin (UTI) has been reported that it can inhibit the proinflammatory cytokine release through multiple pathways.

Aims: to further explore the optimal treatment regimen of UTI on cold preservation of liver graft and the underlying mechanisms.

Methods: In bred C57BL/6 mouse was employed. The liver cold IRI and orthotopic liver transplantation (OLTx) models were established. The optimal concentrations and timing of UTI were

tested and the liver injury, functions and graft survival were further evaluated.

Results: 1. UTI supplementation to the perfusion and preservative LR solutions significantly protects the liver from cold ischemia injury in a dose dependent manners. 2. The apoptosis of hepatocyte, Caspase-3 and Bax gene expression on liver tissue were reduced, but Bcl-2 was increased significantly in the UTI treated group. 3. The productions of proinflammatory cytokines IL-6, TNF- α , and IFN- β in the liver tissues of UTI supplemented LR solution with extended cold preservation time were reduced and IL-10 was increased significantly. 4. Moreover, the liver grafts with extended cold preservation time of 1 hour in the UTI supplemented LR solution demonstrated improved graft survival time post transplantation.

Conclusions: UTI treatment affords significant protection from cold IRI to donor livers and improves liver graft survival and acute function post-transplantation. The underlying mechanisms may be mediated by inhibition of proinflammatory cytokine release, increasing anti-apoptotic gene Bcl-2 and decreasing pro-apoptosis genes of Caspase-3 and Bax expression, and further protects hepatocytes from apoptotic death and improves the liver function.

Meta-analysis of risk between CYP2E1 RsaI/PstI polymorphism and liver cancer

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Background: Monooxygenase cytochrome P450 2E1 (CYP 2E1) is a member of the CYP superfamily and highly expressed in the cells of liver, stomach, intestine, and other important organs. CYP 2E1 is functionally mainly involved in oxidative stress, drug metabolism and endogenous substance transformation. The single nucleotide polymorphism (SNP) of CYP2E1 gene found at the 5' flank area, most commonly PstI 1239G>C (rs3813867) and RsaI -1055C>T (rs2031920), and can lead to changes of expression level and activity of CYP2E1. The association between CYP 2E1 PstI/RsaI polymorphism and liver cancer risk has not been elucidated. Thus, we perform this meta-analysis to clarify the association between CYP2E1 RsaI/PstI polymorphism and risk of liver cancer.

Materials and methods: The literature databases of Pubmed, Embase, Web of search Science, Cochrane Library, CBM, CNKI, and Wanfang database were searched. A total of 17 articles were analyzed including 4862 patients in total.

Results: Meta-analysis was performed with stata 12.0 and the comparison was carried out under 5 genetic modes: dominant (c1c2/c2c2 vs c1/c1: OR=1.00 [0.87, 1.15]), homozygous (c2c2 vs c1c1: OR=0.79 [0.55, 1.14]), heterozygous (c1c2 vs c1c1: OR=1.00 [0.87, 1.19]), recessive (c2c2 vs c1c2/c2c2: OR=0.81 [0.55, 1.18]) and allele contrast (C2 vs C1: OR=1.13 [0.99, 1.28]). The results showed that there were no significant associations between the CYP2E1 polymorphism and risk of liver cancer in all the 5 modes. The results stay in the same after the subgroup analysis of sources of control group and human races.

Conclusion: No significant association between the SNP polymorphism CYP2E1 and risk of liver cancer was found. However, the studies regarding gene polymorphism and risk of cancer

remain to be further continued, it may be a new approach as a screening marker for earlier diagnosis of liver cancer.

Cyclin-dependent kinase 8, a stimulating factor of angiogenesis in pancreatic cancer

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Background: Cyclin-dependent kinase 8 (CDK8) plays a significant role in many types of human cancer, but little is known about the function of this gene in pancreatic cancer.

Methods: We detected the expression of CDK8 by immunohistochemistry in normal and tumor tissue, and different factors of tumor angiogenesis following CDK8 overexpression or knock-down in different cells.

Results: Here, we demonstrated that CDK8 is commonly overexpressed in pancreatic cancer. Moreover, in high-CDK8-expressing AsPC-1 and CFPAC-1 pancreatic cancer cells, knock-down of CDK8 by lentiviral RNA interference significantly increased the expression of two suppressor genes of tumor angiogenesis, Krüppel-like factor 4 (KLF4) and Krüppel-like factor 2 (KLF2) ($P < 0.05$) but reduced the expression of platelet-derived growth factor D (PDGF-D) ($P < 0.05$), potentially promoting tumor angiogenesis. Opposite patterns of expression of these genes were observed in BxPC-3 pancreatic cancer cells, which have low CDK8 expression, following CDK8 overexpression. Most importantly, CDK8 downregulation significantly decreased tumor growth and angiogenesis in AsPC-1 and CFPAC-1 cell line xenograft models ($P < 0.05$), but the model of the BxPC-3 cell line was opposite.

Conclusion: These results suggest that CDK8 is an important angiogenesis-stimulating factor in pancreatic cancer, and targeted therapies of this gene may offer a promising therapeutic strategy for CDK8-overexpressing pancreatic cancers.

Keywords: CDK8; pancreatic cancer; PDGF-D; KLF4; KLF2; angiogenesis

Experimental study of laparoscopic biliary obstruction in dogs

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Objective: Combined with the laparoscopic minimally invasive technique, this paper introduces a new way to build animal model.

Methods: Six experimental dogs were used, laparoscopic common bile duct ligation were performed in each dog respectively. The operation time, anesthesia recovery time, first meal time and first defecations after operations were recorded. The Leucocyte, glutamic-pyruvic transaminase, glutamic oxalacetic transaminase, direct bilirubin, indirect bilirubin, total bilirubin,

C-reactive protein and procalcitonin were tested before operation, 3 days after operation, 7 days after operation and 10 days after operation. The histopathological features of livers were observed before and after operation.

Results: Each index levels were tested in different time, The WBC elevated slightly and restore faster, C-RP and PCT remained normal. The glutamic-pyruvic transaminase, glutamic oxalacetic transaminase, direct bilirubin, indirect bilirubin, total bilirubin increased significantly. Shorter operation time result in postoperative anesthetic wake up faster and gastrointestinal recovery faster. Common bile duct expansion significantly 10 days after operation. Liver histopathological examination showed bile capillary dilated.

Conclusions: Laparoscopic biliary obstruction is a safe and feasible way to build animal models, the simple, minimally invasive way of building can be applied to more widely aspects.

A novel technique of endoscopic magnetic compression choledochoduodenostomy

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Objective: In patients with biliary stricture or tumor of lower bile duct, establishing a pathway between the common bile duct and duodenum for smooth flow of biliary drainage is playing a decisive role for the development of diseases. Generally, Percutaneous transhepatic cholangiography drainage, Endoscopic sphincterotomy or bilioenteric anastomosis are the most common methods, yet they may lead many postoperative complications including hemorrhage, poor healing, anastomotic leakage and pancreatitis. The aim of this study is to introduce a novel technique of endoscopic magnetic compression choledochoduodenostomy which is minimally invasive, simple, and practicable and would cause minimal complication.

Methods: The magnets were made up of cylindrical nickel-plated neodymium-iron-boron (Nd-Fe-B) material. The daughter magnet with basal diameter of 4mm and height of 6mm was fixed at the superior site of a 6-French catheter by a long silk suture; the parent magnet was manufactured with basal diameter of 7mm and height of 6mm. Four dogs were selected randomly for the model of biliary obstruction; they underwent laparoscopic ligation of lower bile duct before the experiment. Seven days after modeling, when the extrahepatic duct and ductus cysticus were dilated completely, a guide wire was inserted through a 5mm incision in the bottom of the cholecyst of the anesthetized dog under laparoscopy. The guide wire was pushed through the ductus cysticus to the upward side of lower bile duct; then a 6-French catheter pushed the daughter magnet into designated spot in the common bile duct via the guide wire. After that, we removed the fixing wire, catheter and guide wire and closed the fistula. Simultaneously, the parent magnet was placed near the duodenal papilla under endoscopy; the two magnets were attracted under the gravity.

Results: The magnets were fallen 3-, 4-, 4-, and 5 days after operation respectively. A 6mm fistula between the common bile duct and duodenum can be observed under endoscopy. Furthermore, the bile flowed smoothly via the fistula. The specimen taken on the 14th day showed that fistula kept patency, mild inflammation response can be observed histopathologically and no leakage was observed in all dogs.

Conclusions: The magnets can only be placed only through the ductus cysticus because of the anatomy characteristics of dogs. According to other literature, the magnets can be placed by PTCD in human without the general anesthesia and endoscopic surgery sufficiently. The magnetic compression anastomosis avoided a series of bile duct and other postoperative complications. This effective and simple operation would be a conventional method for the treatment of biliary stricture and obstruction of common bile duct.

THE IMPACT OF EARLIER ENTERAL NUTRITION (EN) AFTER PANCREATICDUODENECTOMY (PD) ON THE RECOVERY OF ALIMENTARYPOST SURGERY

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Purposes: To investigate the impact of earlier enteral nutrition(EN) afterpancreaticduodenectomy(PD) on the recovery of the alimentary post surgery.

Methods: Clinical data of 127 patients were retrospectively analyzed in China-Japan Union Hospital of Jilin University from 2006–2013. The patients were divided into two category, which is EN group(82 patients) and control group(45patients). Impact factors of gender, age, EN or not, composition and dosage on the exhaust and defecation time, length of postoperative hospital staywere analyzed statistically.

Results: There are no apparent differences for gender and age in EN group ($P>0.05$). However, there were significant differences in the bowel movement and defecation time between EN group and control group ($P<0.001$). Further, there were significant differences for length of postoperative hospital stay between the two groups($P=0.004$). Conduct correlation analysis between the time given EN and the time of exhaust and defecation time, $P<0.001$, the difference was statistically significant. This regression equation can be established. Conduct the correlation analysisbetween the time given EN and length of postoperative hospital stay, $P=0.001$, the difference was statistically significant. This regression equation can be established. Conduct the correlation analysis between the composition and dosage with the time of exhaust and defecation. There was no statistically significant difference.

Conclusion: The impact of earlier enteral nutrition(EN) after pancreaticduodenectomy(PD) on the recovery of the alimentary of post surgery is positive and potentially yield wide applications.

HEPATIC EPITHELIOID ANGIOMYOLIPOMA: A RARE AND POTENTIALLY SEVERE TREATBLE TUMOR ACCOMPENYWITH 3 CASES REPORT

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Aims: Hepatic epithelioidangiomyolipoma (EAML) is a rare disease. However, it can be curable treated properly with very good outcomes.

Methods: we reviewed relative literatures published from year 2000 to 2014 and reported 3 cases.

Results: According to our literature survey and the present case reports, 24 cases of hepatic EAML were analyzed. The mean age of the patients was 46.98 ± 15.46 (ranging from 23 to 80). 17 of them were female (71%). 4 of the patients presented multiple liver lesions. Among the single lesion patients, the tumors' diameter varies from 2.8 cm to 32cm. Both of them were treated by operations and two of them relapsed after surgery (after 5 months, and 9 years, respectively). Immunohistochemicalstaining showed that these patients were positive for HMA45.

Conclusions: Diagnosing EAML before surgery remains a difficult challenge. Surgical resection is still considered one of the best treatment methods Immunohistochemical staining is an important tool to confirm the diagnosis. A long term follow-up seems necessary due to the potential of metastasis.

ID2 gene expression represents as a prognostic marker in patients with pancreatic ductal adenocarcinoma

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Purpose: Inhibitor of DNA Binding (ID2) gene has been proved to be over-expressed in pancreatic ductal adenocarcinoma (PDAC). However, its relationships with prognosis of PDAC patients still remain undocumented. The present study aimed at evaluating ID2 expression levels in PDAC and analyzing its relationships with prognosis of patients undergone surgical management.

Methods: One hundred and eighteen patients with pathologically diagnosed PDAC, treated surgically at the First Affiliated Hospital of Sun Yat-sen University from March 2008 to February 2012, were recruited in the study. Ninety-five of them (80.5%) underwent radical resection and the remaining 23 (19.5%) received palliative procedures or only biopsy. The patients' clinicopathological features and follow-up data were collected. Immunohistochemical staining was used to evaluate ID2 expression levels in paraffin-embedded tumor tissues from 118 patients, and staining index ≥ 6 was classified as high expression and staining index < 6 as low expression. Kaplan-Meier method was used to analyze postoperative survival. Univariate and multivariate analyses were performed to identify independent factors for patients with PDAC.

Results: With regards to ID2 expression, 71 of 118 patients (60.2%) had high expression and the remaining 47 (39.8%) had low expression. ID2 expression levels were correlated with tumor size, T staging and tumor differentiation grade. High ID2 expression group had greater percentage in advanced TNM stages, as compared with low expression group ($P=0.048$). Patients with high ID2 expression had shorter overall survival time than those with low ID2 expression, with a median survival time of 9 months vs 15 months ($P<0.001$). Multivariate analysis revealed that ID2 expression level and surgical treatment were independent prognostic factors in PDAC.

Conclusions: Our study demonstrated that high expression of ID2 was correlated with late staging and represented as an independent unfavorable prognostic factor in PDAC patients.

Keywords: ID2, PDAC, Prognosis

Malignant infiltrating intraductal papillary mucinous neoplasm: one case report and literature review.

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Background: and Aims: Intraductal papillary mucinous neoplasm (IPMN) is a rare tumor and originated in pancreatic duct. The diagnosis of benign, borderline or malignant to IPMN is significant to make treatment plan and prognosis. There are experience from clinical practice start with a case report and discussion through literature review.

Methods: and case report: A seventy-three years old male patient was admitted for occupying lesion of pancreatic. The MRCP scan considered IPMN, ERCP also diagnosed with IPMN and replaced both biliary and pancreatic duct stents, but did not get the evidence of cytology. One month later, the ERCP and IDUS were performed and showed it's growth infiltrating. The EUS-FNA has been done at the same time, pathological diagnosis was borderline IPMN.

Results: Although without support of pathology, patient was gave the clinical diagnosis infiltrating intraductal papillary mucinous adenocarcinoma (IPMC) and recommended surgery, but patient and his families did not receive and discharge, patient died 6.5 months (197days) since the first diagnosis.

Conclusions: Currently, the definition and classification of IPMNs is specification, but there are still some difficulties in diagnosis of its subtypes. CT, MRCP, ERCP, IDUS, EUS and EUS-FNA can all be applied to diagnosis. Cytological negative might not rule out malignancy completely, it still needs further examination and follow-up.

Analysis of prognostic factors for intrahepatic cholangiocellular carcinoma following hepatectomy: proposal of a prognostic model

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Background: Provided the 7th TNM staging of the American Joint Committee on Cancer proposed a new classification for intrahepatic cholangiocellular carcinoma (ICC), its prognostic factors following hepatectomy have not been well-documented. The present study aimed at evaluating the prognostic factors and proposing a prognosis-predicting model for ICC patients undergone hepatectomy.

Methods: A total of 151 ICC patients, who received hepatectomy at the First Affiliated Hospital, Sun Yat-Sen University,

were retrospectively recruited into this study. Post-hepatectomy survival and independent prognostic factors were analyzed. A prognosis-predicting model was proposed by quantifying and integrating all prognostic factors.

Results: One-, 3- and 5-year postoperative overall survival and disease-free survival rates were 64.9%, 26.0% and 19.4%; 49.3%, 17.6% and 17.6%, respectively. With regards to TNM staging system, there were no significant differences in overall survival between TNM stage II and III ($P=0.665$), stage III and IV ($P=0.928$); and no remarkable differences in disease-free survival between stage III and III ($P=0.387$), stage III and IV ($P=0.578$). Univariate and multivariate analysis revealed that tumor number (solitary vs multiple), adjacent organ invasion, lymph node metastasis and tumor histologic grade were independent prognostic factors for both overall and disease-free survival following hepatectomy. A scoring system for the above-stated 4 prognostic factors was proposed, and summation of all factors' scores, ranged from 4 to 9, was considered as prognostic scores. Four grades of prognostic scores were designated as grade A (score=4), grade B (score=5), C (score=6) and D (score \geq 7). One-, 3- and 5-year overall survival rates were 100%, 80.0% and 80.0% in grade A; 86.7%, 43.0% and 35.2% in grade B; 62.1%, 19.3% and 7.9% in grade C, and 34.2%, 0% and 0% in grade D, respectively ($P=0.000$). One-, 3- and 5-year disease-free survival rates were 80.0%, 70.0% and 70.0% in grade A; 73.3%, 29.1% and 29.1% in grade B; 46.2%, 9.6% and 0% in grade C; and 16.5%, 0% and 0% in class D, respectively ($P=0.000$).

Conclusions: The prognostic model developed in the present study could effectively stratify ICC patients undergone hepatectomy with different long-term outcomes, and represented as a valuable prognostic model for predicting the posthepatectomy survivals in ICC patients.

Keywords: Intrahepatic cholangiocellular carcinoma; Prognostic model; Prognostic factors; Hepatectomy

Characterizing the activation of the Wnt signaling pathway in hilar cholangiocarcinoma using a tissue microarray approach

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Purpose: To gain novel insights about the role of canonical Wnt signaling in hilar cholangiocarcinoma (HCCA) by assessing the level of canonical Wnt pathway activation in patients with HCCA compared to patients with intrahepatic cholangiocarcinoma (IHCC) and congenital choledochal cysts (CCC).

Methods: Pathology specimens from HCCA (n=129), IHCC (n=31), and CCC (n=45) patients were used to construct tissue microarrays. Immunohistochemistry was used to detect expression of Wnt2, Wnt3, β -catenin, TCF4, c-Myc, and cyclin D1. Univariate and multivariate analyses were used to determine inde-

pendent predictors of successful resection and prognosis in the HCCA group.

Results: The expression levels of Wnt2, β -catenin, TCF4, c-Myc, and cyclin D1 were significantly higher in HCCA group than HHC or CCC groups. While Wnt activation occurred in all three groups, Wnt activity in HCCA group was significantly greater than CCC group, but not IHCC group. Univariable analyses indicated that expression of cyclin D1, Wnt signaling activation, and partial Wnt activation predicted successful resection, but only cyclin D1 expression remained significant in multivariable analyses. The expression of cyclin D1 and the partial activation of Wnt signaling pathway are supposed to be the influence factor for prognosis, when the partial activation of Wnt signaling pathway was considered as an independent factor influencing the survival time.

Conclusions: Proteins in the canonical Wnt signaling pathway were significantly upregulated in HCCA and correlated with tumor resectability and patient prognosis. These results suggest that Wnt pathway analysis is a useful marker for clinical outcome in HCCA.

Keywords: Hilar cholangiocarcinoma; Wnt signaling pathway; Tissue microarray; β -catenin; C-Myc; Cyclin D1

Cirsomphalos herniation and bleeding: a rare complication of liver cirrhosis

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Object: Through a cirsomphalos herniation and bleeding case report, we discussed this rare complication of liver cirrhosis, and shared the therapeutic experience.

Methods: This case describes a 56-year-old male who presented to our hospital complaining of 10-year history progressing umbilical herniation and 4-day history bleeding. After simple hemostasis with ligation, an urgent CT scan was performed to making the diagnosis clearer. With the result of scan, the patient was considered suffering severe liver cirrhosis, which case umbilical arteries reopen and dilatated significantly, serves cirsomphalos-umbilical herniation and bleeding now.

Results: Through preoperative assessment, the patient was underwent a splenectomy and umbilical artery obliteration operation, recovered and discharged smoothly in 2 weeks. A multidisciplinary team discussion was performed with this rare complication of liver cirrhosis.

Conclusion: The patient with liver cirrhosis who complaining of cirsomphalos herniation and bleeding is rare in clinical, but can be treated by operation.

Keywords: liver cirrhosis, cirsomphalos, umbilical herniation, complication, umbilical arterie

Covered self-expandable metal stents compared with uncovered self-expandable metal stents for palliation of distal malignant bile duct obstruction: a meta-analysis

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Objective: To compare the benefit and risk effects of covered self-expandable metal stents and uncovered self-expandable metal stents for palliation of distal malignant bile duct obstruction.

Methods: We searched the Cochrane library, MEDLINE, EMBASE, Cochrane Library, web of knowledge, CBM, CNKI, VIP and Wan Fang database in any language. RCTs that compared CSEMS with USEMS for palliation of distal malignant bile duct obstruction were included from January 1994 to December 2014 and qualities of the trials were evaluated. Statistic analyses were carried out using RevMan 5.2 software.

Results: A total of 13 randomized controlled trials involving 1408 patients were included. Compared with USEMSs, CSEMSs were associated with significantly prolonged stent patency. (67.56d, 95% CI, 60.06–75.05, $P < 0.01$) and a lower rate of tumor ingrowth (OR=0.20; 95% CI: 0.08–0.52, $P < 0.01$). Incidence of recurrent biliary obstructions was significantly reduced in patients treated with CSEMS (OR=0.60; 95% CI: 0.38–0.96, $P = 0.03$). CSEMS were associated with significantly higher migration rate (OR=8.80; 95% CI: 3.08–25.12, $P < 0.05$). There were no differences in stent patency proportion after 3 months (OR=1.82; 95% CI: 0.63–5.25, $P = 0.24$), 6 months (OR=1.82; 95% CI: 0.63–5.25, $P = 0.27$) and 12 months (OR=1.25; 95% CI: 0.65–2.39, $P = 0.51$). There were also no differences in the rates of pancreatitis, cholecystitis, perforation, bleeding, cholangitis, length of hospital stay, duration of patient survival or rate of tumor overgrowth.

Conclusion: Compared with USEMS, CSEMSs have a significantly prolonged stent patency, lower rate of tumor ingrowth and lower rate of incidence of recurrent biliary obstructions in patients with distal malignant biliary obstruction. There were no differences duration of patient survival and in the rate of tumor overgrowth and stent patency proportion after 3 months, 6 months and 12 months. Complications were similar in two groups.

Keywords: Covered self-expandable metal stents; Uncovered self-expandable metal stents; Endoscopic; Distal bile duct obstruction; Meta-analysis

Double primary hepatocellular carcinoma and intrahepatic cholangiocarcinoma in different sites of the liver: a case report and review of the literature

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Objective: Synchronous development of primary hepatocellular carcinoma (HCC) and intrahepatic cholangiocarcinoma (ICC) in different sites of the liver have rarely been reported

before. The aim of this study is to investigate clinicopathological features of synchronous double cancer of HCC and ICC.

Methods: An extremely rare case of double HCC and ICC was discussed in terms to clinical presentation, laboratory tests and CT appearance, then analysis related literature.

Results: Multiple HCC in segment VI(SVI) and segment VII(SVII) of the liver was preoperatively considered on the basis of preoperative abdominal computed tomography(CT) and contrast-enhanced ultrasonography(CEUS). Therefore we performed hepatic resection of both segments. The tumors in SVI and SVII were pathologically diagnosed as ICC and HCC respectively. Unfortunately, the recurrence of HCC was found in segment VIII(SVIII) at 1 month post of the hepatic resection, then the patients was successfully treated with Transhepatic Arterial Chemotherapy and Embolization(TACE).The patient has remained alive after follow-up 5 months without evidence of metastasis.

Conclusion: Synchronous development of HCC and ICC is very rare with unique clinical and pathological features. The correct preoperative diagnosis of double hepatic cancer of HCC and ICC is difficult. Hepatitis B virus (HBV) and Hepatitis C virus(HCV) infection were both the independent risk factor to development of double liver cancer. Hepatic resection is the most important treatment choice. The prognosis of synchronous occurrence of double hepatic cancer was as poor as pure ICC.

Keywords: Double hepatic cancer; Hepatocellular carcinoma; Cholangiocellular carcinoma; Hepatectomy

Tumstatin-derived peptide T7 regulates angiogenesis in integrin $\alpha\beta 1$ and $\alpha\beta 3$ dependent pathways

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Purposes: To investigate the possible integrin binding sites in tumstatin-derived peptide T7 mediated anti-angiogenesis and antitumor process in hepatocellular carcinoma. The integrin binding sites and antitumor activity of tumstatin-derived peptide T7 in hepatocellular carcinoma have not been studied.

Methods: In the present study, we designed and synthesized the small molecular angiogenesis inhibition related peptide T7 (tumstatin-derived peptide T7, T7) and detected the anti-angiogenesis activity of peptide T7. The possible integrin binding sites of T7 was detected in human umbilical vein endothelial cells (HUVECs) via the transfection of integrin $\alpha 3$ siRNA or $\beta 3$ siRNA. The antitumor mechanisms of peptide T7 was detected in HepG2 cell xenografts in nude mice via the i.p. injection of peptide T7.

Results: Our results showed that T7 suppressed endothelial cell proliferation and migration through both integrin $\alpha\beta 1$ and $\alpha\beta 3$ dependent pathways. The apoptosis-promoting effect of T7 in endothelial cells was majorly mediated by integrin $\alpha\beta 1$ via mitochondria apoptosis pathway. T7 showed no effect on the growth of HCC cell line HepG2 cells in vitro but indirectly inhibited the tumor growth of HepG2 cell xenografts in nude mice via the inhibition of angiogenesis.

Conclusions: Our data showed that the active fragment of tumstatin, T7, might also execute its anti-angiogenesis activity by binding with integrin $\alpha\beta 3$ / $\alpha\beta 1$ and execute its anti-tumor activity indirectly by inhibiting the angiogenesis of HCC in vivo.

Keywords: angiogenesis, integrin, tumstatin, hepatocellular carcinoma

Effects of end-to-end invagination pancreaticojejunostomy with circle discontinuous U suture on the occurrence of pancreatic fistula after pancreaticoduodenectomy

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Objective: To investigate the effects of end-to-end invagination pancreaticojejunostomy with circle discontinuous U suture on the occurrence of pancreatic fistula after pancreaticoduodenectomy.

Methods: Two hundred and one patients receiving pancreaticoduodenectomy at our hospital during January 2006 to December 2013 were retrospectively analyzed. All patients were divided into the group A(116 patients), group B (51 patients) and group C(34 patients) according to different anastomotic methods. Patients in the group A use end-to-end invagination pancreaticojejunostomy with circle discontinuous U suture, patients in the group B use traditional end-to-end anastomosis, and patients in the group C use end-to-side anastomosis. All patients use the Child method to reconstruct digestive tract.

Results: The incidences of pancreatic fistula after end-to-end invagination pancreaticojejunostomy with circle discontinuous U suture (10.3%, 12 / 116, group A) was significantly lower than the traditional end-to-end anastomosis (27.4%, 14 / 51, group B, $P < 0.05$) and the end-to-side anastomosis (35.2%, 12 / 34, group C). There was no significant difference in the three groups between the gender, average age, operation time, the number of complicated diabetes, the average total bilirubin and albumin before surgery. There was a difference between the A and B groups ($P < 0.05$) in operation time.

Conclusion: End-to-end invagination pancreaticojejunostomy with circle discontinuous U suture can significantly reduce the incidence of pancreatic fistula after pancreaticoduodenectomy.

Keywords: Pancreaticoduodenectomy; Pancreaticojejunostomy; pancreatic fistula; Postoperative complications;

A relative clinical study on vascular blockade during hepatectomy for primary hepatic carcinoma

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Objective: To study the application and efficacy of hepatic vascular occlusion in HCC resection;

Methods: Between 2006 and 2014 230 Primary Hepatocellular Carcinoma (PHC) patients were enrolled and divided into three groups, 105 cases, belonging to Group A, underwent the Pringle's maneuver, Group B included 84 cases in combination Pringle's maneuver and inferior vena cava(IVC) clamping, and 41 cases received anatomical blood flow blockade for the half liver

for hemihepatectomy belonged to Group C, The efficacy of the three occlusions were compared.

Results: Central venous pressure (CVP) decreased significantly from (8.32 ± 3.56) cmH₂O to (3.99 ± 1.87) cmH₂O after IVC clamping ($P < 0.01$). Blood loss was (263 ± 146) ml in group B and (657 ± 384) ml in group A ($P < 0.01$). There was no severe renal or cardiovascular damage occurred after IVC clamping. Blood loss in group C (255 ± 178) ml was significantly less than that in group A (657 ± 384) ml ($P < 0.01$). Operation time in group C was longer than that in group A and B ($P < 0.01$). There is significant difference in postoperative liver function, the occurrence of complications and intestinal function recovery time, the group C is significantly superior to the group A and B ($P < 0.01$).

Conclusions: IVC clamping is effective and safe in reducing blood loss during hemihepatectomy, Anatomical hemihepatectomy in which blood flow was blocked before the resection caused no liver ischemia-reperfusion injury, though it demands a longer operation time.

Keywords: Primary hepatocellular carcinoma; Hepatectomy; Pringle's maneuver; Inferior vena cava

Establishment of human hilar cholangiocarcinoma model and analysis of nerve infiltration

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Objective: To construct the implantation model of human hilar cholangiocarcinoma in situ in nude mice and to analyze the nerve infiltration of cholangiocarcinoma cells in these tumors.

Methods: Human hilar cholangiocarcinoma cell line QBC939 was cultured and located in the interaction between the hilar bile duct and portal vein of nude mice. Ultrasonic assay was used to determine the location of the tumor. Two weeks after implantation, nude mice were sacrificed for the anatomical and pathological observation. In addition, S100 protein was detected using immunohistochemistry to determine the status of nerve infiltration in the tumor specimens.

Results: All nude mice implanted with QBC939 cells developed tumors in situ as revealed by Ultrasonic assay and anatomy. Tumor cells were highly aggressive and invaded into the surrounding organs and lymph node. 8 of 10 (80%) tumor specimens had nerve infiltration.

Conclusion: The implantation model of human hilar cholangiocarcinoma in situ with high ratio of nerve infiltration in nude mice serves as ideal platform for exploring the mechanism of the development and progression of hilar cholangiocarcinoma and determining the effective treatment strategies.

Keywords: Bile duct neoplasm; Animal models; Nerve infiltration; S100 protein

Comparative study of gasless and pneumoperitoneum laparoscopic cholecystectomy

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Objective: To study applications, advantages and feasibility of the gasless laparoscopic surgery (GLLC).

Methods: 60 cases which were underwent cholecystectomy resection with gasless LC for gasless group, 60 cases which were underwent cholecystectomy with gas LC for gas group, and these cases were collected from our hospital from March 2009 to June 2012. Average operative time, median intraoperative bleeding, postoperative bowel function recovery time, length of hospital stay, preoperative and postoperative blood gas analysis, the postoperative complications were analysis and compared in two groups.

Results: The surgeries were successfully completed in two groups. There were no complications. The Incisions were healed without infection, There were no statistically differences in preoperative paO₂, pCO₂ and DBP, petCO₂, spO₂ %, PH value of hemodynamic analysis in two groups ($P > 0.05$). There were significant differences in preoperative SBP, MAP of two groups ($P < 0.05$). Postoperative pCO₂, spO₂ %, PH value weren't statistically different in two groups ($P > 0.05$). Postoperative DBP, SBP, MAP, and paCO₂, petCO₂ % were significantly different in two groups ($P < 0.05$).

Conclusion: Gasless laparoscopic surgery (LC) is a safety surgery with minimally invasive, quick postoperative recovery and there are no complications of CO₂ gas laparoscopic surgery. Gasless laparoscopic surgery (LC) has minimal effect to human body hemodynamic, and it has a valuable aspect in clinical applications.

Keywords: gasless; laparoscopic cholecystectomy; postoperative blood gas analysis; cardiopulmonary

Clinical research on probiotics application in patients after liver transplantation

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Objective: To investigate the clinical evaluate and effort of probiotics application in patients after liver transplantation.

Methods: 55 patients with orthotopic liver transplantation were randomly divided into control group and Probiotics group. All patients received immunosuppressant after operation, based on the above Probiotics group to give probiotics products. The serum levels of total bilirubin (TBIL), alanine aminotransferase (ALT), albumin (ALB) and prealbumin (PA) were measured on preoperation and the 2nd, 5th and 8th postoperation day (POD) respectively. The incidence rates of post-transplant infection and gastrointestinal side effect were compared.

Results: The serum levels of ALT (POD8) and TBIL (POD8) of Probiotics group were significantly lower than control group ($P < 0.05$), and the serum levels of ALB (POD5, POD8) and PA (POD5, POD8) of Probiotics group were significantly higher than control group ($P < 0.05$). The incidence rate of infection and gastrointestinal side effect of Probiotics group (41.38%, 17.24%)

were significantly lower than the control group (69.23%, 42.31%) within one week after operation ($P < 0.05$).

Conclusions: The application of probiotics in patients after liver transplantation can improve nutritional status, promote liver function, reduce inflammation, lower the incidence rate of infection and gastrointestinal side effect.

Keywords: probiotics liver transplantation liver function side effect

The Surgical skills for the treatment of right upper quadrant tumors with inferior vena cava involvement

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Objective: To investigate the Surgical skills for the treatment of right upper quadrant tumors with inferior vena cava involvement.

Methods: To collect data of total 77 cases of right renal carcinoma, the right adrenal tumors and retroperitoneal tumors, which were all with inferior vena cava involvement from January 2006 to December 2012 in our hospital and summarize surgical skills for these diseases.

Results: The operation duration was 120min~180min, the blood loss during operation was 200ml~1800ml, the hospitalized time was 10d~18d. All 70 cases were followed up. Ten cases were dead.

Conclusion: The surgery of right upper quadrant tumors with inferior vena cava involvement is difficult to operate and has high risk. It is important to improve the operative security and outcomes by choosing proper approach, controlling the blood vessels, elaborate separation techniques and the assistant of extracorporeal circulation.

Keywords: inferior vena cava; cancer embolus; surgical treatment

The clinical curative effect analysis of endoscopic treatment of 28 cases of pancreatic pseudocyst

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Objective: To explore the effect and complication of endoscopic -guided drainage of pancreatic pseudocysts.

Methods: The clinical data of 28 cases of pancreatic pseudocysts treated with endoscopic -guided from August 2012 to March 2014 of our Endoscopy center. cut through the duodenal papilla with the pancreatic duct stenting drainage after Endoscopic Retrograde Cholangio-Pancreatography (ERCP) and The internal and external drainage of pancreatic pseudocysts by endoscopic ultrasonography (EUS) -guided transgastric.

Results: A total of 17 patients underwent the pancreatic duct stenting drainage after ERCP. The inefficiency of these 3 cases of postoperative drainage, they underwent transgastric Stent placement and drainage tube implanted by EUS-guided after five days,

1week, 2weeks respectively. 2 patients underwent double pigtail stents drainage, 1 patients underwent double pigtail stents in combination with nose - cyst tube drainage. 11 patients of pancreatic pseudocysts by EUS-guided transgastric drainage. Of these, 5 patients underwent double pigtail stents in drainage, 3 patients underwent nose - cyst tube drainage, 3 patients underwent double pigtail stents in combination with nose - cyst tube drainage. 3 patients of this group occurred postoperative the cyst infection, 2 patients with Puncture bleeding and 2 patients had postoperative pancreatitis. The CT follow-up of 3 months shows: 15 patients pancreatic pseudocysts disappear completely. 6 cases of volume decreased to 1/3 of the original volume, 7 cases to 2/3, All patients with abdominal pain, abdominal distension and other symptoms disappear entirely.

Conclusions: Endoscopic treatment of pancreatic pseudocyst are efficacy and less complications, Among them, the treatment of pancreatic pseudocyst under the EUS guided transgastric drainage is of important value.

Keyword: pancreatic pseudocyst, Endoscopic treatment, Curative effect

ERCP combined with laparoscopic cholecystectomy can prevent iatrogenic bile duct injury

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Objective: To investigate ERCP combined with laparoscope for the prevention of bile duct injury in difficult laparoscopic cholecystectomy.

Methods: review our hospital from January 2009 to October 2014 admitted to 579 cases of difficult laparoscopic cholecystectomy, according to the choice of treatment, they is divided into two groups, 308 cases in ERCP combined with laparoscope group and 304 cases in conventional treatment group. The operative time, blood loss, postoperative biliary fistula incidence, hospitalization time, peritoneal drainage tube extubation time were compared between the two groups.

Results: 305 cases were underwent successfully completed LC in ERCP combined with laparoscope group; 3 cases were converted to laparotomy, ERCP combined with laparoscope group and conventional treatment group operation time [(85.7 ± 26.5) min vs (142.1 ± 22.6) min], blood loss [(35.2 ± 11.6) ml vs. (81.5 ± 19.2) min], the incidence of postoperative biliary fistula [0% vs. 4.7%], hospitalization time [(6.5 ± 1.2) d vs. (10.2 ± 2.8) d], peritoneal drainage tube extubation time [(2.9 ± 2.1) d vs. (5.2 ± 2.7) d] were significantly lower than conventional open surgery group.

Conclusion: ERCP combined with laparoscope can significantly reduce the incidence of bile duct injury iatrogenic complications in the difficult laparoscopic cholecystectomy.

Keywords: ERCP laparoscopic bile duct injury

EVALUATION OF LAPAROSCOPIC CHOLECYSTECTOMY TIMING IN THE MANAGEMENT OF ACUTE BILIARY PANCREATITIS

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Background/Purpose: Laparoscopic management of gall stones is considered the standard treatment. Some consider acute biliary pancreatitis a contraindication for laparoscopic cholecystectomy, whilst others advocate early surgery performance shortly after resolution of pancreatitis. Others consider cholecystectomy is better done after a period of time. The role of endoscopic sphincterotomy remains a dilemma whether to replace cholecystectomy or not.

The aim of the work is to evaluate the outcome of the two approaches, whether early or interval cholecystectomy.

Methods: This prospective study was carried out on 40 patients from March 2010 to March 2012. The operations were done in the Surgery Unit of the Upper Gastrointestinal tract, at the Faculty of Medicine, Alexandria, Egypt. Patients were divided into 2 groups according to the time of performance of laparoscopic cholecystectomy.

Results: Early laparoscopic cholecystectomy was done in 20 patients. Conversion was done in two cases (10%) due to excessive bleeding and friable tissues. Interval cholecystectomy was done in another 20 patients after 6–8 weeks with conversion in one case. The commonest complication was recurrent biliary events.

Conclusions: Early cholecystectomy is better than interval cholecystectomy. Interval cholecystectomy may result in recurrent biliary events which may increase morbidity and hospital stay. MRCP is better to be included in the study.

The increase of intra-abdominal pressure can affect intra-ocular pressure.

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Objective: This study aims to explore the usage of intraocular pressure measurements as the early indicator of the increase in intra-abdominal pressure.

Methods: In this prospective study, 40 patients undergoing elective surgery were included. Patients were divided into four groups of 10 patients. The control group (Group C) was not subjected to laparoscopic intervention. Laparoscopic surgery was respectively performed with an intra-abdominal pressure of 9, 12 and 15 mmHg in Groups L (low), M (medium), and H (high pressure). Intraocular pressure was measured binocularly in each

patient at three different time (before, during and end of surgery) using a contact tonometer.

Results: Patients' gender, age, body mass index (BMI), American Society of Anesthesiology (ASA) class, and operative times were not different among the groups. No complications occurred with either the surgery or measurement of intraocular pressure. Intubation was associated with a severe rise in IOP ($P < 0.05$). An increase in intraocular pressure were seen in groups M and H ($P < 0.05$).

Conclusion: Intraocular pressure was increased in the groups with an intra-abdominal pressure of 12 mmHg or more. Measuring the intraocular pressure might be a useful method to estimate the intra-abdominal pressure.

Keywords: Intra-abdominal pressure, intraocular pressure, abdominal hypertension, laparoscopy, critical care

The Affect Of intraperitoneal Ropivacaine And Incisional Bupivacaine Combination To The Comfort Of The Patient By Laparoscopic Cholecystectomy Operation

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Purpose: In this study, our aim was to investigate the affect of intraperitoneal ropivacaine combined with postoperative incisional bupivacaine application to the pain level and patient comfort after laparoscopic cholecystectomy.

Methods: In our clinic, 53 ASA-I and II patients who were subjected to elective laparoscopic cholecystectomy were included in the study. 27 of the patients comprised the working group (Group 1), and 26 of them the control group (Group 2). In the working group, intraperitoneal 40 ml ropivacaine and at the end of the operation totally 10 ml of 2%-bupivacaine were injected to the trocar-sites, under the skin and to the fascia layer. For pain evaluation, VAS (visual analog scala) scores, nausea and vomiting, sedation level were evaluated and recorded when the patient was transported to postanesthesia care unit immediately and at 2, 4, 8, 12, 18 and 24. hours after the operation. Postoperative analgesia was provided by patient controlled intramuscular diclofenac sodium.

Findings: Whereas the VAS scores in Group 1 were found meaningfully low compared to Group 2 ($p < 0.05$), this difference was only at 24. hour statistically meaningless ($p > 0.05$). The amount of postoperative intramuscular diclofenac sodium used by patients was found in Group 1 meaningfully low ($p < 0.05$).

Conclusion: The combination of intraperitoneal ropivacaine and local postincisional bupivacaine applied in laparoscopic cholecystectomy provided a positive affect on the comfort of the patient in the time of recovery by decreasing the postoperative pain and the need for analgesics meaningfully.

SURGICAL TACTICS OF SEVERE ACUTE PANCREATITIS

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Objective: to analyze the effectiveness of severe acute pancreatitis surgical treatment.

Methods: we have analyzed the result of surgical treatment of 238 patients with severe acute pancreatitis. The patients' age ranged from 18 to 82 years. The male patients were 132 (55, 46%), women - 106 (44, 54%). Before admission to the clinic disease duration up to 24 hours had 55, 88%, from 24 to 72 hours - 31, 51%, more than 72 hours - 12, 61% of patients. The cause of the disease in 68, 08% of patients were diet violation, 26, 47% - biliary tract diseases, other reasons - 5, 47%. There were used method of ultrasound and computerized tomography in the dynamics. All patients received a standard conservative therapy.

Results: In a case of enzymatic peritonitis was performed laparoscopic sanitation with subsequent drainage of the abdominal cavity. In a biliary pancreatitis case was performed laparoscopic cholecystectomy with drainage of the choledochus and abdominal cavity. The pancreatic necrosis was diagnosed in 72 (30, 25%) patients, of whom 37 (51, 39%) patients were identified abscess formation. In 35% of cases underwent laparoscopic sanitation with subsequent drainage, 65% of patients underwent open surgical intervention with removal of necrotic pancreas sequestrum, drainage of the abdominal cavity and retroperitoneal space. Mortality among patients with pancreatic necrosis was 29, 17% (21 people).

Conclusion: Up to 45% of patients with severe acute pancreatitis admitted to the hospital in more than 24 hours from onset that worsened their common condition. With aseptic pancreatitis is optimal laparoscopic surgery. In cases of necrotic lesions have been preferred mini-invasive method combined with laparotomy and adequate abdominal and retroperitoneal drainage.

Clinical Analysis and Review of Literature: Breast Lactation after Laparoscopic Cholecystectomy in Non-lactation Period

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Purposes: To analyze reasons of breast lactation after laparoscopic cholecystectomy in non-lactation period

Methods: 2 patients with breast lactation after laparoscopic cholecystectomy in non-lactation period were analyzed who were in hospital in our department in February, 2012 -November, 2013

Results: Two patients stopped breast-feeding 14-16 years before, normal menstruation, no history of abnormal lactation, no relevant pathological factors and they lactated on the postoperative 3-4 days.

Conclusions: we found that factors of breast lactation were narcotic and analgesic effect, mental and physical stimulation, regardless of the cholecystectomy itself

Breast lactation was very rare after laparoscopic cholecystectomy in non-lactation period. We analyzed 2 patients with breast lactation after laparoscopic cholecystectomy in non-lactation period, and we found that factors of breast lactation were

narcotic and analgesic effect, mental and physical stimulation, regardless of the cholecystectomy itself.

Keywords: Clinical analysis, lactation, laparoscopic cholecystectomy

The impact of nutritional status on postoperative recovery of patients undergoing pancreatoduodenectomy: a multivariate analysis of 560 patients

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Background: Although malnutrition was found to increase the risk of intra-abdominal and systemic complications in surgical patients, data for pancreatic resections are limited.

Methods: Five hundred and sixty consecutive patients undergoing pancreatoduodenectomy as the primary procedure for pancreatic pathology between 1995 and 2013 were reviewed to identify risk factors for postoperative complications and determine the impact of nutritional status. Nutritional assessment was performed with clinical and laboratory variables, including unintentional weight loss, body mass index, blood albumin level and lymphocyte count, as well as Nutritional Risk Index (NRI) and Instant Nutritional Assessment (INA) scores.

Results: Two hundred and fifty seven (46%) patients developed one or more complications and the overall in-hospital mortality rate was 5%. In the univariate analysis, the incidence of malnutrition was significantly higher in patients who developed complications. Multivariate analysis demonstrated that NRI and INA corresponding to malnutrition were independent predictors of postoperative morbidity with an odds ratio of 4.22 (95% CI, 1.23 to 14.33) and 3.54 (95% CI, 1.18 to 10.21), respectively.

Conclusion: Malnutrition, as defined by composite nutritional assessment scales consisting of clinical and laboratory parameters, is a major risk factor for postoperative morbidity following pancreatoduodenectomy.

Biliary complications after liver transplantation

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Introduction: Although previous studies reported 50% mortality and 23-30% morbidity rates, advancements in surgical technique, immunosuppression and organ preservation enabled to decrease these rates to 5-32% for morbidity and 19% for mortality.

Patients and Methods: Between February 1997 and February 2014, 500 LT in 494 patients (213(42.6%) deceased donor LT (DDLT), 281(56.2%) living donor LT (LDLT) and 6(1.2%) retransplantation were performed. Biliobiliary, bilioenteric and combined biliobiliary/bilioenteric anastomosis were performed in 317(63.4%), 180(36.0%) and 3(0.6%) LT.

Results: Thirty two (6.4%) patients had BC. LDLT was performed in 19(59.3%) patients and DDLT was performed in 13(40.6%) patients. Biliary reconstruction types were bilio-biliary anastomosis in 26(81.2%) patients, bilioenteric anastomosis in 5(16.1%) patients and combined anastomosis in 1(3.1%) patient. Biliary complications were anastomotic strictures (AS) in 15(46.9%) patients, non-anastomotic stricture (NAS) in 7(21.9%) patients, bile leaks in 8(25%), 5 from cut surface patients and biliary stones in 2(6.2%) patients. In 7 patients AS developed between 6th-12th months, in 2 patients AS developed between 12th-24th months and in 6 patients AS developed after 24 months after operation. NAS's were occurred within 6 months in 4 patients, 12th month in 1 patient, 24th month in one patient and 72th month in one patient after LT. MRCP, PTC and ERCP were diagnostic tests. In treatment, ERCP (16(50%) patients), PTC (11(34.3%) patients and both ERCP and PTK (5(15.6%) patients) were used. 3 patients required laparotomy. Mortality was seen in 7 (21.8%) patients.

Conclusion: Biliary complications can be minimized with appropriate surgical technique and close postoperative follow-up.

The comparable analyse of the role of different aetiological factors in the development of cholesterol and pigment gallstones

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The rate of the bile stone disease among people elevated during last decades and according the number of surgical operations on biliary system increased also. Due to literature brown pigment stones directly connected with the different inflammatory complications after cholecystectomy.

Aim: to evaluate the risk factors which are responsible to the formation of the brown pigment stones.

Material and Methods: retrospective analyse of the outcomes of the 95 patients after cholecystectomy were performed. Anamnestic, anthropometrical, ecological and some other Background: s, moreover the result of the investigations, were comparable analysed between patients with cholesterol, black and brown pigment stones.

Results: The meal with high carbohydrate content, gastro-duodenitis, chronic ulcer disease with the metaplasia in duodenal mucosa, helicobacter pillory in biopsies from stomach and the deformation in the neck of the gallbladder identified as risk factors in the development of the brown pigment stones.

Conclusion: With risk factors we can identify the patients with brown pigment stones and accordingly perform adequate prophylactic treatment against complication.

Is it beneficial to patients who have surgical splenic illness? The Evaluation Of Outcomes Of Patients with laparoscopic Splenectomy

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Background: Splenectomy is preferred method for hydatid and especially hematologic diseases. In 1991, first laparoscopic splenectomy was performed in England. Nowadays, laparoscopic splenectomy is a conventional procedure in surgical practice by experienced surgeons. This study aimed to offer the outcomes of number of patients who had operated with splenic disease.

Methods: The data of this study were obtained by records of our patients which have operated by laparoscopic procedure between January 2012 - September 2014 retrospectively. Partial splenectomies, vascular anomaly or as part of a pancreatectomy were excluded. patients were evaluated for age, gender, postoperative complications, conversion to open procedure, bleeding volume, Patient Observer Scar Assessment Scale (POSAS) and length of stay in hospital.

Results: Of 18 patients with splenic disease operated in our clinic. All Of the patients have operated by laparoscopic procedure (LP). The average of the patients were 36.5 (range 18 to 69) and body mass index were 32.4(range 26 to 41) kg/m². The indications of patients were oftenly, idiopathic thrombocytopenic purpura (ITP) (%77), splenomegaly(%12) and hydatid cyst (%11). The average operative period was 47.2 minutes (range 25 to 90), the volume of bleeding was approximately 40 mL (range, 20 to 125). Only in one patient converted to open procedure due to massive volume. The average length of stay in hospital was 3 (range 2 to 6) days. No mortality had seen in the group of patient after the surgery. The average result of POSAS was 2 point (range 1 to 6) and cosmetic happiness were meaningful. The complication rates were found lower.

Conclusions: laparoscopic surgery is a minimally invasive procedure that seems to be a challenging alternative in the management of splenic diseases. Also we think that reduction of the using port numbers which have used in surgery will increase the period of early return to work and decrease the financial bill of budget.

Gallbladder polyps determined by patients subjected to laparoscopic cholecystectomy with the diagnosis cholelithiasis

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Background: Gallbladder polyps (GBP) are lesions originating from gallbladder mucosa. GBP is determined by patients subjected to abdominal ultrasonography with a ratio 0.3–12%. GBP is found in pathological examinations made after cholecystectomy operation with a frequency of 2–12%. Cholesterol polyps constitute the most of the GBP and they don't bear a potential for malignity. Patients in our clinic who were subjected to laparoscopic cholecystectomy with the diagnosis gallstone disease and having GBP determined in the post-operative pathological examination are presented.

Methods: Cases between the dates 2010 and 2015 who had an operation with the diagnosis pre-operative gallstone disease and having GBP determined in their surgical episode have been evaluated retrospectively.

Results: Gallstone disease was diagnosed in the pre-operative ultrasonography. No patient was found to have gallbladder

polyp in the ultrasonography. 104 patients were subjected to laparoscopic cholecystectomy with the diagnosis gallstone disease. In the post-operative pathological examination 5% (4, 8%) of 104 patients were found to have gallbladder polyp. The average age of the patients having GBP was 44, 4. Two of the patients with GBP had one gallbladder stone, three of them had multiple gallbladder stones. All GBP's were cholesterol polyps. They were multiple with sizes varying between 1–3 mm. Chronic cholecystitis was determined by all patients. Patients with GBP were discharged without any complication.

Conclusion: Cholesterol polyps constitute 60 % of gallbladder polyps. They are created histologically as a result of the cholesterol accumulation from histiocytes containing cholesterol covered up by columnar simple epithelium. They might cause biliary obstruction or pancreatitis disease.

Hepatic resections for HCC on cirrhosis in elderly patients

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Background: Hepatocellular carcinoma (HCC) is the 5th most frequent tumor in the world, mostly occurring in middle-aged and elderly patients. Hepatic resection represents its treatment of choice, with a survival rate of 50–70% at 5 years. This study assessed mid and long term outcome of hepatic resection in HCC on cirrhosis in elderly patients.

Methods: Hepatic resections for HCC on cirrhosis performed at our Institute over a period of 13.5 years (July 2000–January 2014) were reviewed for: age, lesions, type of interventions, complications and follow-up.

Results: Ninety-two patients (62 older than 70 years) underwent wedge resections (58%), major resections (17%), segmentectomies (25%) for single and multiple lesions (mean dimension: 3.72 cm). In the elderly: there were 3 perioperative deaths and 31 complications (24 minor, 7 major); hepatic damage indices increased postoperatively, returning close to preoperative values after day 5; 17 tumors were differentiated, 30 moderately and 15 scarcely differentiated. The mean follow-up was 52 months (6–69 months). The mean survival rate in the elderly was 80.2% at one year (vs 83.1% in younger patients), 69.4% at 3 years (vs 71.6%), and 58.4% (vs 61.5%) at 5 years, with no statistically significant difference between the 2 groups.

Conclusions: The results indicate that advanced age by itself should not be regarded as a contraindication for curative hepatectomy in patients with HCC on cirrhosis.

Incidental gallbladder cancer: 16 years Cerrahpasa experience

Introduction: While incidence of gallbladder cancer is 0.3–1.5%, incidence of incidental gallbladder cancer is 0.19–3.3%. Five-year survival is 50% for T1 tumors and 29% for T2 tumors. Purpose of this study is to present experience in incidental gallbladder cancer in patients operated for cholelithiasis.

Methods: Patients who were operated for cholelithiasis between January 1999–2015 where included to study and incidental gallbladder cancer were investigated retrospectively.

Exclusion criteria was preoperative suspicion for malignancy and gallbladder polyps.

Results: In 16 years, 4851 cholecystectomies were performed. Of them, 4192 (86.4%) were finished laparoscopically. Incidental gallbladder cancer was detected in 19 (0.39%). Fourteen (73.6%) of them were female and five (26.3%) were male. Mean age was 69.5±13.4 (40–90) years. Eight of 19 patients (42.1%) were converted to laparotomy. Distribution of tumor stages according to American Joint Committee of Cancer was one in situ cancer, one T1, four T2, and twelve T3. Pathological diagnosis were 13 adenocarcinomas, two neuroendocrine tumors, two mucinous carcinomas, one adenosquamous carcinoma, and one in situ cancer. Postoperative mean survival was 20.5±41.5 (1–180) months. In two T3, wedge resection of gallbladder bed and regional lymph node dissection was performed. Adjuvant chemotherapy was administered to 7 (36.8%) patients. Mean survival was 13.3±11.9 months in T2 and 9.7±16.5 months in T3. In addition, survival of the in situ cancer patient was 180 months, the T1 patient was 30 months, and both patients are still disease free.

Conclusion: Subclinical malignancies can end up with poor result if not all gallbladder specimens are examined histopathologically. We strongly suggest routine histopathological examination of cholecystectomy specimens.

Keywords: Neoplasms, Gallbladder, Cholecystectomy

Vascular Surgery

Management of symptomatic chronic superior mesenteric artery occlusion by minimally trans-abdominal incision retrograde stent angioplasty

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Objective: To discuss the feasibility, safety and validity of symptomatic chronic superior mesenteric artery occlusion (SCSMAO) managed by minimally trans-abdominal incision retrograde stent angioplasty.

Methods: Retrospective analysis of 9 SCSMAO patients who received minimally trans-abdominal incision retrograde stent angioplasty. Record the incision length, puncture position, puncture success rate, whether arterial dissection occurs, implanted stent type and size, bleeding amount, contrast dose and operation time of the procedure. Apply routine antiplatelet and statin therapy in postoperative management. Observe the improvement of symptoms and the presence of restenosis during the follow-up.

Results: The technical success rate was 100%. Mean incision length was 5.8cm (range 5–6.5cm), mean bleeding amount was 39.4ml (range 30–50ml), mean contrast dose was 28.3ml (range 25–35ml) and mean operation time was 90.4min (range 78–103min). Arterial puncture success rate was 100% with no artery dissection and other perioperative complication happened. Balloon expandable stents (Boston Scientific, Express LDTM) was implanted in all of 9 cases successfully, with the size of 7×19mm in 1 case, 8×37mm in 7 cases and 9×37mm in 1

case. All patency rates of immediate postoperative angiography were greater than 85%. Through current follow-up of 9 successfully cases (mean: 16.7 months, range 6–30 months), all patients complained symptoms disappeared and appetite improved within 1 week after the operation, the mean post 6 months operation weight increase was 4.9kg (range 3.2–6.6kg). 1 asymptomatic in-stent restenosis happened but no stent fracture happened during the follow-up.

Conclusions: Minimally trans-abdominal incision retrograde stent angioplasty offered new options in the management of SCSMAO, with its initial confirmed simplicity, feasibility, safety and validity.

Keywords: symptomatic chronic superior mesenteric artery occlusion (SCSMAO); hybrid operation; minimally trans-abdominal incision retrograde stent angioplasty

Risk analysis of restenosis after vascular reconstruction for aortoiliac atherosclerotic occlusive diseases with TASC II D: A Retrospective Evaluation in a Single Institution

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Objective: To identify the risk factors of restenosis after vascular reconstruction surgery of symptomatic aortoiliac atherosclerotic occlusive diseases (AODs) with TASC II D.

Methods: Fifty-six patients (82 limbs) who underwent vascular reconstruction surgery successfully for symptomatic aortoiliac AODs with TASC II D and followed regularly between March 2005 and December 2012 were reviewed retrospectively. The patient's medical records baseline characteristics, pre-operation CTA or DSA, operation report and post-operation duplex ultrasound or CTA were reviewed and analysed. Restenosis after angiography was assessed by duplex ultrasound or CTA within the follow-up period. Kaplan-Meier survival analysis, Log-Rank test and Cox regression were used to examine the relevance between risk factors and primary patency.

Results: The mean follow-up duration was 42.84±23.48 months (Range: 3 to 90 months). Primary patency rates at 1, 3, 5, 7 years were 92%, 87%, 87%, 68%, respectively. Retenosis after angioplasty occurred in 11 limbs. Kaplan-Meier survival analysis and Log-rank test showed that diabetes, Rutherford classification 5 and 6 grade and concurrent femoropopliteal TASC II type C/D occlusive diseases were significant related to primary patency. According to the result of Cox regression, diabetes and femoral popliteal TASC II type C/D occlusive diseases were the risk factors for restenosis after vascular reconstruction surgery.

Conclusions: Diabetes and femoral popliteal TASC II type C/D occlusive disease were the risk factors of restenosis after vascular reconstruction surgery for aortoiliac AODs with TASC II type D.

Carotid Endarterectomy for Patients Atherosclerotic with Endarterectomy Occlusive Diseases

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Objective: To study the effect of endarterectomy for occlusive of carotid artery.

Methods: A retrospective study was carried out on 15 patients with carotid artery occlusive diseases treated by endarterectomy.

Results: 11 cases had no symptoms of brain ischemia, 2 TIA, 2 stroke. the carotid stenosis were more than 70%(NASCET), in which bilateral in 2 cases, Unilateral internal carotid occlusion in 2 cases. Be doing cervical block anesthesia in 13 and general anesthesia in 2, CEA were performed. 2 cases with bilateral carotid stenosis underwent CEA on the one side of serious. CEA were successful in 2 cases of internal carotid occlusion case. 1 with kinked internal carotid artery in the distal of stenosis segment underwent resection of stenosis segment and end to end anastomosis. There was no perioperative death and stroke. During 3 month to 7 years (means 11 months) follow-up, the symptoms of brain ischemia were improved in all symptomatic patients and the colour ultrasound found stenosis disappeared.

Conclusion: CEA is a safe, effective treatment for carotid artery atherosclerotic stenosis.

Keywords: Carotid atherosclerotic disease/Surgery; Carotid endarterectomy

Comparison and Selection of Surgical Reconstruction and Intervention Therapy for Chronic Iliac Artery Atherosclerotic Occlusive Disease

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Objective: To compare the effects, complications and follow-up results of surgical reconstruction and intervention therapy for chronic iliac artery atherosclerotic occlusive disease, and guide treatment selection of the disease.

Methods: 67 patients matching the conditions were randomly divided into surgical reconstruction group and interventional therapy group. The effects, complications and follow-up Result of two groups were analyzed and compared.

Results: 30 cases received artificial blood vessel bypass operation in surgical reconstruction group, in which the anatomic vascular reconstruction in 24 cases, the left-right femoral artery bypass in 6 cases. 7 patients were subjected to simple balloon dilatation, 23 cases balloon dilatation and stent implantation, 3 cases failure in interventional therapy group. The recent(30d) patency rate of reconstructed vessel was 100% in surgical reconstruction group, 96.7% in interventional therapy group. The long term(3ys) patency rate of reconstructed vessel was 87.5% in surgical reconstruction group, 72.2% in interventional therapy group.

Conclusion: There were ideal effects for chronic iliac artery atherosclerotic occlusive disease in both surgical reconstruction group and intervention therapy group. Surgical reconstruction has higher long term patency rate, but the greater risk. Intervention therapy is a suitable choice for the patients of advanced age and poor general condition.

Keywords: Iliac Artery; Atherosclerotic Occlusive Disease; Surgical Reconstruction; Intervention Therapy

Stent angioplasty treatment of atherosclerotic renal artery stenosis (ARAS) in 27 patients curative effect observation

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Objective: To analyze the method and curative effect of stent angioplasty treatment of atherosclerotic renal artery stenosis (ARAS).

Methods: Retrospective analysis of application support stent angioplasty treatment of 27 cases of atherosclerotic renal artery stenosis in patients with clinical data for 3 years. Follow-up of renal artery restenosis rate, renal artery resistance index (RI), blood pressure, serum creatinine (Scr) and glomerular filtration rate (GFR) and so on.

Results: 27 patients are performed successfully, and technical success rate 100%. After surgery, 1 year follow-up of renal artery restenosis rate was (18±13) %, RI (0.69±0.03), for (142±18) mmHg systolic pressure, diastolic blood pressure (81±13) mmHg, Scr for (149±59) μmol/L, the GFR of (58±11) mL/min; renal artery restenosis 15% (4/27), RI improve 92% (25/27), Systolic blood pressure to improve 85% (23/27), Diastolic pressure improve 74% (20/27), Scr improve 67% (18/27), GFR improve 81% (22/27), Taking anti-hypertensive species decreased by 63% (17/27). Each index compared with preoperative had statistical difference ($P < 0.05$).

Conclusions: Renal artery stent angioplasty treatment of atherosclerotic renal artery stenosis can significantly improve the renal function, reduce blood pressure, reduce oral antihypertensive species, has good safety and efficacy.

Keywords: Stent Angioplasty; Renal Artery Stenosis; Atherosclerotic; Curative Effect

Sustained-releasing basic fibroblast growth factor and hepatocyte growth factor enhances neovascularization in mouse hindlimb ischemia

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Purpose: Therapeutic neovascularization is being performed by the local delivery of genes or sustained-release proteins of several angiogenic growth factors to the ischemic limb. We have demonstrated that combined treatment with hepatocyte growth factor (HGF) and basic fibroblast growth factor (bFGF) effectively enhances neovascularization in mouse hindlimb ischemia. However, it remains unclear whether the duration of sustained-release of each angiogenic growth factor affects the extent of neovascularization. Thus, we aimed to evaluate the efficacy of dual sustained-release of bFGF and HGF from gelatin hydrogels of different biodegradabilities in the mouse hindlimb ischemia model.

Methods: Unilateral ischemia was created in the hindlimb of 6-week-old C57BL/6 mice. Gelatin hydrogels of different biodegradabilities were prepared for sustained-release of HGF and bFGF for 2 and 4 weeks. The ischemic mice were randomly assigned to 4 groups (n = 10, each); mice intramuscularly injected with gelatin hydrogel granules for 2-week HGF (40μg) release and 4-week bFGF (20μg) release (Group I), those for 4-week

HGF release and 2-week bFGF release (Group II), and those for 4-week HGF release and 4-week bFGF release (Group III) or not injected (Group IV). The blood flow of hindlimb was evaluated by the laser Doppler perfusion image index (LDPII) (ratio (%) of ischemic-to-normal-hindlimb blood flow). Four weeks later, the mice were sacrificed and the number and maturity of newly formed blood vessels were evaluated by anti-von-Willebrand and anti- α -smooth muscle actin staining, respectively.

Results: The LDPII for gelatin hydrogel-injected groups was significantly higher than that of non-injected group (Group I: 70±3%; Group II: 78±12%; Group III: 70±6%; Group IV: 46±4%, $P < 0.05$). The extent of anti-von-Willebrand staining for Group II was greatest among the 4 groups, while Groups I and III showed the greater extent than group IV (Group I: 290±68 vessels/mm²; Group II: 380±95 vessels/mm²; Group III: 296±59 vessels/mm²; Group IV: 180±85 vessels/mm², $P < 0.05$). The greatest extent of anti- α -smooth muscle actin staining was observed for Group II (Group I: 18±9 vessels/mm²; Group II: 30±12 vessels/mm²; Group III: 20±8 vessels/mm²; Group IV: 14±7 vessels/mm², $P < 0.05$). Thus, combined treatment with 4-week HGF and 2-week bFGF release gelatin hydrogel granules was most effective for neovascularization to the ischemic hindlimb.

Conclusion: Appropriate duration of sustained-release of HGF and bFGF effectively enhances neovascularization to the ischemic hindlimb.

Keyword: HGF, bFGF, neovascularization

Thoracic endovascular aortic repair for complex aortic dissection and thoracic aortic aneurysm

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Objective: To summarize the experience of thoracic endovascular aortic repair (TEVAR) of complex (AD) and thoracic aortic aneurysm (TAA).

Methods: The data of 76 cases of complex AD and TAA with TEVAR were analyzed of, type A AD in 1, involving arch or inadequate proximal landing zones in 74, kidney ischemia in 12, dysfunction of liver in 7, lower limb ischemia in 3. 52 cases were treated with TEVAR (covered Left subclavian artery in 22), 6 TEVAR with chimney graft, 5 TEVAR with grooving stent, 13 TEVAR with hybrid procedure.

Results: During the perioperation period: 2 patients died, one of which died of cardiac arrest (the case with type A AD) while another died of cerebrovascular accident; 8 case of proximal type 1 endoleak, which disappeared in 2 and diminished in 6 when the patients leave the hospital. 51 patients were followed up between 3 months and 9 years (18 months in average), in which a 38-year-old patient with TAA had total artificial vessel obstruction after a hybrid operation, but without any cerebrospinal symptom; one 72-year-old patient with AD died of lung cancer in 2 years, another 84-year-old patient with AD died of cardiac disease in 1 year. Two patients had a second TEVAR after 3 months and 1 year because of new crevasse. In one case the endoleak of EVAR disappeared a year later.

Conclusion: By using the techniques such as left subclavian artery covering up, chimney graft and grooving stent, as well as carotid artery hybrid (pathway) operation, TEVAR may treat TAA and AD better with less complications.

Adjunctive Techniques To Facilitate Endovascular Repair Of Aortic Dissection Of The Arch And Its Branches: Hybrid Repairs And Chimneys

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Objective: To report our early experiences of endovascular stent-graft repair combined with adjunctive techniques in treating acute aortic arch dissections.

Procedure and Methods: From Jul 2002 to Feb 2013, 926 patients of type B aortic dissection were treated with endovascular stent-graft repair. All patients' medical records and imaging materials were collected and analyzed retrospectively. 255 patients had insufficient ideal proximal landing zone for endovascular aortic repair alone whose tear site located < 1.5cm distal to LSA (143 men, 51.3±11.4 year, range 20~86). 65 single chimney stents were inserted into LSA or LCCA, 3 double chimney stents of LCCA and innominate arteries, 23 extra-anatomic bypass performed prior to or followed intervention, 1 entire aortic arch bypass procedure without CBP performed before TEVAR, 14 PDA excluders were deployed to prevent retrograde flow from LSA after intervention, 1 branched stent-graft and fenestration stent-graft were deployed, retrospectively.

Results: Technical success rate was 99.3%, 30-day mortality was 1.9%(5/255) due to myocardial infarction, cerebral infarction, respiration failure, the overall endoleak rate was 5.8% (secondary TEVAR was performed for all type I patients, 13 stopped, 2 continued). The mean duration of follow-up was 25.4 months (1~ 118 months). 3 patients suffered from LSA steal syndrome (surgery for 1, 2 recovered spontaneously). Expanded true lumen and reduced of the false lumen happened in 215 patients, with 212 cases revealed thrombosis filling in false lumen.

Conclusions: Several supplemental techniques with endovascular aortic repair for aortic arch dissection are available, chimney and supra-aortic bypass should be selected due to different anatomic configurations, Chimney technique is a safe and less invasive method according mid-term Results.

Analysis of risk factors of Budd-Chiari syndrome complicated with splenic artery aneurysms

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Objective: To investigate the risk factors of Budd-Chiari syndrome (B-CS) complicated with splenic artery aneurysms.

Methods: The clinical data of 11 patients of B-CS complicated with splenic artery aneurysms treated in the First Affiliated Hospital of Zhengzhou University from July 2007 to October 2014 were analyzed retrospectively, 60 other patients were selected randomly as control group in the same term. Age, gender, smoking history, drinking history, hypertension history, type of B-CS, portal vein diameter, splenic artery diameter, splenic vein diameter, splenic length and splenic thickness were recorded and analyzed. Univariate analysis and unconditional Logistic regression model were performed to screen corresponding risk factors.

Results: Univariate analysis showed that there were no statistical differences in age, gender, smoking history, drinking history, hypertension history, type of B-CS, portal vein diameter and splenic vein diameter between the two groups ($P > 0.05$), but the splenic artery diameter, splenic length and splenic thickness in splenic artery aneurysms group were obviously higher than that in non-splenic artery aneurysms group, and the differences were statistically significant ($P < 0.05$). The results of unconditional Logistic regression model analysis indicated that gender and splenic thickness were independent risk factors of B-CS complicated with splenic artery aneurysms.

Conclusion: B-CS complicated with splenic artery aneurysms may be correlated with the increase of the splenic artery diameter, splenic length and splenic thickness, and gender and splenic thickness are the independent risk factors.

Keywords: Budd-Chiari syndrome; splenic artery aneurysms; risk factors

Bed rest versus early ambulation with standard anticoagulation in the management of deep vein thrombosis: a meta-analysis

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Introduction: Bed rest has been considered as the cornerstone of management of deep vein thrombosis (DVT) for a long time, though it is not evidence-based. While, there is growing evidence favoring early ambulation.

Methods: Electronic databases including Embase, Medline, PubMed, Cochrane Library, Sinomed, WanFangData and Chinese National Knowledge Infrastructure, were searched with Keywords of "deep vein thrombosis", "pulmonary embolism", "venous thrombosis", "bed rest", "immobilization", "mobilization" and "ambulation". We considered randomized controlled trials, prospective or retrospective cohort studies that compared the outcome of acute DVT patients managed with early ambulation versus bed rest, in addition to standard anticoagulation. With the Review Manager version 5.3 software, meta-analysis pertaining to the incidence of new pulmonary embolism (PE), progression of DVT, and DVT related death were conducted, as well as the extent of remission of pain and edema. For the corresponding effective measure, $P < 0.05$ was thought to be statistically significant.

Results: 13 studies were included with a total of 3269 patients. Compared to bed rest, early ambulation in the treatment of acute DVT patients with anticoagulation was not associated with a higher incidence of new PE, progression of DVT, or DVT related deaths (RD -0.03, 95% CI -0.05~-0.02; $Z = 1.24$, $P = 0.22$, random effect model). Moreover, if the patients suffered moderate or severe pain initially, the early ambulation group was related to a better outcome, with respect to remission of acute pain in the affected limb (SMD 0.37, 95% CI 0.11~0.62; $Z = 2.81$, $P = 0.005$, fixed effect model). Meta-analysis of alleviation of edema cannot elicit a solid conclusion because of significant heterogeneity among the studies.

Conclusions: Compared to bed rest, early ambulation of acute DVT patients with anticoagulation is not associated with a higher incidence of new PE, progression of DVT, and DVT related deaths. Furthermore, for the patients suffered moderate or severe

pain initially, a better outcome can be seen in early ambulation group, regarding to the remission of acute pain in the affected limb.

Keywords: acute deep vein thrombosis, pulmonary embolism, bed rest, early ambulation, treatment

Comparison of Early and Mid-term Outcomes of Endovascular Repair versus Open Surgical Repair for Abdominal Aortic Aneurysm

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Running title: Comparison of OR vs EVAR for AAA

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Objectives: To compare the early and mid-term outcomes of endovascular repair (EVAR) versus open repair(OR) for abdominal aortic aneurysm (AAA).

Methods: The trial compared the early and mid-term outcomes after EVAR and OR in patients with AAA anatomically suitable for both EVAR and OR. A total of 150 patients were performed EVAR or OR. Patients were monitored for 2 years after treatment. Statistical analysis was by intention to treat.

Results: The 30-day systemic complication rates in OR group were significantly higher than those in EVAR group(OR: 19/65, 29.2%vs EVAR: 8/85, 9.4%, $\chi^2=9.802$, $P=0.002$). Operation-related complication rates in EVAR group were higher than those in OR group(EVAR: 14/85, 16.5% vs OR: 4/65, 6.2%), but there was no significant difference in both groups($\chi^2=3.712$, $P=0.054$). Patients in open repair group required longer operation time ($P=0.000$) and hospital stay($P=0.022$), while more hospitalization cost was required in EVAR group($P=0.023$). The volume of intraoperative blood transfusion was more than 5 times in the open group over EVAR group. Patients in OR group had a trend toward systemic complications after surgery than in EVAR group. During a follow-up of 24 months, the systemic complication rates in OR group(6/62, 9.6%) were higher than those in EVAR group(3/83, 3.6%), but there was no significant difference in both groups($\chi^2=2.241$ $P=0.1342$). Operation-related complication rates in EVAR group were significantly higher than those in OR group(EVAR: 18/83, 16.5% vs OR: 3/62, 6.2%, $\chi^2=8.134$ $P=0.004$).

Conclusions: Endovascular repair of abdominal aortic aneurysm caused less trauma in patients with AAAs than open repair in the short term, while required more hospital costs than open repair. Total complication rates at 24 months after operation were similar in both groups, while operation-related complications were more common in EVAR group.

Keywords: abdominal aortic aneurysm, endovascular repair, open repair

Endovascular Repair For Acute TBAD With Visceral Ischemia Is Successful And Durable

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Objective: To evaluate endovascular stent-graft repair for the treatment of acute Stanford type B aortic dissection(TBAD) with visceral ischemia.

Methods: From Jul 2002 to Feb 2013, 926 patients of type B aortic dissection were treated with endovascular stent-graft repair. A retrospective analysis of acute TBAD with spinal cord, kidney, viscera, and extremity malperfusion was performed. Emergency TEVAR to cover primary tear site by stent-graft was strongly suggested to included candidates. Computed tomography (CT) scans and clinical findings were carried out in diagnosis and follow-up.

Results: 127 TBAD patients (101 men, 46.1±11.4 year, range 34~76) who presented with acute end-organ malperfusion, including sudden paraplegia (n=4), acute renal failure (n=26), acute viscera ischemia (n=61) and limb ischemia (n=36), received aortic stent-grafting 2~48 hours after onset. Technical success was achieved in all primary TEVAR. The overall endoleak rate was 7.1% (9/127; type I : 3; type II : 4; type IV: 2). The 30-day mortality was 0.8%(2/127). 125 patients were followed for 19.1±14.5 (1~86) months, one patient died 50 days post-TEVAR due to myocardial infarction. Four patients required re-intervention with additional stent grafts. Follow-up CT angiography showed enlargement of the true lumen and different degrees of thrombosis in the distal false lumen (complete thrombosis in 48, partial thrombosis in 52 and patency in 24).

Conclusions: Emergency TEVAR is an effective method to treat acute TBAD complicated with end-organ malperfusion while the optimal timing of intervention is crucial to the survival of all patients. Covering of the proximal entry site of TBAD by stent-graft leads to flow increased in the true lumen and thrombosis of the false lumen of varying degree.

Analysis and comparisons between open and Endovascular repair perioperatively in patients with ruptured abdominal aortic aneurysm

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Objective: To analyze and compare the perioperative data between EVAR (Endovascular repair) and OSR (Open surgical repair) of Ruptured abdominal aortic aneurysm (RAAA).

Methods: The clinical data of 71 RAAA patients from April 1999 to December 2013 were collected and analyzed. Endovascular(n=12) and open(n=59) repairs were performed. The relevant parameters and perioperative rates of morbidity and mortality were compared and analyzed.

Results: The patients of EVAR group were older than those of OSR group: (68±7 vs 57±11years old, $P=0.02$).The comorbidity rate of chronic obstructive pulmonary disease(COPD) in

EVAR group was higher than that in OSR group (58.3% vs 23.7%, $P=0.020$). As compared with OSR group, the EVAR group had less blood loss (130 ± 43 vs 2295 ± 425 ml, $P=0.00$), a lower rate of blood transfusion (0 vs 100.0%, $P=0.00$), shorter ICU stay length, shorter postoperative fasting time, shorter procedure time, and shorter ventilatory support time. The duration of postoperative hospital stay was similar in two groups. The severe perioperative complication rate was similar between EVAR and OSR group (33.3% vs 32.2%, $P=0.90$). The 30 day mortality rate was similar between EVAR group and OSR group (33.3% vs 32.2%, $P=0.90$). The morbidity of patients with hemodynamic instability, EVAR is higher than OSR (100.0% vs 50.0%, $P=0.04$).

Conclusion: Rapid and early diagnosis, urgent surgical repair of RAAA and choosing the appropriate surgical procedures are the keys to reduce the mortality of RAAA. How to make a decision depends on the experience of doctors, hospital equipment and situation of patients.

Keywords: Ruptured abdominal aortic aneurysm; Endovascular repair; Open surgical repair; Prognosis

Foam Sclerotherapy with Lauromacrogol for Varicose Veins: Analysis on 200 Cases

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Objective: To investigate the efficacy of foam sclerotherapy by using lauromacrogol for varicose veins in the lower limbs.

Methods: During October 2012 to April 2014, we performed foam sclerotherapy on 200 patients (298 limbs) with lower limb varicosity by using lauromacrogol. Lauromacrogol foam was made by extracting 10 ml of room air into 10 ml lauromacrogol with a 20-ml syringe and repeated aspiration to form small uniform foam. The efficacy of the therapy was followed up after the procedure.

Results: Re-examination in one week by palpation showed that all the varicose veins were sclerosed. Cure was defined as no complaints of obvious varicosity in three months.

Conclusion: Non-ultrasound-guided foam sclerotherapy is simple, effective, minimally invasive and safe.

Keywords: Vein varicose; Foam sclerotherapy; Lauromacrogol

Geriatric nutritional risk index (GNRI) independently predicts amputation in chronic critical limb ischemia (CLI)

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Objective: General malnutrition usually occurs in critical limb ischemia (CLI) patients because of shortness of appetite and sleeplessness led by chronic pain. And amputation frequently is end-point of CLI patients. So the aim of this study was to assess the predictive ability of Geriatric nutritional risk index (GNRI) for predicting amputation in patients with CLI.

Methods: From Mar 2010 to Jan 2013, patients with CLI were admitted, and clinical data was analyzed retrospectively. Demographics, history, comorbidity, and risk factors for peripheral vascular disease of admitted patients, and laboratory study were documented. Patients' height, weight and BMI were recorded. Amputation was identified as end-point during follow-up. Patients' amputation freedom survival (AFS) was recorded.

Results: 172 patients were identified, with mean age 71.98 ± 3.12 . Geriatric nutritional risk index (GNRI) = 90 was taken as cutoff value of high risk of amputation for CLI patients via using receiver operating characteristic (ROC) curve. Span of follow-up was 12 – 48 months. During follow-up, 60 patients (36.04%) received amputation surgery. And analyzed by Cox proportional hazards model, it is found that GNRI was the independent predictive factor for amputation in long term.

Conclusion: This study revealed that GNRI was a reliable and effective predictive marker for AFS. GNRI could identify patients with high risk for amputation in early time.

Keyword: geriatric nutritional risk index (GNRI); amputation; predictive factor, critical limb ischemia (CLI)

Mechanism research for bone marrow mesenchymal stem cells transplantation to treated limb ischemia in SD rat

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Objective: To research the mechanism of bone marrow mesenchymal stem cells (BMSCs) transplantation for treatment of limb ischemia in SD rat.

Methods: To ligate abdominal aorta, iliac arteries and lumbar arteries below renal artery for prepare female SD rat hind limb ischemia model. The amplified, purified BMSCs of male SD rats were injected into the rectus femoris of ischemia right hind limb of the models; control group, s right hind limbs were injected equal saline. After transplantation 2 weeks, 4 weeks, 6 weeks, to count the capillary in slices of right rectus femoris by HE dyeing, to count VEGF immunohistochemical staining cells, to observed SRY immunohistochemical staining cells.

Results: After operation 2 weeks, 4 weeks, 6 weeks, capillary count and VEGF immunohistochemical staining positive cell counts in right rectus femoris of transplanted group were significantly higher than control group ($P<0.01$). SRY immunohistochemical staining positive cells appeared at capillary wall, and scattered in the muscle tissue of rectus femoris muscle slices in transplanted group.

Conclusion: BMSCs transplantation of local injections can improve the blood supply of ischemic hind limbs in SD rats. BMSCs constitute capillaries in order to participate angiogenesis in ischemic limbs. BMSCs may as a paracrine cells prompted the neovascularization of ischemic limb in rats by increasing the secretion of VEGF and other factors.

Keywords: Bone Marrow; Mesenchymal Stem Cells; Limb Ischemia; Rats

Observation on the efficiency of autologous bone marrow stem cell transplantation on chronically ischemic disease of lower limb

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Objective: To observe the efficiency of autologous bone marrow stem cell transplantation on chronically ischemic disease of lower limb.

Methods: From August 7th 2007 to August 4th 2014, the First Affiliated Hospital of Xinjiang Medical University, 67 patients (82 limbs) receiving autologous bone marrow stem cell therapy, two patients were lost to follow. The patient's symptoms changed were followed up monthly by Telephone. The patient's limb venous oxygen partial pressure (PvO₂) and oxygen saturation (SO₂) were detected after postoperation 3 month, follow-up pain, sense of coldness, intermittent claudication distance and limb ulcers.

Results: Arteriosclerosis obliterans and thrombosis obliterans in pain, cold feeling, intermittent claudication remission rate and preoperative and postoperative march limb vein PvO₂, SO₂ differences were statistically significant ($P < 0.05$). The efficacy of Autologous bone marrow stem cell transplantation in pain, sense of coldness is dependent on mononuclear cell count ($P < 0.05$).

Conclusion: Autologous bone marrow stem cell transplantation in the treatment of chronic ischemic lower limbs diseases is a simple, safe and effective method. Autologous bone marrow stem cell transplantation treatment of thromboangiitis obliterans is superior to the Arteriosclerosis obliterans. Autologous bone marrow stem cells transplantation of buerger's disease curative effect is stable, has repeatedly to the Arteriosclerosis obliterans curative effect, may need to intervene again.

Keywords: Autologous bone marrow; Stem cell implantation; Lower limb ischemia

Open surgery (OS) versus endovascular repair (EVAR) treatment for stable- and unstable-hemodynamic ruptured abdominal aortic aneurysm (rAAA)

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Purposes of the study: Endovascular repair (EVAR) is currently regarded as an alternative treatment for ruptured abdominal aortic aneurysms (rAAA) in stable-hemodynamic patients. Treatment for patients with unstable-hemodynamic rAAA, remains controversial. The aim of this study was to, via meta-analysis, compare the outcomes of EVAR and open surgery (OS) treatments in stable-hemodynamic and unstable-hemodynamic rAAA patients.

The Methods: Retrospective analysis of 48 articles of EVAR patients ($n=9610$) and OS patients ($n=93867$) being treated for rAAA was conducted. The result of these studies were then further divided into rAAA hemodynamic-stable and unstable

groups. When heterogeneity among the groups was observed, a random effects model was used to calculate the adjusted odds ratios (OR) or in cases of non-heterogeneity, a fixed effects model analysis was employed.

Results: The in-hospital mortality rate was lower in the EVAR group compared to that of the OS group (29.9% vs 40.8%, OR, 0.59; 95% CI, 0.52–0.66; $P < 0.01$). In the stable-hemodynamic group, the in-hospital mortality of the EVAR group was significantly lower than that of the OS group [18.9%, (18/95), 28.2%, (29/103), respectively, OR, 0.47; 95% CI, 0.22–0.97; $P = 0.04$]. For the unstable-hemodynamic rAAA patients, the in-hospital mortality of the EVAR group was 36.8% (21/57), significantly lower than that of the OS group [61.7%, (79/128), OR, 0.40; 95% CI, 0.20–0.79; $P < 0.01$].

Conclusions: This study indicated that, compared with OS, EVAR in unstable-hemodynamic rAAA patients is associated with improved outcomes. Consequently, EVAR may be applied to all rAAA patients in experienced centers, in both stable- or unstable-hemodynamic conditions.

Keywords: Endovascular repair, hemodynamic stability, abdominal aortic aneurysm, mortality

Proximal superficial femoral artery lesion – Strategy and long-term result of stents treatment

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Objective: stenting is common strategy for proximal superficial femoral artery (SFA). However, whether stent could be cover profound femoral artery (PFA) is controversial. This article is to report long-term patency of PFA according to the stent cover or not cover PFA when treating lesion involving SFA ostium.

Methods: We retrospectively identified 46 consecutive stenting for de novo lesions involving the SFA ostium, between Jan 2011 and June 2014. Depending on the proximal stent edge location, the sample was divided into full covering PFA (Group A 9 cases), semi-covering PFA (Group B 15 cases) and none-covering PFA (Group C 22 cases). Primary outcome is primary patency of PFA within follow-up duration. Secondary outcome is patency rate of SFA.

Results: There were 46 cases (37 male, Mean age 70.5 ± 8.7) were enrolled in this study. The overall 24-month primary patency rates of each group PFA were 87.5%, 83.3% and 100% respectively. The overall 24-month primary patency rates of each group SFA were 60.0%, 60.0% and 49.3% respectively.

No significant difference was found among the three group for patency of PFA or SFA.

Conclusions: The long-term fate of stenting covering DFA for proximal SFA lesion was acceptable. Since jailed PFA stenting could mildly affected patency of PFA, cases with primary stenoses PFA are not suitable for this treatment.

Retrospective research of Thoracic Endovascular Aortic Repair (TEVAR) for Stanford B Aortic Dissection associated with Sleep Apnea Syndrome

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Objective: To delineate the pathogenesis, main complications and perioperative management of Thoracic Endovascular Aortic Repair (TEVAR) for Stanford B Aortic Dissection (AD) associated with Sleep Apnea Syndrome (SAS).

Methods: Between June 2013 and June 2014, the clinical data and outcomes of the Stanford B AD patients in the department of vascular surgery in the Second Xiangya Hospital were retrospectively reviewed and collected. SPSS 20.0 was used for statistical analysis.

Results: 134 cases of patients, who were diagnosed with Stanford B AD SAS and treated by TEVAR in our center, were enrolled in this study. Among them, 70.9% (95/134) patients were under general anesthesia (GA) and the other were under local anesthesia (LA). The mean age was 52.6 ± 11.0 years, with 85.8% being male (115/134). The mean body mass index (BMI) was 23.5 ± 4.2 , and the follow-up time was 10.5 ± 3.5 months. The patients were divided into a SAS-positive group ($n=23$) and a SAS-negative group ($n=111$). Whether under GA, or under LA, compared with the SAS-negative group, patients in the SAS-positive group were younger ($P < 0.001$; $P < 0.050$, respectively), but more obesity ($P < 0.005$; $P < 0.005$, respectively), with longer hospitalization time ($P < 0.002$; $P < 0.050$, respectively) and longer ICU stay time ($P < 0.005$; $P < 0.001$, respectively); under GA, the SAS-positive group had significantly higher rate of pulmonary infection, respiratory failure, heart failure, renal failure as well as drowsiness and unconsciousness ($P < 0.025$, $P < 0.050$, $P < 0.025$, $P < 0.025$, $P < 0.050$, respectively), and under LA, the SAS-positive group also had significantly higher rate of pulmonary infection, respiratory failure, and drowsiness and unconsciousness ($P < 0.050$, $P < 0.050$, $P < 0.050$, respectively), but there was no difference in the rate of heart failure and renal failure ($P > 0.750$, $P > 0.500$, respectively).

Conclusion: SAS-positive Stanford B AD patients are characterized by being obesity and young men; after treated by TEVAR, they usually have significantly longer hospitalization time and ICU stay time, as well as higher complications rate.

Keywords: Stanford B aortic dissection, sleep apnea syndrome, TEVAR, retrospective research

Silverhawk plaque excision vs. Angioplasty for symptomatic infrapopliteal arterial occlusive disease

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Purposes: To evaluate safety and efficiency of endovascular treatment of symptomatic infrapopliteal arterial occlusive disease (IPAD) using Silverhawk plaque excision.

Methods: Retrospective analysis of consecutive patients undergoing endovascular treatment for IPAD between 2011 and 2013 in a teaching hospital. Silverhawk group (A) was 9, angioplasty group (B) was 45. Male was 29, mean age was 64.0 ± 9.1 year-old, mean period was 28.9 ± 25.9 months. All belonged to Fontaine stage IIb-IV. Observed index included technical success rate, perioperative complications and limb salvage and freedom from reintervention.

Results: Totally technical success was 88.9% (plaque excision group 100% versus angioplasty group 86.7%, $P = 0.574$). The arterial-related complication rate was 9.3% (plaque excision group 11.1% versus angioplasty group 8.9%, $P = 1.000$). All vessels kept patency during discharged. limb salvage and freedom from reintervention (12 months postoperation) no significant difference between the two groups. limb salvage: group A 100% and group B 88.9%, freedom from reintervention was 66.7% and 86.7% respectively. Postoperative 12 months ABI no significant difference, group A was 1.02 ± 0.19 and group B was 0.78 ± 0.22 , $P = 0.230$. ABI improvement: group A was 0.43 ± 0.42 and group B was 0.30 ± 0.11 , $P = 0.621$.

Conclusions: Plaque excision was a safe and acceptable method to treat symptomatic IPAD, and the efficacy no inferior than angioplasty.

Keyword: plaque excision; angioplasty; atherosclerosis; atherectomy; infrapopliteal

Techniques and outcomes of endovascular treatment for aortoiliac artery occlusive disease

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Objective: To determine the clinical and technical outcomes following endovascular therapy for aortoiliac occlusive disease, including complex reconstruction of the aortic bifurcation.

Methods: 220 cases with chronic aortoiliac artery occlusive disease were underwent endovascular interventions were retrospectively reviewed from June 2012 to June 2014. Among these patients, males are 189 cases. The age is between 46 to 85 years and the average age is (64 ± 7) years. According to TASC-II classification, there are 38 cases (17.2%) in type A, 57 cases (25.9%) in type B, 53 cases (24.1%) in type C and 72 cases (32.8%) in type D. All the patients underwent endovascular treatments.

Results: Among 283 limbs that received endovascular treatments, 2 cases were received PTA, 10 cases underwent catheter-directed thrombolysis and secondary stenting, and the other 271 cases were received primary stenting. Kissing technique was used in 26 cases with aortoiliac artery occlusion. Total technique success rate is 97.2%. 359 stents were implanted in 275 limbs including 50 balloon-expanded stents, 303 self-expanded stents and 6 covered stents. Ankle-brachial index (ABI) increased from (0.51 ± 0.12) to (0.85 ± 0.26) , there was a significant difference ($P < 0.05$). Nine procedure-related major complications requiring additional endovascular or surgical treatment were

encountered in 7 patients, including 2 acute in-stent thrombosis; 1 iliac artery rupture; 1 distal embolism; 5 puncture-associated complications. After 22 months follow-up, the primary patency, assistant-primary patency and secondary patency is respectively 90.8%, 92.1% and 99.2%. 1 case received major amputation and limb salvage rate was 99.7%.

Conclusions: Endovascular therapy is an effective, safe and feasible method in treating aortoiliac artery occlusive disease with high patency rate. The keys of successful treatment include evaluation for the lesions comprehensively, making personal surgical plan before operations and carefully operation during the procedure.

Keywords: Peripheral arterial occlusive disease; Aortoiliac artery; Endovascular therapy

The treatment of severe carotid stenosis with contralateral carotid occlusion by angioplasty and stenting

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Purpose: To explore the safety and feasibility of angioplasty and stenting to treat severe carotid stenosis with contralateral carotid occlusion.

Methods: Data of 26 patients in our hospital recent 10 years were retrospectively analysed and all these patients were followed up after discharge. Of these patients, 21 male and 5 female; mean age was 65.0±8.2; mean disease course was 10.2±2.2 months. Dizziness was found in 18 patients, transitional visual field defect or impaired vision 5 patients, cerebral infarction 16 patients, 9 ulcer lesions was proved by ultrasound. All patients received antiplatelet medicine strictly.

Results: All the operations were successful and the residual stenosis less than 30%, no death. 15 patients suffered heart rate/blood pressure decreased during operation, and released by cough or atropine. 1 patient suffered cerebral infarction due to acute in-stent occlusion, language and limb function restored by medical treatment. 5 patients suffered hyperperfusion, released by controlling blood pressure. 23 follow-up patients, and mean 28.5±10.1 months. 3 patient died due to myocardial infarction and 1 patient died due to pulmonary infection. 2 patients dizziness reappeared, including 1 severe in-stent restenosis by 36th month ultrasound exam. 2 patients recurred cerebral infarction, no obvious sequela. No major bleeding event.

Conclusions: The treatment of severe carotid stenosis with contralateral carotid occlusion by angioplasty and stenting is a safe and effective method, should pay attention evaluation of collateral circulation and controlling blood pressure periprocedure.

Keywords: Arterial occlusive disease; Carotid; Stenosis; Angioplasty; Stent; Cerebral;

Thoracic Endovascular Aortic Repair with Double Chimney Technique for Acute Aortic Arch Dissection

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Objective: To summarize our single-center experience of double chimney technique in the treatment of aortic arch pathologies.

Methods: From Dec 2009 to Nov 2014, 9 patients with acute aortic dissection with its primary entry tear in aortic arch received Thoracic Endovascular Aortic Repair (TEVAR) combined with double chimney technique to reconstruct innominate artery and left common carotid artery. Emergent endovascular treatment was performed in 1 patient for acute left lower extremities ischemia; the other patients were received operation after strict conservative treatment. All patients had computed tomography scans 2 weeks after TEVAR and at 3, 6 months, and annually thereafter.

Results: All of the aortic stent-grafts were deployed in Zone 0, completely (n=4) or partially (n=5) covered the orifice of innominate artery. Aortic arch lesions coverage and patent reconstructed branch artery were achieved in all patients. Immediate type Ia endoleak happened in 2 (22.2%) patients. Chimney stent-graft collapsed and leaded stenosis treated with another stent-graft overlapped with the previous one in 1 patient (11.1%). Migration of chimney stent-grafts treated with immediate secondary TEVAR in 1 patient (11.1%). No type II endoleak, neurological symptom and perioperative mortality happened. Median follow-up was 22.4 months (range 1 to 60). No TEVAR related death happened. Asymptomatic type Ia endoleak in the 2 patients lasted.

Conclusions: TEVAR with double chimney technique to reconstruct innominate artery and left common carotid artery is an alternative in the treatment of aortic arch. The risk of perioperative complications, especially type Ia endoleak, should be cautious. More cases and long-term result are needed to evaluate the durability and efficiency of this alternative endovascular technique.

Keywords: aortic arch, thoracic endovascular aortic repair, chimney technique, type Ia endoleak

Three-dimensional print of aortic aneurysm models aid preoperative planning in complicated endovascular repair procedure

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Objective: To attempt to produce highly accurate three-dimensional (3D) printed models of aortic aneurysm models

aid complicated preoperative planning in endovascular repair procedures.

Methods: From October 2012 to May 2014, six patients with complicated aortic aneurysms (one aortic arch aneurysms, one thoracoabdominal aortic aneurysms and four juxtarenal abdominal aortic aneurysms) accepted preoperative contrast-enhanced CTA scans for procedural planning, 4 male and 2 female, average age 64 years (range 52–73). All the CTA data were processed with FitMe 3D image processing software to get the modified 3D reconstruction pictures and computer language that can be identified by the 3D printer. With the fused deposition modeling (FDM) technology, we got the highly accurate models and aided to make preoperative endovascular planning.

Results: All the patients' models were printed before operations. By the guidance of models, the endovascular procedure plans were drawn up. Three patients were performed extracorporeal simulating operations with the models and four patients' endovascular operations were guided by the models during the intraoperative time. The procedure technique success rate was 100%. No serious complications and patients dead during the perioperative period.

Conclusions: The technology of three-dimensional printed highly accurate models of aortic aneurysm models is feasible and can help to make preoperative endovascular planning for improving the safety of complicated procedures.

Keywords: Three dimensional print; Abdominal aortic artery; Thoracic aortic artery; Aortic aneurysms; Endovascular repair

The Impact of Serum Uric Acid Level on Arterial Stiffness in Chinese Essential Hypertensive Patients

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Purpose: The aim of the study is to investigate whether serum uric acid is associated with arterial stiffness (as measured by brachial-ankle pulse wave velocity (baPWV)) in Chinese hypertensive subjects.

Methods: A total of 20627 participants from the China Stroke Primary Prevention Trial were evaluated for the risk of hyperuricemia in cardiovascular atherosclerosis, and arterial stiffness was measured by baPWV. Multiple linear and logistic regression models were used to evaluate the association between serum uric acid level and brachial-ankle PWV.

Results: There was a significant difference baPWV between males and females ($P < 0.0001$, respectively). Both male and female subjects with hyperuricemia showed higher baPWV than subjects without hyperuricemia ($P < 0.001$ for males; $P < 0.001$ for females). In multivariate-adjusted model, serum uric acid level in male subjects was significantly correlated with baPWV ($\beta = 0.14$, $P < 0.05$) and there was statistically significant association between serum uric acid level and baPWV in females ($\beta = 0.17$, $P < 0.001$). Moreover, multivariate logistic analysis between serum uric acid level as a category variable and baPWV was performed, the association between uric acid and high baPWV was statistically significant, and statistical significance was maintained in both male and female.

Conclusions: Serum uric acid level could be considered an important risk factor for arterial stiffness in Chinese hypertensive subjects, whereas more studies are needed to confirm this result.

Keywords: Uric acid; Arterial stiffness; Pulse wave velocity; Atherosclerosis

The application of oral enteral nutrition support (ENSURE) for senior abdominal aortic aneurysm patients who underwent endovascular aortic repair (EVAR)

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Objective: To investigate the value of oral enteral nutrition support (ENSURE) for senior (>60 years) abdominal aortic aneurysm (AAA) patients who underwent endovascular aortic repair (EVAR).

Methods: The data of 30 senior AAA patients who underwent endovascular aortic repair (EVAR) was restrictively reviewed. The patients were divided into two groups (Group A = 15, with postoperative oral enteral nutrition support of ENSURE, 50 g, tid; Group B = 15, with postoperative common food. The postoperative data were compared between two groups, such as the hospital stay, infection of operative incision rate and nutritional state in the third and seventh day after operation.

Results: The postoperative hospital stay and infection rate have no significant difference among two groups. The plasma albumin in group A in the third day and the seventh day were higher ($P < 0.05$).

Conclusion: Oral enteral nutrition support (ENSURE) improved the nutritional status of AAA patients who underwent EVAR, and shorten postoperative hospital stays.

Keywords: enteral nutrition; abdominal aortic aneurysm; endovascular; senior

Carotid artery pseudoaneurysm after carotid endarterectomy: case report and literature review

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Objective: To describe two cases of carotid artery pseudoaneurysms after carotid endarterectomy (CEA) and give a systematic review of related literatures.

Methods: We reviewed our process and experience of diagnosis and treatment of the two patients with carotid pseudoaneurysm after carotid endarterectomy (CEA) admitted in PUMCH between January 2000 and March 2014, searched PubMed, SpringerLink, ELSEVIER and ScienceDirect databases for related English literatures concerning carotid pseudoaneurysm after CEA, and then made a conclusion.

Results: The incidence of carotid pseudoaneurysms after CEA in our hospital was 0.31% (2/641). The two patients were treated with surgery and intracavitary therapy respectively, and both recovered well after the treatment. We took in thirty-nine related literatures totally, including 187 patients with pseudoaneurysm. One hundred and forty-one patients were treated with artificial patches during CEA, and 36 patients suffered secondary infection in the surgical sites. One hundred and fifty-two patients were treated with surgery, while 33 patients were treated with intracavitary therapy, with the residual two patients accepting hybrid surgery. The overall incidence of cranial nerve injuries, the incidence of 30-day stroke and the incidence of 30-day mortality were 6.4% (9/141), 7.4% (12/163) and 2.7% (5/182) separately.

Conclusion: In spite of the low incidence of pseudoaneurysm after CEA, its potential risk is quite high. Aneurysm resection with carotid reconstruction is still the main treatment of the disease. The intracavitary treatment can be utilized in partial patients, with its characteristics of minimal invasion and short-time postoperative recovery, but its long-term effect still needs further observation.

Keywords: pseudoaneurysm; Endarterectomy, carotid; Carotid artery stenosis

Clinical research of different surgical procedures for portal hypertension

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Objective: To investigate the therapeutic effect of different procedures for portal hypertension and their long term effect after operation.

Methods: Retrospective analysis was made of the clinical data of 84 patients from January 2007 to January 2014 who suffered from portal hypertension, according to the operation they were divided into two groups, the group of PCDV: 33 patients were treated by splenectomy, pericardial devascularization (PCDV), the group of SRS+PCDV: 51 patients were treated by splenectomy, splenorenal shunt (SRS) combined with pericardial devascularization (PCDV). Using SPSS19.0 software and t test (mean \pm standard deviation) to compare and analysis the changes of FPP during the operation as well as the velocity of portal blood flow before and after surgery; using χ^2 test to compare and analysis the rate of operative mortality and outflow tract obstruction, incidence of postoperative bleeding, portal vein thrombosis and hepatic encephalopathy. When $P < 0.05$, the difference was statistically significant.

Results: According to the clinical data, the FPP of PCDV group after treatment was lower than before and the difference was statistically significant ($P < 0.05$) but there is no difference in the velocity of portal blood flow ($P > 0.05$), the FPP and the velocity of portal blood flow of SRS+PCDV group were statistically significant ($P < 0.05$) after treatment than before, and the FPP between two groups was statistically significant ($P < 0.05$) after treatment. During the follow-up period, the occurrence of the outflow tract obstruction, incidence of postoperative bleeding and portal vein thrombosis of the combined operation group were lower than those of the PCDV group and the difference was statistically significant ($P < 0.05$), but the rate of death and hepatic encephalopathy between the two groups were nearly opposite ($P > 0.05$).

Conclusions: It was found that portal vein pressure descended obviously, and the flow of liver was affected seriously in the PCDV group, PCDV plus SRS is the choice therapy for portal hypertension which decreases the incidence of rebleeding and avoids the increase of hepatic encephalopathy.

Keywords: portal hypertension, proximal

Angiogenic Effect of Therapeutic Ultrasound on Murine Model of Hindlimb Ischemia

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Purposes: Although significant progresses have been achieved by bypass surgery and catheter intervention against peripheral artery disease, the number of severe critical limb ischemia (CLI) patients is yet increasing. The purpose of this study was to determine the mechanism of therapeutic ultrasound (TUS) on ischemic angiogenesis using murine model of hindlimb ischemia and the cellular/molecular mechanisms underlying TUS-related postnatal neovascularization.

Methods: The entire left femoral arteries were surgically removed and hindlimb ischemic mice were exposed to extracorporeal TUS for 3, 6, 9 minute per day (1 MHz, 0.3 W/cm²) until postoperative day 21.

Results: Increased blood perfusion and capillary density were determined following 9 min of TUS compared with ischemic group. TUS also increased the protein expressions of vascular endothelial growth factor, hypoxic inducible factor-1 alpha, endothelial nitric oxide synthase (eNOS) and p-Aktin vivo and in vitro. Furthermore, TUS promoted capillary-like tube formation, migration and motility of human umbilical venous endothelial cells, and administration of L-NAME, the inhibitor of eNOS, neutralize these benefits.

Conclusion: In conclusion, TUS therapy promotes postnatal neovascularization through multiple angiogenic pathways in mice model of ischemic hindlimb.

Analysis of Stroke after Endovascular Therapy of Aortic Expanded Diseases

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Background: To analysis the reasons and propose the preventions of stroke after endovascular therapy of aortic expanded diseases.

Methods: In the last decade, 8 cases of stroke after endovascular therapy of aortic expanded diseases were included, among which 3 were aortic dissection and the rest were diagnosed as aortic aneurysm or pseudoaneurysm.

Results: Stent grafts were successful implanted in all cases, while 62.50% of them had the hatch of LSA covered. 75% of the cases were cerebral infarction and 25% were cerebral hemorrhage. The level of blood pressure between pre-operation and post-operation were different significantly (systolic pressure: 132.80 ± 10.99 mmHg vs 110.09 ± 23.18 mmHg, $P < 0.05$; diastolic pressure: 74.21 mmHg ± 3.86 vs 60.17 ± 12.93 mmHg, $P < 0.05$). All cases suffered from cerebral hemorrhage have used large dose of heparin within the operation.

Conclusion: Significant decrease of blood pressure, large dose of heparin and unpractised operation of endovascular technique are reasons causing stroke after endovascular therapy of aortic expanded diseases.

Keywords: aortic expanded disease endovascular therapy stroke

Clinical analysis of 152 patients with the precision treatment in varicose veins of the lower extremity

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Objective: To evaluate the feasibility and clinical effect of precision treatment in varicose veins of the lower extremity.

Methods: From February 2011 to February 2013, 152 cases (totally 224 lower limbs) treated by the precision treatment were analyzed retrospectively. The were 63 male and 89 female patients, with a mean age of 38 years (ranging from 20 to 79 years). The varicose vein occurred in left limb for 66 cases, right limbs for 42 cases and both limbs for 58 cases.

Results: The patients were followed up for 18 months to 24 months. All patients the clinical symptom improvement is obvious. The top three complication is extravasated blood, incision infection and saphenous nerve injury. The operation time, postoperative pain and recovery time are satisfied.

Conclusion: The precision treatment varicose veins of the lower extremity needs an individualized therapy, long-term follow-up and some patients need more than one procedure to treatment varicose veins. In order to the minimal trauma to get the best treatment effect.

Keywords: Varicose veins of the lower extremity; The precision treatment; feasibility

Hybrid treatment of aortic arch disease with ascending aorta to carotid artery revascularization and subsequent endovascular repair

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Objective: To summarize the experience of treating aortic arch disease with ascending aorta to carotid artery revascularization and subsequent endovascular repair.

Method: Since January 2002, ascending aorta to carotid artery revascularization with subsequent endovascular repair was performed in 10 consecutive patients of aortic arch disease. A retrospective analysis is included. There were 9 men and 1 women, with a mean age of 54.2 ± 14.1 (34–71) years old. Aortic arch disease included 8 aortic dissection and 2 thoracic aortic aneurysm. All aortic arch debranching was performed with mid-sternotomy, 7 patients had Ascending Aorta (AO) to Left Common Carotid Artery (LCCA) and Right Common Carotid Artery (RCCA) revascularization, 3 had AO to LCCA and Left Subclavian Artery (LSA) revascularization. Subsequently, simultaneous ($n=5$) and staged ($n=5$, mean interval = 6.8 ± 4.2 days) endovascular repair was performed via femoral artery.

Results: Technical success rate was 100% (10/10). The 30 day-mortality was 30% (3/10), including 1 brain stem infarction, 1 circulatory failure and 1 aorto-tracheal fistula. Complication included 1 type II endoleak. Median follow-up was 34.9 ± 44.5 (1–132) months. CT scanning was performed at 1, 3 months and annually after surgery. There was no death and no occlusion of bypass. No complication occurred except 1 existing type II endoleak.

Conclusions: Ascending aorta to carotid artery revascularization with subsequent endovascular repair extends the indication of endovascular repairing aortic arch and is suitable for high risk patients of poor general condition with little tolerance to aortic replacement.

Keywords: Aortic arch disease; hybrid procedure; endovascular repair; ascending aorta based revascularization

Inhibition Of Experimental Neointimal Hyperplasia By Novel Helical Stent In Procine Model

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Objective: To observe neointimal formation and hemodynamics after implantation of the novel helical stent in comparison with a straight stent in a porcine model.

Methods: One helical stent and one controlled straight stent were separately implanted into both carotid arteries of 14 pigs. Quantitative angiographic measurements, duplex-estimated wall shear stress (WSS), and quantitative histomorphometry were measured in 30 days.

Results: A spiral blood flow was confirmed in the helical stents; and the average lumen diameter stents was significantly higher in the helical ($P=0.001$). The WSS was decreased by either helical or straight designs, but helical stent demonstrated

a higher WSS, especially in the first half of the stent ($P < 0.05$ at proximal and middle, $P = 0.08$ at the distal). The cross-sectional neointimal areas and the percentage of in-stent stenosis for helical stents were markedly reduced ($P < 0.05$).

Conclusions: The helical stent design has the characteristics to mimic a physiological-type swirling flow and to optimize the in-stent WSS. This technique appears to inhibit neointimal hyperplasia and preserve luminal patency.

Stent Fractures after Superficial Femoral Artery Stenting: Risk Factors and Impact on Patency

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Objective: The purpose of this study is to determine the risk factors and clinical impact of stent fractures after superficial femoral artery stenting.

Methods: From May 2009 to June 2012, 171 consecutive patients (205 limbs) who presented with SFA atherosclerosis stenosis or occlusion and underwent endovascular therapy of the superficial femoral artery (SFA) segment were retrospectively reviewed at our center. Stent fractures were determined by X-ray and classified into types I, II, III, IV, and V. Loss of patency was assessed by duplex ultrasonography (>2.4 peak systolic velocity ratio) or angiography (percent diameter stenosis $>50\%$).

Results: One hundred seventy-one patients (205 limbs) who underwent successful stent placement for lesions in the SFA were retrospectively observed in this study. 12-month primary patency was 49.8% and 43.4% after 2-year. Stent fractures occurred in 12.5% and 26.8% for per limb, or 6.7% and 12.5% for per stent at the 12 and 24 months, respectively. Primary patency was numerically worse in the stent-fracture group, but not statistically different from the group without fractures during the first two years (40.0% and 34.5% with fractures vs. 53.3% and 46.7% without fractures). Primary patency between different types of stent fracture were 30.8% (type I), 50.0% (type II), and 31.3% (type III-V). Hyperlipidemia ($P = 0.001$), Trans-Atlantic Inter-Society Consensus II (TASC II) classification ($P = 0.007$), chronic total occlusion (CTO) ($P < 0.001$), proximal anatomic location of lesion ($P = 0.008$), lesion calcification ($P = 0.025$), total stent length ($P = 0.005$), and number of stents ($P = 0.001$) were statistical significant predictors of stent fractures. Multivariate analysis showed that CTO (hazard ratio [HR]: 0.173, 95% confidence interval [CI]: 0.042 to 0.716, $P = 0.015$) was an independent predictor of stent fractures.

Conclusions: Stent fractures occur more frequently in patients with CTO after treatment of longer stented length. Although Multivariate analysis showed CTO was the only independent predictor regardless of stent length or numbers, stent fractures rate was numerically higher in the severe calcification and proximal SFA lesions which may need proper attention before intervention. Stent fracture observed in this study did not

appear to affect long-term patency rates, but this is yet to be confirmed with further follow-up.

The Trends and Outcomes of Endovascular Repair for Ruptured AAA in a Single Chinese Vascular Center, 2004 to 2014

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Background: Endovascular aneurysm repair for ruptured abdominal aortic aneurysm (rEVAR) has faced resistance owing to the conflicting results reported concerning perioperative mortality. The aim of our study was to evaluate in-hospital mortality of rEVAR in a teaching hospital of China.

Methods: True ruptured abdominal aortic aneurysm (AAA) treated between 2004 and 2014 were identified. The symptomatic AAA and impending ruptured AAA were excluded. The 10-year period was divided into three phases separated by two milestones: 1) before hybrid OR established (2004–2008); 2) before IMPROVE trial published (2009–2013). The 2nd time phase is Time-trend analysis, depicting annual changes, concerning rEVAR for this disease were conducted. In-hospital mortality and the risk factors were also analyzed.

Results: A total of 48 patients with rAAAs were recorded during the study period. In the three phases, rEVAR was conducted in 37.5%, 54.5% and 90.0% patients, and the mortality of rEVAR is 50.0%, 41.7% and 33.3%. 22 (71.0%) out of 31 patients who received preoperative CTA and 5 (29.4%) out of 17 patients who didn't received preoperative CTA were finally treated endovascularly. Multivariate analysis evidenced that preoperative hemodynamic instability, operating time, local anesthesia, blood transfusion and renal insufficiency independently increased in-hospital mortality.

Conclusions: rEVAR is being used with greatly increasing frequency for the treatment of rAAAs, especially after IMPROVE results published. This technique appears to be associated with acceptable postoperative mortality over a 10-year learning curve. The perioperative predictors of mortality should be regarded as future targets to improve the rEVAR outcomes.

ENDOASCULAR VS OPEN REPAIR FOR RUPTURED ABDOMINAL AORTIC ANEURYSM IN A CHINESE POPULATION

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Objective: We compare perioperative (30-day) mortality, midterm survival and morbidity after open surgery repair (OSR) and endovascular repair (EVAR) for ruptured abdominal aortic aneurysm (RAAA) in a Chinese population.

Methods: We conducted a retrospective study of all RAAA patients treated in our vascular institute between January 2003

and November 2014. The demographic characteristics and perioperative outcomes in patients for RAAA by OSR or EVAR were recorded. The primary endpoints included perioperative mortality and midterm survival.

Results: Fifty-nine RAAA of 82 patients were repaired, 23 by OSR and 36 by EVAR. The overall 30-day survival rate was 64.4%. The 30-day mortality was 47.8% in OSR group versus 27.8% in EVAR group ($P=0.12$). The incidents of total surgical time, estimated blood loss, blood transfusion in OSR group were significant greater than that of EVAR group ($P<0.001$, respectively). Reintervention during 30-day postoperative and follow-up periods was more frequent in patients for EVAR (36.1%) than in patients for OSR (8.7%, $P=0.026$). Mean follow-up was 38.2 ± 29.3 months (range 2 to 100 months). There was no significant difference in the midterm survival (EVAR 61.1% vs OSR 34.8%, $P=0.064$) between these two groups, and Kaplan-Meier survival curves analysis also showed no difference ($P=0.079$). Univariate and multivariate Logistic regression analyses demonstrated intraperitoneal ruptured ($P=0.016$) and cardiovascular disease ($P=0.041$) were independent risk factors for the 30-day mortality. Intraperitoneal ruptured was the risk factor for the midterm mortality ($P=0.044$).

Conclusion: The 30-day mortality and midterm mortality of RAAA were no significant difference between EVAR group and OSR group in our study. EVAR could be an alternative therapy for anatomically suitable RAAA.

EFFECT OF INTRAVASCULAR ULTRASOUND-ASSISTED THORACIC ENDOVASCULAR AORTIC REPAIR FOR “COMPLICATED” TYPE B AORTIC DISSECTION

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Background: The clinical utility of intravascular ultrasound (IVUS) examination in thoracic endovascular aortic repair (TEVAR) for type B aortic dissection (type B-AD) remains unclear, especially in complicated AD. We evaluated the usefulness of IVUS as a complementary tool during TEVAR.

Methods: From September 2011 to April 2012, we conducted a prospective cohort study of 47 consecutive patients with “complicated” type B-AD diagnosed. We divided the patients into two groups: IVUS-assisted TEVAR group and TEVAR using angiography alone group. The general procedure of TEVAR was performed. We evaluated the perioperative and follow-up events. Patient demographics, comorbidities, preoperative images, dissection morphology, details of operative strategy, intraoperative events, and postoperative course were recorded.

Results: A total of 47 patients receiving TEVAR were enrolled. Among them (females, 8.51%; mean age, 57.38 ± 13.02 years), 13 cases (27.66%) were selected in the IVUS-assisted TEVAR group and 34 were selected in the TEVAR group. All patients were symptomatic. The average diameter values of IVUS measurements in the landing zone were greater than those estimated by CTA (31.82 ± 4.21 mm vs 30.64 ± 4.13 mm, $P<.001$). The technique success rate was 100%. Among the postoperative outcomes, statisti-

cal differences only emerged between the IVUS-assisted TEVAR group and TEVAR group for total operative time and the amount of contrast used ($P=.013$ and $P<.001$, respectively).

Conclusion: We demonstrate that intraoperative IVUS-assisted TEVAR is clinically feasible and safe. For the endovascular repair of “complicated” type B-AD, IVUS may be helpful for understanding dissection morphology and decrease the operative time and the amount of contrast used.

New Iatrogenic Intimal Tear at the Stent Graft Distal End Following Endovascular Treatment of Type B Aortic Dissection

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Running title: New Distal Tear After Stent-grafting in AD

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Background: New iatrogenic intimal tear (NIIT) at the distal stent graft margin following thoracic endovascular aortic repair (TEVAR) for Type B aortic dissection is a serious complication. We try to analyze the incidence and possible causes of NIIT.

Method: Out of 623 patients treated from January 2004 to December 2009, 15 developed NIITs at the distal stent graft margin after TEVAR. all cases were divided into two groups according to the time of onset, the length of stent grafts and whether they are tapered or not.

Result: The Kaplan-Meier estimate for the rate of freedom from this event at 12 months was 97.4%. No significant difference in the incidence of distal NIIT was found between patients treated for acute versus chronic dissection (97.6% vs 97.1%, $P=0.66$), with respect to the group with straight stent graft implantation versus the group with tapered stent graft implantation (2.57% vs 2.20%, $P=0.76$), or to the group with stent grafts employed with a connecting bar versus those without a connecting bar (2.88% vs 1.93%, $P=0.44$). However when all cases were divided into groups according to the lengths of the stent graft used ($L1\geq 150$ mm, $150\text{mm} > L2\geq 130\text{mm}$, and $L3 < 130\text{mm}$), a significant difference occurred between the groups over 130mm and less 130mm (1.8% vs 6.8%, $P=0.024$). A second stent graft was placed in six patients with NIIT whereas the other nine patients were managed conservatively. Amongst these 15 patients, the mortality was 13.3% ($n=2$); the remaining patients have been stable with close observation over a mean follow-up of 36 months.

Conclusion: Distal iatrogenic tear following TEVAR for type B aortic dissection occur in a small percentage of patients. The anatomic and pathologic features of aortic dissection, as well as factors related to procedural manipulation and stent graft device design may all contribute to the occurrence of NIIT. Further standardization of endovascular technique and improvements in the design of stent graft systems should be conducive to the pre-

vention of NIIT. Regular follow-up examination is essential for early detection. reintervention was recommended for patients with NIIT once recurrent pain or aortic aneurysmal enlargement even pseudoaneurysm appeared.

Keywords: aortic dissection, intimal tear, graft, stents

Nutcracker syndrome – how well do we know it?

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Background: Nutcracker syndrome (NCS), which is caused by compression of the left renal vein (LRV) between the abdominal aorta and the superior mesenteric artery (SMA), leads to a series of clinical symptoms. NCS is a relatively rare but possibly underestimated condition.

Methods: We conducted a review based on the related literature and our experience with hundreds of cases. We summarize the characteristics of NCS, the different measurements used in diagnosis, and the current treatment options.

Results: The common symptoms of NCS includes hematuria, proteinuria, flank pain, and varicocele, which is related to the hemodynamic changes. The diagnosis of NCS is difficult due to variations in normal anatomy. Treatment, which ranges from observation to nephrectomy, remains controversial. We present our diagnostic criteria and treatment guidelines for NCS based on our study and literature review.

Conclusion: NCS is a rare but underestimated entity that merits more attention. In symptomatic patients, observational treatment is suggested initially and endovascular stenting is recommend as the primary option for the patient required surgery.

Abbreviations and Acronyms: NCS, nutcracker syndrome; NCP, nutcracker phenomenon; LRV, left renal vein, SMA; superior mesenteric artery; AO, aorta; MDCT, multidetector computed tomography; ACEI, angiotensin-converting enzyme inhibitor; CTA, computed tomography angiography; MRA, magnetic resonance angiography; PTFE, polytetrafluoroethylene; IVC, inferior vena cava.

Assessment of high on-clopidogrel platelet reactivity, genotype, and ischemic events after superficial femoral artery stent implantation: a single center, prospective study

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Background: It is not yet known if platelet reactivity associates with clopidogrel genotype and also effects on the ischemic

events after superficial femoral artery (SFA) stent implantation. Thromboelastography platelet mapping (TEG-PM) can be used to measure the percentage of platelet inhibition by clopidogrel and aspirin in these patients.

Methods: We prospectively screened 112 patients with infrainguinal arterial occlusive disease undergoing endovascular procedures by examining single nucleotide polymorphisms (SNPs) within genes modulating clopidogrel absorption (ABCB1) and metabolic activation (CYP2C19*2, *3, *17) using Taqman SNP genotyping assay. Platelet reactivity post dual antiplatelet therapy (DAPT) was measured using TEG-PM. High platelet reactivity (HPR) was defined as $\leq 30\%$ thromboelastography adenosine phosphate inhibition (or $\geq 70\%$ adenosine phosphate-induced aggregation). The evaluation of platelet reactivity and ischemic events was performed at 3, 6, and 12 months after endovascular procedures.

Results: CYP2C19*2 and *3 were associated with postclopidogrel platelet aggregation ($P=0.046$). ABCB1 C3435T was not associated with postclopidogrel HPR ($P=0.835$). One CYP2C19 loss-of-function (LOF) allele carriers showed increased HPR incidence compared with no LOF allele carriers (61.5% vs. 23.1%, $P=0.020$). The mean follow-up duration was 13.2 ± 8.3 months (range, 1–50 months). Patients with HPR more easily developed ischemic events compared with those without (61.5% vs. 27.7%, $P=0.023$). In logistic regression models, CYP2C19 genotype was a significant risk predictor of HPR (adjusted odds ratio, 3.017; 95% confidence interval, 1.143–7.966; $P=0.026$). Kaplan-Meier event-time curve showed that patients with high platelet function values (maximum amplitude of adenosine phosphate >34.4) had a continual increase in ischemic event occurrence over time ($P=0.022$). In a multivariate analysis, CYP2C19 genotypic classification and smoking status were ischemia risk predictors ($P=0.006$, and $P=0.046$, respectively).

Conclusions: TEG-PM might be a feasible approach to objectively evaluate platelet reactivity of aspirin and clopidogrel. Assessment of a combination of platelet reactivity and genotype may facilitate risk stratification for the patients who underwent SFA stent implantation.

Catheter-directed Thrombolysis assisted with Angioplasty for chronic lower limb Ischemia

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Background: Thrombolysis is an appropriate treatment for acute arterial occlusion. There remains controversy as to whether thrombolysis prior to angioplasty helps to identify the underlying lesion and improve results for chronic ischemia of lower extremity.

Objectives: To investigate the feasibility of catheter-directed thrombolysis-assisted angioplasty for chronic lower limb ischemia.

Methods: From July 2008 to December 2009, data of patients with chronic lower limb ischemia undergoing catheter-directed thrombolysis-assisted angioplasty were retrospectively analyzed.

Results: Twenty consecutive patients (18 female; mean age: 56.38 ± 6.1 years) underwent thrombolysis-assisted angioplasty with 18 occlusion of native artery and 2 graft. Median dura-

tion of symptom was 19 months (range 3–48 months). There was disable claudication in 12 patients, rest pain in 5 patients, toes gangrene in 3 patients. Urokinase or rt-PA as thrombolytic agent was employed prior to angioplasty.

Results: Mean length of occlusive lesions decreased significantly from 150 to 30 mm after thrombolysis ($P=0.02$). Four patients showed no change of lesion. Improvement of TASC classification was achieved in 19 patients with 17 TASC A lesions and 2 TASC B lesions after thrombolysis. Subsequent stenting were successfully performed in all patients. ABI increased significantly from 0.3 to 0.63 ($P=0.043$). No perioperative death occurred. Morbidity included access site bleeding in 8 patients and distal micro embolism in 2 patients without further intervention. Primary patency rate was 98% with median follow-up time of 12-month

Conclusions: Catheter-directed thrombolysis assisted angioplasty is safety and efficacy in some patients with chronic lower limb ischemia. It may reduced the magnitude and simplify the expected intervention procedures.

Keywords: peripheral arterial disease; Thrombolytic Therapy; angioplasty

Analyze of all Types Endoleak after Endovascular Repair of Abdominal Aortic Aneurysm

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Objective: To investigate the prevention and treatment of endoleak after EVAR by summarizing our experience of endovascular abdominal aneurysm repair.

Methods: The clinical data of 307 patients with infrarenal abdominal aortic aneurysm undergoing endovascular repair (EVAR) from January 2012 to October 2013 in Zhongshan Hospital were analyzed retrospectively.

Results: We use CT for follow-up by interval of 3 months, 6 months, 12 months, 24 months and 36 months after surgery. Primary endoleak after surgery occurred 43 cases of whom, 12 cases were type I, 19 cases were type II, 10 cases were type III & IV, 2 cases were aneurysm growing, totally follow-up for 8–46 months, lost 35 cases. We have done secondary surgery for 60 patients, and survived patients live well.

Conclusion: Endovascular repair of abdominal aortic aneurysms has advantage as minimally invasive, quick recovery, especially for high-risk patients not suitable for surgery, and approving recent & mid-term effect. However, due to the endoleak complications, long-term efficacy remains to be seen.

Effect of the retrograde visceral bypass on the infrarenal aortic artery hemodynamics

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Purpose: The procedure of abdominal visceral reconstruction is an important role for hybrid treatment with thoraco-abdominal aortic aneurysms (TAAA). However, it is still neglected that the retrograde bypass flow induces aortic artery

hemodynamics change. This study will determine the effect of retrograde outflow on the hemodynamics of infrarenal aortic artery in 3-dimensional computational models.

Methods: The 3D computer models were constructed based on the models both normal and retrograde visceral bypass infrarenal aortic artery (VBAA). There was 10 mm between graft anastomotic stoma and aortic artery bifurcation. Computational fluid dynamics tools were used to simulate realistic flow and pressure conditions of the patient. The fluid-structure interaction analysis was performed to calculate the blood flow velocity and wall stresses distribution of the normal and reconstruction models.

Results: ① The blood flow velocity distribution in the reconstruction aortic artery model was characterized by the consecutive formation and diminishing of 3D vortices. In the region between anastomotic stoma and the bifurcation of VBAA (RSB), there were remains of the vortices formed in the whole cardiac cycle. At the end-diastole, there is reversed flow in the RSB of VBAA. ② The wall shear stress (WSS) in VBAA was the lower compared to the WSS in the normal aortic artery. The lowest WSS was found on the wall around the stoma at the end-diastole. ③ The Von-Mises stress in VBAA was higher than the stress in the normal aortic artery. The highest Von-Mises stress occurred on the wall around the stoma within the whole cardiac cycle. The stress induced the wall around the stoma of VBAA to dilated deformation.

Conclusion: The retrograde visceral bypass at the distal infrarenal aortic artery resulted in the higher stress in the infrarenal aortic artery. The abnormal hemodynamics will increase the risk of abdominal aortic aneurysm formation.

Primary stenting for symptomatic patients with superficial femoral atherosclerotic lesions: a multicenter trial in the mainland of china

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Purpose: The aim of this multicenter trial is to assess the clinical efficacy of primary stenting for symptomatic patients with superficial femoral atherosclerotic lesions in the mainland of china.

Materials and Methods: All symptomatic patients enrolled in this prospective, multicenter study underwent primary stenting for de novo superficial femoral atherosclerotic lesions. They were followed up at 1, 3, 6, and 12 months with clinical, duplex, or CTA assessments. Baseline and result A total of 507 patients (351 males), mean age of 72 years (range, 43–94 years) were included. The 1, 3, 6, 12-month primary patency rates were: 83.9% (428

patients were followed up), 68.8%(420 patients were followed up), 57.5%(369 patients were followed up), and 43.9%(301 patients were followed up).

Conclusion: It is the first multicenter trial to assess the clinical efficacy of primary stenting for symptomatic patients with superficial femoral atherosclerotic lesions in the mainland of china. It shows that the clinical efficacy of primary stenting for symptomatic patients with superficial femoral atherosclerotic lesions in the mainland of china is disappoint and unpromising. The other new technologies, such as drug-eluting stents, drug-eluting balloons, need to be examined for superficial femoral atherosclerotic lesions in the mainland of china in the future.

Keywords: Superficial femoral artery, Atherosclerosis, Stent

Interventional treatment for visceral artery aneurysm

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Objective: To review the outcomes of the interventional treatment for visceral arteryaneurysm(VAA) with based techniques.

Methods: The clinical data of 26 patients with VAAs treated in our department from 2011 to 2014 were analyzed retrospectively.

Results: Of 26 cases, 15 men and 11women with VAAs wererecruited. VAAs involved 4 renal arteries, 7 superior mesenteric arteries, 1 abdomen arteries, 14splenicarteries. Endovascular intervention was carried out on 25 patients while surgical treatment was performed on 1 patients. The technical success rate of the first intervention was 100%.During the follow-up time of 5 to 12 months, all patients have no relapse.

Conclusion: Patient-specifically designed interventional therapy or surgical treatment may be the optimal treatment for visceral artery aneurysms.

Keywords: Visceral artery aneurysms; Interventional therapy

Comparative effectiveness of endovascular versus open repair of ruptured abdominal aortic aneurysm

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Objective: To compare and analyze endovascular repair (EVAR) with open surgery repair (OSR) in patients with ruptured abdominal aortic aneurysm(rAAA).

Methods: Clinical data of patients with an rAAA were analyzed retrospectively. Outcome parameters included mortality (intraoperative, 30 day, 6 month and 12 month), complications, reinterventions, and length of hospital stay.

Results: 35 consecutive patients with rAAAs were presented, of whom 12 underwent rEVAR, and 23 underwent OSR. 28 males and 7 females, age: 37–84 years, mean age (68.37 ± 10.04). At baseline, there was an equal distribution of age, gender, comorbidities and preoperative hemodynamic ($P > 0.05$). the intraoperative, 30 day, 6 month and 12 month mortality was 0.0%(0 of 12),

0.0% (0 of 12), 0.0%(0 of 12), and 0.0%(0 of 8) after rEVAR compared with 17.4% (4 of 23; $P=0.275$), 30.4% (7 of 23; $P=0.070$), 34.8% (8 of 23; $P=0.032$), and 45.0% (9 of 20; $P=0.029$) after OSR, respectively. Median length of hospital stay was 11.0 days (interquartile range, 7.0–16.0) after rEVAR and 17.0 days (interquartile range, 14.0–27.0) after OSR ($P=0.024$).

Conclusion: These data suggest that EVAR can be a first-line treatment for rAAA. However, anatomical conditions should be considered cautiously. aortouniliac is a fast, effective way to control bleeding. A strengthened observation of abdominal compartment syndrome is indispensable for EVAR.

Keywords: ruptured abdominal aortic aneurysm ; open surgery repair ; endovascular repair ; abdominal compartment syndrome

Clinical experience on treatment of acute lower limb arterial embolism with arteriosclerosis obliterans

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Objective: To analyze the treatment strategy of acute lower limb arterial embolism with arteriosclerosis obliterans.

Methods: From 2007, 37 patients of lower extremity arteriosclerosis obliterans with acute arterial embolism underwent treatment in our hospital. The sites of embolism are as follows: 2 cases in the iliac artery (5%), 22 patients in the femoral artery (60%), 13 patients in the popliteal artery (35%). The diagnostic method include ultrasonography, DSA (digital subtraction angiography), CTA (computed tomographic angiography). The procedures included embolectomy (n=6, 16%), catheter-directed thrombolysis (n=26, 70%) and peripheral venous thrombolysis (n=5, 14%).

Results: There is a moderate or more improvement in 30 cases (81%). Five cases of amputation have occurred (14%) and two patients died (5%). The efficiency of embolectomy is 50% while of catheter-directed thrombolysis is 88%. Ischemia-reperfusion injury occurred in two cases after embolectomy. The treatment efficiency of femoral artery embolism is 80% while the treatment efficiency of popliteal artery embolism is 77%.

Conclusions: Medical imaging examinations are very important for the assessment of acute arterial embolism, which can guide the treatment options. Catheter-directed thrombolysis is a safe and effective treatment method of acute lower limb arterial embolism with arteriosclerosis obliterans.

Keywords: Acute arterial embolism; Arteriosclerosis obliterans; Embolectomy; Catheter-directed thrombolysis

Therapeutic Choice of Uncomplicated Tpye B Aortic Dissection: Timing, morphological features and long-term outcome

Running title: Lu et al, Therapeutic choice of type B dissection

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Background: With the advantages of minimally invasive endovascular technology in aorta morphological remodeling, whether these improvements result in a favorable long-term outcome of uncomplicated type B aortic dissection remain controversial.

Methods and Results: We retrospectively analyzed 252 uncomplicated type B aortic dissection (uTBAD) patients from 1992 to 2012. Among which, 117 patients treated medically and 135 patients received endovascular repair. The all-causes mortality, aorta-related death and all kinds of complications were collected to evaluate the influence of endovascular therapy on the long-term outcomes. Besides, the morphological characteristics of aortic dissection were recorded to clarify the risk factors that decreased the survival rate of uTBAD patients. The timing of endovascular repair was assessed at screening the operative records in 3 subgroups (acute, subacute and chronic). The 2-years, 5-year and 10-year survival rates, respectively, were 94.8%, 67.6% and 20.3% for medication group, 96.3%, 92.3% and 68% for endovascular group. Major adverse events included aortic related complications and neurological symptoms were documented more frequently in medication group. The minimal true lumen diameter and visceral arteries involvement were positively related with long-term mortality in addition to false lumen patency.

Conclusion: With the amelioration of aortic remodeling, endovascular repair in uTBAD patient results in better survival rate during 20 years' follow-up, the precise morphological evaluation of uTBAD patients are recommended for outcome improvement.

Keywords: cardiovascular diseases, endovascular repair, follow-up studies

One year's experience with the Jetstream™ Pathway device for femoro-popliteal disease

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Objectives: To report safety and efficacy of Jetstream™ Pathway rotational atherectomy/thrombectomy device for the treatment of femoro-popliteal arterial lesions with special emphasis on rate of re-intervention and intervention free period.

Materials & Methods: Duration of study is from March 2008 to November 2009 (21Months). Total numbers of patients is 86. Males are 55 (64%) and females are 31 (36%). Age range is 36 to 87 Years. All patients underwent Pathway Atherectomy during this time period regardless of their previous status were included. Re intervention in the same limb after atherectomy was endpoint of the study.

Results: TLR (Target Lesion Revascularization) was 15% in patients during follow up period. Re intervention was more common in first three months after first intervention. It was more common in TASC II type B lesions and mostly managed by Balloon Angioplasty.

Conclusion: The JetStream™ Pathway device with thrombectomy and aspiration capabilities has added advantages to femoro-popliteal atherectomy. Adjunctive stenting remains very low in this difficult segment. Long term follow up will definitely be needed for durability and patency.

Surgery for vascular tumor invasion

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Aim: To evaluate our clinical experience and surgical result with oncologic procedures associated with major vascular resection and reconstruction on elective or emergent basis.

Methods: A retrospective study was performed on patients who underwent major vascular resection for malignancy in our hospital between January 1995 and November 2011. Data collection was organized for patient demographics, intraoperative findings, and postoperative outcome. Patient profile included age, sex, and co-morbid conditions. Intraoperative findings included type of surgery (elective or emergent), invaded vessel, tumor localization, type of vascular reconstruction, and histopathologic findings. Postoperative outcome included assessment of graft patency, reinterventions, vascular and non-vascular complications and early mortality.

Results: Thirty six patients were treated with 37 reconstructive procedures; 18 patients underwent major-vessel reconstruction, 11 patients underwent bypass procedures, and 8 patients underwent primary repair. Concomitant vascular interventions were performed electively as a part of a planned oncologic procedure in 22 patients or emergently because of a vascular complication that occurred during tumor resection in 14 patients. Postoperative morbidity related to vascular intervention was 8.3%, and mortality was 2.8% which occurred due to pulmonary embolism.

Conclusion: The results reported herein support that the need for resection and reconstruction of a major vascular structure should not prohibit the resection of any given tumor. The study demonstrates that most major vascular reconstructions have a high degree of success, and do not result in major complications.

Peripheral arterial emboli due to involvement of arcus aorta by hydatid cyst: A case report

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We report a rare case of hydatid cyst that involved the aortic arch and presented with left femoral arterial emboli of unknown origin. Histopathological examination of urgent embolectomy material was consistent with hydatid disease and thoracic CT scans revealed a 4X3 cm hydatid cyst on arcus aorta. Removal of the cyst and replacement of the ascending aorta and hemi-arcus were performed under hypothermic circulatory arrest. The patient had an uneventful recovery period and is under follow-up 2 years after surgery without any vascular or systemic complaints.

Thyroid Surgery

Surgical management of secondary hyperparathyroidism: How to effectively reduce recurrence at the time of primary surgery

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Background: Successful parathyroidectomy (PTX) often result in a dramatic drop in the parathyroid hormone (PTH) levels, relieves the patient from clinical symptoms, and reduces mortality. However, at present the rate of persistent and recurrent disease after PTX is high.

Methods: Available evidence from almost entirely retrospective, observation studies and our own experience have some tips to reduce recurrence of SHPT at the time of primary surgery

Results: SHPT requiring parathyroidectomy (PTX) occurs more commonly in progressive chronic kidney disease (CKD) and in long-term lithium therapy. Operative approaches include subtotal PTX, total PTX (TPTX) with or without autotransplantation (AT), and possible thymectomy. Each approach has its proponents, advantages and disadvantages. However, at present the rate of persistent and recurrent disease after PTX is high. Available evidence from almost entirely retrospective, observation studies and our own experience have confirmed that pre-operative imaging, thymectomy, stereo magnifier and surgical procedure might effectively reduce recurrence of SHPT at the time of primary surgery.

Conclusions: In conclusion, we emphasize the need for reducing recurrence of PTX. The present surgical recommendations in patients with SHPT calls for pre-operative imaging, thymectomy, stereo magnifier and highly elective tissue selection for parathyroid autografting.

Keywords: hyperparathyroidism; secondary hyperparathyroidism; renal hyperparathyroidism; parathyroidectomy; thymectomy

What's the reasonable range of selective neck dissection for cN0 PTC?—Outcome of 136 patients after central neck lymph node dissection

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Objective: To retrospectively analysis the long-term result of prophylactic central lymph node dissection in cN0 papillary thyroid carcinoma (PTC), and investigate the treatment method of the neck for cN0 thyroid papillary carcinoma.

Methods: One hundred and thirty-six patients with cN0 PTC by surgery in Cancer Hospital of Chinese Academy of Medical Sciences from 2000–2006. Clinicopathological characteristics, surgical procedures and survival outcomes were collected and analyzed.

Results: The occult lymph node metastasis in central compartment was 61.0%. The average number of positive lymph nodes was 2.47 (1–13). Fifty-four patients had less than three positive lymph nodes and twenty-nine had equal to or more than three. Multiple logistic regression analysis showed that age less than 45 ($P=0.001$, OR 3.571, 95% CI 1.681–7.587) and extracapsular spread (ECS) ($P=0.015$, OR 2.99, 95% CI 1.241–7.202) were independent risk factors for lymph node metastasis in central compartment. Ten year cumulative overall survival rate was 98.3% and cumulative lateral neck metastasis rate was 25.2%. Multivariate analysis with cox regression model showed that ECS ($P=0.001$, OR 5.211, 95% CI 1.884–14.411) and positive lymph nodes in central compartment ≥ 3 ($P=0.009$, OR 4.005, 95% CI 1.419–11.307) were independent risk factors for lymph node recurrence in lateral neck region. The distribution of recurrent lymph nodes: level IV (82.4%), level III (64.7%), level II (29.4%) and level V (11.8%).

Conclusion: Routine central lymph node dissection should be conducted for cN0 papillary thyroid carcinoma (at least unilateral). Attention should be paid to the lateral neck region with cN0 papillary thyroid carcinoma. Selective neck dissection is suggested for cN0 PTC with one or both of the risk factors, such as ECS and positive central lymph nodes ≥ 3 . The range of dissection should include level III and IV at least.

Keywords: thyroid tumor, papillary carcinoma, lymph node metastasis, central compartment neck dissection, selective neck dissection

Study on the Correlation between BRAF^{V600E} Mutation and Lymphatic Metastases in Papillary Thyroid Cancer staged preoperatively as N0

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Objective: To explore the correlation between BRAF^{V600E} mutations and the occult central nodal metastasis (CNM) of clinically-nodal negative (cN0) neck for small (≤ 2 cm) papillary

thyroid carcinoma (PTC). We aimed to assess whether BRAF^{V600E} is a risk factors of lymph node metastasis in small PTC.

Methods: Primary tumor tissue (paraffin-embedded) from 72 patients with small (≤ 2 cm) cN0 PTC who underwent prophylactic central neck dissection (pCND) was tested for BRAF mutation. by nested PCR, the factors of lymph node metastasis such as clinicopathologic including tumor size, multifocality, extrathyroidal invasion, and BRAF mutations were analyzed. Prediction scores were generated using logistic regression models and BRAF was evaluated to see if it was a risk factor for CNM.

Results: The prevalence of BRAF was 47.22%(34/72) while the rate of CNM was 36.11% (26/72). Univariate analysis showed that the risk factors of lymph node metastasis for cN0 PTC were significantly correlated with tumor size ($P=0.016$), Tumor bilaterality ($P=0.010$), multifocality ($P=0.026$), extrathyroidal invasion ($P=0.024$), and BRAF mutations ($P=0.041$). Univariate analysis showed that tumor size (OR=2.674, 95%CI=1.702–3.997), multifocality (OR=1.371, 95%CI=1.065–2.087), extrathyroidal invasion ((OR=1.953, 95%CI=1.042–8.346)) and BRAF (OR=1.647, 95%CI=1.101–2.463) were risk predictors of CNM.

Conclusion: BRAF mutant PTC manifests relative occult central nodal metastasis and BRAF V600E is a risk factors of lymph node metastasis in small PTC (≤ 2 cm)

Keywords: papillary thyroid carcinoma; BRAF mutation; occult central nodal metastasis (CNM); central neck dissection

EVALUATION OF PERIOPERATIVE RECURRENT LARYNGEAL NERVE INJURY IN THYROID SURGERY

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Purpose: Recurrent laryngeal nerve injury (RLNI) is an important complication following thyroid surgery. In our study, we aim to investigate vocal cord movement using laryngoscopic examinations before and after this operation.

Methods: Institutional review board approval was obtained for this study. The clinical and laryngoscopic data of patients who underwent partial or total thyroidectomy in our institution between January 2012 and January 2013 were retrospectively analyzed. All patients received perioperative laryngoscopic examinations. The recurrent laryngeal nerve integrity was measured by the application of intraoperative neuromonitoring (IONM). Abnormal vocal cord movement was classified into three categories on the basis of laryngoscopic findings in combination with clinical symptoms and IONM results.

Results: A total of 1578 patients were included in our final analysis. Of the 1578 patients, preoperative laryngoscopic revealed that 28 patients had type I abnormal vocal cord movement. The electrical neuromuscular signal of the recurrent laryngeal nerve was normal in these patients. A total of 17 patients had type III abnormal vocal cord movement. Of these 17 patients, 16 had abnormal electrical neuromuscular signals. According to postoperative laryngoscopic results, there were 27 patients with new-onset type I abnormal vocal cord movement following surgery. The number of cases of new-onset type II and type III abnormal vocal cord movement was 15 and 31, respectively.

Conclusions: The present study shows that preoperative and postoperative laryngoscopic examinations and classification are essential to evaluate the extent of patients with RLNI.

Keywords: Thyroid surgery; Recurrent laryngeal nerve injury; Laryngoscopy; Perioperative

The clinical significance of carbon nanoparticles-assisted biopsy of sentinel lymph nodes for thyroid surgery

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Objective: To investigate the significance of intraoperative sentinel lymph node (SLN) biopsy for diagnosing and radically managing thyroid microcarcinoma.

Methods: During thyroid surgery, SLN biopsy was performed after carbon nanoparticles suspension (CNS) was intrathyroidally injected and SLNs were black stained by CNS. When intraoperative frozen section analysis indicated metastases of thyroid carcinoma in the SLNs, a radical operation for thyroid carcinoma (total thyroidectomy and central and lateral neck dissection) was conducted despite the fact that the primary thyroid tumor had not been identified. And postoperative analysis was carried out to evaluate the role of intraoperative SLN biopsy as guidance for radical operation for thyroid microcarcinoma.

Results: 541 patients underwent thyroid surgeries between February 2012 and February 2014 at the Department of Breast and Thyroid Surgery, Hunan Provincial People's Hospital. Of whom, 21 out of 392 (5.4%) undergoing intraoperative SLN biopsy were diagnosed metastases of thyroid carcinoma in the SLNs without thyroid microcarcinoma being intraoperatively detected in the corresponding thyroid tissue or tumor. 7 out of 149 (4.7%) not undergoing intraoperative SLN biopsy were postoperatively diagnosed thyroid microcarcinoma by paraffin section examinations.

Conclusion: Intraoperative SLN biopsy could facilitate the diagnosis of thyroid microcarcinoma and the avoidance of the second surgery for residual and/or missed thyroid microcarcinoma.

Keywords: Sentinel lymph node biopsy, thyroid microcarcinoma, Second surgery, Carbon nanoparticles

ALTERED EXPRESSION OF ESTROGEN RECEPTOR BETA2 IS ASSOCIATED WITH DIFFERENT BIOLOGICAL MARKERS AND CLINICOPATHOLOGICAL FACTORS IN PAPILLARY THYROID CANCER

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Objective: Estrogen and estrogen receptor (ER) -alpha and -beta play a role in the development and progression of thyroid cancer. The aim of this study was to investigate the expression of

ER beta2 protein in papillary thyroid cancer (PTC) for clinical significance.

Methods: ERbeta2 expression was immunohistochemically examined in formalin-fixed, paraffin-embedded thyroid tissues from 106 PTC patients. The associations between clinicopathological factors and ER beta2 expression and other biological markers (Ki-67, MTP53 and VEGF) were then assessed.

Results: ER beta2 protein was positively expressed in all PTC tissue specimens and associated with Ki-67 expression in female patients with advanced reproductive age (> 45 years, in low-estrogen status) and with VEGF expression in male PTC patients with reproductive age (18~45 years, in low-estrogen status) ($P=0.005$ and $P=0.044$, respectively). There was no association between ER beta2 expression and tumor size, extra thyroidal extension and tumor-node-metastasis stage in PTC patients. Overall, ER beta2 expression was lower in female patients with lymph node metastasis and of reproductive age (18~45 years, in relatively high-estrogen status) than that in those patients without lymph node metastasis ($P=0.035$).

Conclusions: Low levels of ER beta2 expression were associated with the level of Ki67 and VEGF in PTC, whereas high levels of ER beta2 expression was inversely associated lymph node metastasis of PTC. Further study will assess the underlying molecular mechanisms of ER beta2 in PTC.

Keywords: Thyroid cancer; Immunohistochemistry; Estrogen receptor; ERβ2

Application of meticulous capsular dissection technique in total thyroidectomy

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Objective: To assess the application of meticulous capsular dissection technique in total thyroidectomy.

Methods: The retrospective analysis of clinical data of 118 patients was carried out who received meticulous capsular dissection in Head and Neck Surgery, Sichuan Cancer Hospital from Jan. to Dec. 2013.

Results: All patients were kept at least one parathyroid gland during operation successfully. 197 upper parathyroid glands were found. Among them, the blood supply of 42 upper parathyroid glands comes from superior thyroid artery. The other 131 upper parathyroid glands were supplied by inferior thyroid artery. In addition, the lower parathyroid glands were not found in 16 patients. But the other 163 lower parathyroid glands were found during meticulous capsular dissection, 136 of which were supplied by inferior thyroid artery. After this operation, the PTH value was significantly decreased in 62 patients (52.5%). 56 recovered the PTH value to normal levels seven days after operation; the other six patients recovered two weeks to four weeks after operation. 23 patients had hypocalcemia post operation. However, all of them recovered the normal blood calcium four days to 1 month after operation. In this group, all patients received the bilateral dissection of recurrent laryngeal nerve. No patients had permanent recurrent laryngeal nerve damage except the patients who suffered from nerve invasion or damage before operation.

Conclusion: The total thyroidectomy through application of meticulous capsular dissection technique can keep the parathyroid glands and its blood supply well, avoid the damage of recurrent laryngeal nerve and decrease the risk of complication after total thyroidectomy.

Keywords: Thyroidectomy; Recurrent laryngeal nerve; Parathyroid gland

Clinical analysis of Hashimoto's thyroiditis with papillary thyroid carcinoma: 221 cases

Objective: To analyze the clinical feature of Hashimoto's thyroiditis (HT) patients with papillary thyroid carcinoma (PTC).

Subjects and Methods: 641 cases of PTC who underwent surgery in the First Hospital of China Medical University in 2013 were retrospectively reviewed.

Results: There were significant difference in gender, TSH level, cervical lymph node metastasis, extrathyroid invasion, and TNM stage between PTC group and PTC & HT group ($P<0.05$).

Conclusion: PTC with coexistent HT has lower extrathyroid invasion, lymph node metastasis and earlier TNM stage.

Keywords: Hashimoto's thyroiditis, papillary thyroid carcinoma, risk factor

Detailed analysis of the metastasis of papillary thyroid carcinoma lymph node II

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Objective: To investigate the metastasis of papillary thyroid carcinoma lymph node II, the Background: of thyroid disease, tumor size, location, regional lymph node metastasis and relevant.

Methods: Using access database software to construct thyroid cancer database, review the clinical data from August 2013 to March 2014 from 62 cases studies of cervical lymph node dissection on patients with papillary thyroid cancer, analyzing their gender, age, thyroid disease Background: , lesion number, size, location, number of lymph node metastasis, etc.

Results: There were 30 cases fall in the category of II lymph node metastasis (27 cases for II A area, 6 cases for II B area). No area of metastasis in patients with II thyroid disease Background: (13/23), patients with merged Hashimoto's thyroiditis (9/17) and patients with merged nodular goiter (3/18), Hyperthyroidism iodine 131 treatment latter (2 of 2); tumors smaller than 10 mm are (2/15), tumor size 10 ~ 40 mm persons (17/32), those with tumors larger than 40 mm (4/7). The tumor is located on the upper side (11/17), the middle area (12/23), under down side (3/12).

Conclusion: II lymph node metastasis in papillary thyroid carcinoma is not uncommon, most literatures agree that when multiple lymph node metastases from III, IV zones or extracapsular invasion occurs, there is a higher positive rate of II zone, and it shall be clean. In addition to traditional risky option of stratification, the II lymph node metastases, primary tumor location, size of the tumor, and thyroid disease Background: are all relevant. In order to reduce surgical trauma and surgical complications, it is necessary to individualize surgical treatment plans for each patient in particular of the ones with the tumors located in the middle and upper area. II lymph nodes should be receive more attention.

Keywords: papillary thyroid carcinoma cervical lymph node dissection Lymph node metastases

Diagnosis and Treatment of Primary Thyroid Lymphoma

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Objective: To investigate the diagnostic and therapeutic considerations of primary thyroid lymphoma (PTL).

Methods: The clinical data of 32 patients with PTL admitted from January 2000 to December 2013 were analyzed retrospectively. 78.1% (25/32) were female, the mean age at presentation was 61.8 years old. 93.8% (30/32) presented with a rapidly enlarging anterior neck mass in a short period. 22 patients had markedly elevated titers of anti-thyroid peroxidase antibody and/or antithyroglobulin antibody.

Results: Fine needle aspiration was performed in 9 cases, diffuse large B cell lymphoma (DLBCL) was diagnosed in 3 cases (33.3%). 20 cases underwent radical resection and 5 cases had palliative operation. Incisional biopsy was performed in 4 cases. 16 cases received adjuvant chemotherapy, 5 cases underwent radiotherapy and 8 cases received a combination of chemotherapy and radiotherapy. The clinical stage of I E was in 8 cases, II E in 23 cases, III E in 1 case respectively. About the postoperative pathological results, 19 cases were DLBCL (total 22 cases) and 10 cases were mucosa-associated lymphoid tissue (MALT) lymphoma. About follow-up up to July 2014, 29 cases survived for periods from less than 1 year to more than 5 years.

Conclusion: The diagnosis of PTL should be considered when dealing with rapidly growing goiters of aged women with Hashimoto's thyroiditis in a short period. Fine needle aspiration, core needle biopsy and open surgical biopsy are helpful for the diagnosis of PTL. MALT patients of Stage I E are candidates for local therapy, including surgery and/or radiotherapy, others should receive a combined chemo-radiation therapy.

Keywords: Primary thyroid lymphoma; Surgery; Radiotherapy; Chemotherapy

Estrogen induces the growth of papillary thyroid cancer cells through estrogen receptor α and β

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Objective: Estradiol (E2) promotes the growth of papillary thyroid cancer (PTC). However, the detailed mechanism remains largely unknown. Mutant p53, Bcl-2 and LC3 play a dominant role in the growth process. We aimed to investigate the effects of E2 on the growth of PTC cell line BCPAP and on mutant p53, Bcl-2 and LC3 protein expression.

Methods: PTC cell line BCPAP was evaluated for the presence of estrogen receptor (ER) by Western blot analysis. BCPAP cell proliferation was measured by 3-(4, 5-dimethyl thiazol-2-yl)-2, 5-diphenyl tetrazolium bromide (MTT) assay. In addition, the

effects of E2, PPT (an ER α -selective agonist) and DPN (an ER β -selective agonist) on mutant p53, Bcl-2 and LC3 protein expression were evaluated by Western blot analysis.

Results: We found that BCPAP cells expressed ER α and ER β . E2 and PPT promoted cell proliferation, but DPN did not significantly affect cell proliferation. E2 and PPT increased mutant p53 and Bcl-2 expression while DPN decreased them. E2 and PPT decreased LC3-II/LC3-I ratio, but DPN did not significantly affect LC3-II/LC3-I ratio.

Conclusions: These findings indicate that E2 promotes the growth of PTC cell line BCPAP. The two ER subtypes play differential roles in modulation of BCPAP cell growth and the related molecule expressions including mutant p53, Bcl-2 and LC3.

Keywords: Thyroid cancer; Estrogen; Proliferation; Apoptosis; Autophagy; LC3

Experience in Diagnosis and Treatment of Primary Hyperparathyroidism-induced Hypercalcemic Crisis

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Objective: To investigate the experience in the diagnosis and treatment of primary hyperparathyroidism-induced hypercalcemic crisis (PHHC).

Methods: The clinical data of 19 cases with PHHC who were admitted from January 1985 to December 2013 were analyzed retrospectively.

Results: Each case received an operation, including 5 cases of bilateral neck exploration, 11 cases of targeted parathyroidectomy, and 3 cases of parathyroid carcinoma radical resection. According to the pathological results, 14 (73.7%) were parathyroid adenomas, 1 (5.3%) was parathyroid hyperplasia, 4 (21%) were parathyroid carcinomas. 4 cases died after operation. The operative successful rate was 92.3% (12/13) in the follow-up cases.

Conclusion: Early qualitative and positioning diagnosis, rapid preoperative preparation, as well as timely emergency operation are key points to cure PHHC.

Keywords: primary hyperparathyroidism; hypercalcemia crisis; treatment

Multi-factors analysis of cervical VI area lymph node metastasis of CNO PTC

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Objective: To investigate the rate and the risk factors of cervical VI area lymph node metastasis of CNO thyroid papillary carcinoma, and guide to clean cervical lymph nodes in CNO thyroid papillary carcinoma patients during the surgery.

Methods: To analyze cervical VI area lymph node metastasis of 199 CNO thyroid papillary carcinoma patients who were first treated in Qilu hospital of Shandong university general surgery from January 2012 to January 2013.

Results: 199 cases were selected, of which 85 cases were found cervical VI area lymph node metastasis. The total metas-

tasis rate was 42.7% (85/199). SPSS_18.0 software was used to analyze the data. Seven factors were likely to affect the neck area VI lymph node metastasis respectively, which were tumor diameter, thyroid capsule invasion, sex (male/female), age (45 or higher / <45 years of age), tumor location, tumor number (single/multiple focal) and single or bilateral lobe involvement (single/double lobe). Result show two factors are significantly related to the cervical VI area of lymph node metastasis. They are tumor size and thyroid capsule invasion. (P values were 0.001 and 0.000 respectively). And the correlation between the other five factors and cervical IV area of lymph node metastasis has no statistical significance (P values respectively were 0.066, 0.152, 0.917, 0.233 and 0.744). Then the two factor, tumor size and thyroid capsule invasion, are multiple-factor analyzed by SPSS_18.0 binomial logistic regression line. result show that the two factors are the independent risk factors to cervical VI area lymph node metastasis (P values respectively were 0.000 and 0.016).

Conclusions: The cervical VI area lymph node metastasis rate was high in CN0 thyroid papillary carcinoma, indication that the ipsilateral IV area lymph node cleaning should be done in all CN0 thyroid papillary carcinoma patients during the regular surgery, especially those with big tumor size or (and) thyroid capsule invasion. The possible lymph node metastasis can be eliminated, which will reduce tumor recurrence or metastasis.

Keywords: CN0, papillary thyroid carcinoma, cervical, lymph node metastasis, multi-factor analysis

Diagnostic Value of Conventional Ultrasound Plus Contrast-enhanced Ultrasound and Color Doppler Flow Imaging in TI-RADS Grade 3 or 4 Small Thyroid Nodules

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Purpose: To investigate diagnostic value of conventional ultrasound (US) plus contrast-enhanced ultrasound (CEUS) and color Doppler flow imaging (CDFI) in TI-RADS grade 3 or 4 small thyroid nodules.

Method and Materials: Characteristics of 102 cases of TI-RADS grade 3 or 4 small thyroid nodules (confirmed by pathology/clinical findings) were retrospectively analyzed by US, CEUS, and CDFI.

Results: Multivariate regression analysis showed that the factors in US such as anterior-posterior to transverse diameter ratio (A/T) of thyroid nodules, nodule morphology, micro-calcification within nodules, abnormalities of neck lymph node were most relevant to diagnosis of papillary thyroid microcarcinoma (PTMC). Accuracy, sensitivity, and specificity of US for predicting PTMC were 82.4%, 80.0%, 84.6%, respectively, with area under ROC curve of 90.0%. In CEUS, perfusion pattern and enhanced rim at the border after enhancement were most relevant to PTMC diagnosis. Accuracy, sensitivity and specificity of CEUS for predicting PTMC were 87.3%, 86.0%, 88.5%, respectively, with area under ROC curve of 90.7%. For US plus CEUS and CDFI, A/T ratio, micro-calcification in nodules, abnormal swelling in neck lymph nodes, perfusion pattern, enhanced rim at the border after

enhancement were elected to the multi-factor regression equation. Accuracy, sensitivity and specificity of this combination to predict PTMC were 93.1%, 92.0%, 94.2%, respectively, with area under ROC curve of 99.0% and kappa value of 0.783.

Conclusion: Combination of US plus CEUS and CDFI demonstrates better differential diagnostic accuracy for minimally benign and malignant thyroid nodules compared with the accuracy of sole use of US or CEUS.

Keywords: Contrast-enhanced ultrasound (CEUS); Thyroid imaging reporting and data system; Micronodule of thyroid

RAI effect observation for residual tumor of thyroid papillary carcinoma

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Objective: The objective of the study was to assess the impact of radioactive iodine (RAI) for the differentiated thyroid cancer (DTC) patients after surgery with tumor excision incomplete.

Design: We identified 55 DTC patients, which all select the treatments of surgery and have complete medical records. Of these, 37 were in stage I, 6 in stage II, 5 in stage III and 7 in stage IVa. All the cases have tumor residual focus in thyroid region or cervical lymph nodes. The times of RAI were between 2 and 6. Followed-up of 6 month to 2 year, operate again, than make a comparison to radiologic imaging between pre-RAI and post-RAI. RECIST was used to evaluate the objective effect of treatments to tumor residual focus. T-test (SPSS17.0) was used to identify variables associated to RAI and to calculate the propensity score to receive RAI after surgery.

Results: The median age of the whole group was 40 (22–58) years. The mean times of surgery before RAI was 1.5 and mean dose of RAI was 350 mCi (210mCi–840mCi). The comparison of tumor size between pre-RAI and post-RAI has no significant differences $t=0.163$ ($P > 0.05$). The surgery after RAI proved that the pathology is papillary thyroid cancer (PTC) or the cervical lymph metastasis of PTC. radioiodine therapy without remission.

Conclusion: RAI has few survival benefit to DTC patients after surgery with tumor excision incomplete. It should be used in the in DTC patients, if radioiodine imagine positive, which were non-resectable with distant metastases or others.

Keywords: radioactive iodine (RAI); radioiodine remnant ablation (RRA); papillary thyroid cancer (PTC); differentiated thyroid cancer (DTC); surgery

Single-center study of familial papillary thyroid cancer in China: surgical considerations

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Background: Whether familial papillary thyroid cancer (FPTC) is more aggressive than sporadic counterpart remains elusive and the optimal clinical approach for FPTC is yet to be established. In this study, we investigated investigate familial occurrence of PTC in China and review our experience of its surgical treatment.

Methods: The clinical records of 248 consecutive patients with an established diagnosis of PTC who were admitted to Nanfang Hospital for thyroidectomy between January 2011 and June 2013 were analyzed in this study. Patients included 66 males and 182 females, aged 11 to 76 years.

Results: Twenty two patients (8.9%) with a positive family history were confirmed. Patients with familial PTC (FPTC) had a predilection for female and tended to be younger than other patients, but the difference was not significant ($P=0.0514$ and $P=0.168$, respectively). They were more likely to present large tumors ($P=0.0024$), multifocality (familial vs. sporadic: 54.50% vs. 26.50%; $P<0.006$), local invasion (81.8% vs. 23.9%; $P<0.001$), and malignant lymph nodes (63.6% vs. 33.6%; $P=0.005$). Univariate and multivariate analyses identified a positive family history was an independent risk factor for local invasion (OR: 5.683; 95%CI: 2.056–15.707; $P=0.001$), malignant lymph nodes (OR: 3.005; 95%CI: 1.046–8.630; $P=0.041$) in FPTC patients. Kaplan–Meier survival curves revealed that an aggressive surgical strategy was associated with a better relapse-free survival than conventional one ($P=0.032$).

Conclusion: FPTC is more likely to possess aggressive features than sporadic ones. Thus, Screening of at-risk families is essential to aid in earlier recognition. An aggressive surgical strategy appeared to be the more effective therapy. However, sufficient detailed interrogation and long-term follow-up of the patients and their family are necessary for providing individual recommendations for clinical management.

Keywords: familial papillary thyroid cancer; aggressiveness; clinicopathologic characteristics; surgical considerations

The clinical value of elective central compartment lymph node dissection for cN0 papillary thyroid microcarcinoma

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Objective: To investigate the clinical value of elective central compartment lymph node dissection for cN0 papillary thyroid microcarcinoma (PTMC).

Methods: The clinical data of 155 patients with cN0 PTMC from January 1, 2007 to December 31, 2011 were retrospectively studied.

Results: The central compartment lymph node metastasis incidence of cN0 PTMC was 26.45% (41/155). There were no associations between central compartment lymph node metastasis and gender, age, tumor size, multifocal lesions and capsular invasion. The incidence of postoperative complication was 5.81% (9/155), 2 cases of temporary recurrent laryngeal nerve injury, 6 cases of temporary hypoparathyroidism and 1 case of temporary superior laryngeal nerve injury. There were no complications such as permanent laryngeal nerve injury and permanent hypoparathyroidism. 1 case had lymph node metastasis during a follow-up of 15–72 months.

Conclusions: It is necessary and safe to perform elective central compartment lymph node dissection for cN0 PTMC.

Keywords: thyroid neoplasms; neck lymph node; central compartment lymph node dissection

The expression of miR-451, miR-155 in papillary thyroid carcinoma and its value of the clinical diagnosis

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Objective: To study the expression of miRNA-451, miR-155 and its relationship with the clinical diagnosis in thyroid papillary carcinoma.

Methods: From July 2005 to July 2007, we collected clinical data and pathological tissue of 60 patients with papillary thyroid carcinoma at Xinhua Hospital Affiliated the Shanghai Jiaotong University School of Medicine. Detection miR-451, miR-155 by using fluorescence quantitative PCR, comparing the differential expression between thyroid carcinoma and normal tissue.

Results: compared the adjacent tissues of cancer, the expression level of miR-451 in thyroid cancer tissues was significantly lower than that of normal tissues, ($0.1194 + 0.03087$, vs. $1.075 + 0.04848$, $P<0.0001$). While no difference in expression of miR-155. In addition, the expression level of miR-451 had no significant correlation with patients' age, gender, tumor size, was significantly lower than in that with lymph node metastasis ($P=0.001$).

Conclusion: miR-451 can distinguish cancer tissues and adjacent normal tissues, may be used as the auxiliary clinical diagnostic criteria with or with not lymph node metastasis of papillary thyroid cancer.

Keywords: miR-451, papillary thyroid carcinoma, lymph node metastasis, clinical diagnosis

The effectiveness of radiotherapy in the residual tumor for post-operation of papillary carcinoma

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Objectives: The objective of the study was to assess the impact of radiotherapy for the differentiated thyroid cancer (DTC) patients after surgery with tumor excision incomplete.

Design: We retrospectively reviewed the medical records of 34 patients with DTC, which has the history of surgery and radiotherapy in other hospitals, treated from January 2011 to January 2014 at the Department of Head and Neck Surgery at Cancer Institute & Hospital. Among the cases, 22 were in stage I, 5 in stage II and 7 in stage IVa. The patients were operated again in our hospital, than the microscopic pathological changes were examined. Make a comparison to radiologic imaging (CT and B ultrasound) between pre-radiotherapy and post-radiotherapy, and examine the change of the tumor. RECIST was used to evaluate the objective effect of treatments to tumor residual focus. It was analyzed by T-test (SPSS17.0).

Results: The median age of the whole group was 40 (22–58) years. The mean times of surgery before radiotherapy was 1.5. All the cases received radiotherapy (mean, 56 Gy; range 50–70 Gy). The surgery after radiotherapy proved that the pathology is papillary thyroid cancer (PTC) or the cervical lymph metastasis of PTC. Among the patients, 20 cases suggest mild or moderate cell degeneration and the others reveal no obvious degeneration. There was no statistically difference and the comparison of tumor size between pre-radiotherapy and post-radiotherapy has no significant differences $t = -1.618$ ($P > 0.05$).

Conclusion: Radiotherapy has few survival benefit to DTC patients after surgery with tumor excision incomplete or the local recurrence cases. It should be used in the in DTC patients, in which the tumor invasion involves the important tissues and organs and is difficult for a single operative treatment to achieve safe resection margin, or in patients which can not bear a surgery because severe coronary heart disease or others.

Keywords: Radiotherapy; papillary thyroid cancer (PTC); differentiated thyroid cancer (DTC); surgery

The relevancy between the change of amplitude on different sites of recurrent laryngeal nerve and the movement of vocal cords in thyroid surgery

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Objective: Research the relevancy between the function of recurrent laryngeal nerve (RLN) during thyroid surgery with the movement of vocal cords post operation by applying the intraoperative neuromonitoring (IONM) and verify the proper warning criterion.

Methods: From April 2013 to October 2013, 130 patients (214 nerves at risk) underwent complex thyroidectomy with the application of IONM. Compared the change of amplitude on different sites of RLN during thyroid surgery with the movement of vocal cords post operation by grouping contrast, analog the neural function in real time.

Results: 7 patients got abnormal movement of vocal cords, the corresponding nerves' amplitudes were in the range between 0 to 50%, and there's no permanent RLN palsy.

Conclusion: The function of RLN decreased below 50% would probably lead to vocal cords' abnormal movement, and when it decreased below 30%, the possibility of abnormal movement would increase; 50% decrease of EMG amplitude can be used as a warning criterion to prevent nerve function damage.

Keywords: IONM; RLN function; vocal cord movement; thyroid surgery; RLN injury

Total Mesothyroid Excision for Thyroid Cancer: A Novel Approach Based on Anatomical Planes

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Background: central neck dissection (CND) is believed to reduce risk of locoregional recurrence in the treatment of thyroid carcinoma. However, there is no established standard approach to date. The objective of this study was to introduce a novel approach based on anatomical planes, total mesothyroid excision (TME) and to evaluate its safety and feasibility.

Methods: 144 consecutive patients with thyroid cancer were categorized into TME ($n = 103$) and total thyroidectomy without CND (TT) ($n = 41$) groups. Clinic records within the two groups were compared to assess therapeutic effects.

Results: All TME procedures are successfully completed with mean $12.8 (\pm 4.6)$ harvested lymph nodes. The median operative time for TME is 130min, 24min longer than TT ($P < 0.001$). Blood loss (30 vs. 20ml), postoperative hospital stay (3.7 vs. 3.4day) in two groups are comparable. Parathyroid autotransplantation was carried out in 47 (45.6%) patients in TME group and 11 (26.8%) in group C ($P = 0.038$). The incidence of temporal hypocalcemia remarkably higher after TME than TT (13.1% vs. 0%, $P = 0.020$), while no significant difference was observed regarding short-term postoperative bleeding (1.0% vs. 2.5%) and hoarseness (4.0% vs. 2.4%). Within the median follow-up of 25 months after surgery, both groups had no death or recurrence. The blood parathyrin and calcium went back to the normal level at 1–3 months after surgery, and no permanent parathyroid dysfunction or recurrent laryngeal nerve (RLN) injury (except 2 purposeful excision cases for RLN invasion in TME group) was found.

Conclusion: TME might be safe and feasible; however, large-scale, perspective randomized clinical trials are necessary for confirmation.

Keywords: thyroid cancer; central neck dissection; total mesothyroid excision; thyroidectomy.

The characteristics and risk factors of central lymph node metastasis in cN0 PTC coexisting with HT

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Objective: To investigate the characteristics and risk factors of central lymph node metastasis in small (T1 or T2 stage) clinically node negative (cN0) Hashimoto's thyroiditis (HT) coexisting with papillary thyroid carcinoma (PTC).

Methods: A total of 398 small (T1 or T2 stage) clinically node negative HT coexisting with PTC patients who underwent thyroidectomy with central lymph node dissection were enrolled in this study. Patients were divided into trial group (PTC with HT) and control group (PTC without HT). The differences of clinicopathological characteristics between trial group and control group and risk factors for central lymph node metastasis were analyzed.

Results: Among the total 398 patients, 98 (24.6%) had coexistent HT. The frequency of central lymph node metastasis in trial group was similar to that in control group (40.8% vs. 41.3%). There were significant differences in the number of dissected central lymph nodes between trial group and control group (4.9 vs. 2.9, $P < 0.01$), but the number of metastatic lymph nodes between the two groups was close (1.0 vs. 1.0). In univariate analysis, tumor size > 1 cm was significantly associated with central lymph node metastasis in trial group ($P < 0.01$), but female gender, age < 45 years, tumor size > 1 cm, and tumor located in the middle/lower third of lobe were all significantly associated with central lymph node metastasis in control group ($P < 0.01$). In multivariate analysis, tumor size > 1 cm was independent predictor for central lymph node metastasis in trial group, but female gender, age < 45 years, tumor size > 1 cm, and tumor located in the middle/lower third of lobe were all independent predictors for central lymph node metastasis in control group.

Conclusions: The number of central lymph nodes was larger in cN0 HT coexisting with PTC patients than that in PTC patients, but there was no difference in the number of metastatic lymph nodes between cN0 PTC with and without HT patients. So, central lymph node dissection is recommended when tumor size > 1 cm in cN0 HT coexisting with PTC patients.

Keywords: Papillary thyroid carcinoma; Hashimoto's thyroiditis; Central lymph nodes

Suprasternal notch approach minimally invasive video-assisted thyroidectomy for thyroid carcinoma: comparison with conventional open thyroidectomy

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Background: In China, lobectomy+isthmusectomy+routine neck dissection in level VI is widely suggested as adequate treatment for unifocal less than 2 cm cT1N0M0 papillary thyroid carcinoma. Since the first report of minimally invasive video-assisted thyroidectomy (MIVAT), the indications have been progressively implemented, even to papillary carcinoma. The aim of this prospective study was to compare the outcomes of Suprasternal

notch approach MIVAT with conventional open thyroidectomy (CT) for papillary thyroid carcinoma (PTC).

Methods: The patients were selected according to the established criteria, developed and adopted in our Clinic. All patients were cT1N0M0, and the primary tumors were less than 2 cm. Lobectomy+isthmusectomy+routine neck dissection in level VI was performed using MIVAT or CT via suprasternal notch approach, by one surgeon. The surgical incision length, extent of surgery, duration of operative time, type and incidence of complications (intraoperative and postoperative), pathological characteristics, surgical complications, lymph nodes, blood loss, and safety were compared.

Results: June 2011 to June 2013, 92 patients were treated with MIVAT and 102 with CT. The length of the surgical incision was from 2 to 2.5 cm in all operated patients. The tumor size varied from 0.1 to 2.0 cm. All the patients were followed up at intervals of 6 to 30 months, with suppressing thyroid stimulating hormone (TSH) treatment. There was no statistically significant difference between the MIVAT and CT groups for the surgical incision length, extent of surgery, type and incidence of complications and prognosis. In MIVAT group duration of operative time was longer than that in CT group.

Conclusions: Our results confirm that, if the criteria for selection of patients are followed, suprasternal notch approach MIVAT has a place in the surgical treatment of selected patients with papillary thyroid carcinoma.

The effects of medical carboxymethyl-chitosan on improving patients' neck activity and comfort after thyroid surgery

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Objectives: To study the effects of medical carboxymethyl-chitosan on improving patients' neck activity and comfort after thyroid surgery.

Methods: Clinical data of 96 thyroid surgery patients, who were treated in the People's Hospital of Zhengzhou from January 2013 to September 2013, were retrospectively analyzed. 96 cases which received thyroid surgery were divided into 2 groups: an experimental group and a control group. In the experimental group, medical carboxymethyl-chitosan was placed between the trachea and the anterior muscles of the neck, between the anterior muscles of the neck and the skin flap after patients' thyroid surgery. But medical carboxymethyl-chitosan was not used in the control group. The patients' neck activity and comfort were evaluated at day 30 and day 90 after thyroid surgery.

Results: The patients' neck activity and comfort under the incision were significantly improved in the experimental group than the control group at day 30 and day 90 after thyroid surgery ($P < 0.001$).

Conclusions: Medical carboxymethyl-chitosan has a good effect on improving patients' neck activity and comfort after thyroid surgery. It is worth to be applied and extended in the clinic.

Keywords: carboxymethyl-chitosan; thyroid surgery; neck activity and comfort

Characteristics Related to Lymph Node Metastasis and strategy of lymph node dissection in Papillary Thyroid Carcinoma

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Objective: Through summarizing the characteristics of cervical lymph node metastases(LNM) in papillary thyroid carcinoma(PTC), to provide theoretical basis for selective neck dissection.

Methods: From July 2006 to August 2014, 462 cases of PTC at our hospital were retrospectively analyzed, We analyzed the regulations and predictive factors of cervical LNM, And the accuracy of cN0 standard was evaluated. Results: All cases accepted ipsilateral central cervical lymph node dissection(regionVI), 320 underwent lateral cervical lymph node dissection (region II -V) or elective lymph node dissection (some or all of region II -IV), 90 accepted contralateral central cervical lymph node biopsy. 73.2% (338/462) were cN0 patients, but of which 184 cases were pathologically confirmed with lymph node metastasis, the misdiagnosis rate of cN0 standards was 60.9%. The cervical LNM rate was 65.4% (302/462) in total, and the lateral compartment 42.6% (197/462), 13.1% (42/320) skip lateral cervical lymph node metastasis leaping central compartment, 50% (45/90) with contralateral region VI metastasis. Male, tumor involving upper 1/3 gland, tumors T3 or T4, multicentricity were all predictive factors of LNM. Patients with tumor involving upper 1/3 gland prone to had prelaryngeal lymph node(PLN) metastasis and "skip metastasis". Lateral compartment LNM increased significantly when PLN(+) and ≥ 2 central lymph nodes metastasis ($P < 0.05$).

Conclusion: Existing CN0 standards is not suitable for lymph node dissection. PTC prone to lymph node metastasis, and region VI is most likely to be involved, then III, II, IV, V. Ipsilateral central lymph nodes should be routinely dissected and intraoperative frozen examination is suggested in initial surgery.If PLN metastasis /2 or more central lymph nodes metastasis/Tumor involving upper 1/3 gland, lateral cervical lymph node dissection (or elective lymph node dissection) is necessary. Attention should be paid to Contralateral region VI for it's high metastasis rate. Subdivision of central compartment is of great significance and needs thoroughly research.

Keywords: PTC lymph node metastases cN0 Intraoperative frozen Prelaryngeal lymph node

Clinicopathologic Analysis of Central Lymph Node Metastasis in cN0 Papillary Thyroid Carcinoma: Risk Factors of it

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Objective: To evaluate the risk factors for central lymph node metastasis in cN0 papillary thyroid carcinoma.

Methods: A total of 94 cN0 papillary thyroid carcinoma patients in Guangdong General Hospital who underwent thyroidectomy with central node dissection from March to July 2014 were enrolled in this study. Clinicopathologic risk factors for central lymph node metastasis were studied using univariate analysis.

Results: Central lymph node metastasis was found in 43(45.7%) cases. In univariate analysis, age < 45Y, tumor size > 2cm (on ultrasonography or in histopathology), capsular invasion, tumor located in the middle third of lobe, and total number of central lymph node dissected > 3 were significantly associated with central lymph node metastasis($P < 0.05$); gender, multifocality, etc. were not associated with CLNM.

Conclusion: age < 45Y, tumor size > 2cm, capsular invasion, tumor located in the middle third of lobe are the risk factors for central lymph node metastasis in cN0 papillary thyroid carcinoma. Prophylactic central node dissection should be performed with the above risk factors:

Value of central lymph node dissection in cN0 differentiated thyroid carcinoma in determining the stage and recurrence risk stratification

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Objective: To evaluate the significance of prophylactic central node dissection in determining the stage and recurrence risk stratification of cN0 differentiated thyroid carcinoma.

Methods: A total of 95 cN0 differentiated thyroid carcinoma patients in Guangdong General Hospital who underwent thyroidectomy with central node dissection from March to July 2014 were enrolled in this study.

Results: Central lymph node metastasis was found in 43(45.3%) cases. 10(10.5%) of those patients were up-staged (8 patients from I stage to III stage, and 2 from II to III stage). 39 had higher recurrence risk stratification. Conclusion: Prophylactic central node dissection should be considered in cN0 differentiated thyroid carcinoma, which can make a significant impact on the staging system and recurrence risk stratification.

Predictive Factors of Contralateral Paratracheal Lymph Node Metastasis in Unilateral Papillary Thyroid Carcinoma

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Background: Most of unilateral papillary thyroid carcinoma (PTC) metastasize to ipsilateral paratracheal lymph nodes (LNs) while some had contralateral paratracheal LN involved. The aim of this study was to analyze the predictive factors of contralateral paratracheal LN metastasis in unilateral PTC.

Methods: Data on 332 patients with unilateral PTC who underwent total/near total thyroidectomy and bilateral central neck dissection (CND) with/without lateral neck dissection were collected retrospectively. Patients' demographics, the extent of surgeries, and the pathological status of LNs and primary tumor were analyzed.

Results: A total of 332 patients (67 male and 265 female) were included. Contralateral paratracheal LN metastasis was found in 68 (68/332, 20.5%) patients. Tumor size ($> 1\text{cm}$) ($P < .001$), capsular/extracapsular invasion ($P < .001$), pretracheal/prelaryngeal LN metastasis ($P < .001$), lateral neck LN metastasis ($P < .001$) and ipsilateral paratracheal LN metastasis ($P < .001$) was significantly associated with contralateral paratracheal LN metastasis on univariate analysis. Multivariate analysis showed that tumor size ($> 1\text{cm}$) ($P = 0.013$), capsular/extracapsular invasion ($P = 0.009$), pretracheal/prelaryngeal LN metastasis ($P = 0.021$) and lateral neck LN metastasis ($P = 0.002$) were independent risk factors of contralateral paratracheal LN metastasis.

Conclusion: Primary tumor size $> 1\text{cm}$, capsular/extracapsular invasion, pretracheal/prelaryngeal LN metastasis and lateral neck LN metastasis are predictive factors of contralateral paratracheal LN metastasis in unilateral PTC, which may help to determine the optimal extent of CND in patients with PTC.

Keywords: papillary thyroid carcinoma; central neck dissection; lateral neck dissection; predictive factor; lymph node

Experience of intra-operative neuromonitoring of recurrent laryngeal nerve during thyroidectomy

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Objective: Investigating the benefit of intra-operative neuromonitoring of recurrent laryngeal nerve during thyroidectomy.

Methods: retrospectively analyzing the clinical materials of 57 patients who had thyroidectomy from 2012.1 to 2012.12, including 50 cases of thyroid carcinoma, five cases of giant goiters, and two cases of recurrent goiters. All the cases were done with intra-operative neuromonitoring of recurrent laryngeal nerve, which composed of standard "four-step approach" and pre-operation, post-operation laryngoscopy.

Results: 105 recurrent laryngeal nerves were confirmed during operation, consuming one to four minutes. Three cases's R2 signals decreased, and the causes included stretching of ligation or hand, and thermal injury of harmonic scalpel. Three cases were treated immediately. Two cases were transient vocal paralysis after operation, which recovered six weeks later, no permanent vocal paralysis were found.

Conclusion: Intra-operative neuromonitoring of recurrent laryngeal nerve was quite useful in finding and confirming the nerve, and it also could detect injury of nerve during operation, which improved the safety of surgery.

Keywords: Thyroidectomy, Intra-operative neuromonitoring Recurrent, laryngeal nerve injury

Analysis of ultrasonic and pathological features of papillary thyroid carcinoma

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Objective: To improve the ultrasonic differential diagnosis of thyroid lump through analyzing pathological and ultrasonic features of papillary thyroid carcinoma.

Methods: Records of 173 cases papillary thyroid carcinoma were analyzed retrospectively in terms of preoperative ultrasonic manifestation. Lesion size, echo, boundary, calcification, blood supply, lymph node metastasis and accompanying diseases etc.

Results: The average age of patients with papillary thyroid carcinoma was 46.7 years old. With a 1: 5.41 male to female ratio. In the 173 papillary thyroid carcinoma cases, the number of cancer nodule was 203. There was no statistical difference between papillary thyroid carcinoma lesion and papillary thyroid microcarcinoma lesion in terms of low echo and ill-defined borders ($P > 0.05$). The former is higher than the latter in blood flow speed, microcalcification rate, and preoperative ultrasonic diagnosis rate ($P < 0.01$, $P < 0.05$, $P < 0.01$ respectively). The multifocality rate for the 173 cases with papillary thyroid carcinoma is 33.53% (58/173). There was no statistical difference between papillary thyroid carcinoma and papillary thyroid microcarcinoma in cancer lesion ($P > 0.05$), while the former has a higher rate of lymph node metastasis than the latter ($P < 0.01$). Preoperative diagnosis rate is higher in papillary thyroid microcarcinoma cases without other thyroid diseases than in cases with other thyroid diseases ($P < 0.05$). No statistical difference of preoperative diagnosis rate was seen between papillary thyroid carcinoma patients with other thyroid diseases and those without other thyroid diseases ($P > 0.05$).

Conclusions: The overall evaluation of thyroid nodule diameter, boundary, echo, small calcification, lymph node metastasis, blood supply, accompanying diseases and so on can improve diagnosis of primary papillary thyroid carcinoma.

Application of platysma myocutaneous flap plus pectoralis major muscle flap in the reconstruction of oral and maxillofacial tumor

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Objective: To discuss the feasibility of platysma myocutaneous flap plus pectoralis major muscle flap in the reconstruction of oral and maxillofacial tumor.

Methods: 5 cases with oral and maxillofacial tumor have been repaired by flaps during operation. 4 cases were buccal mucosa carcinoma and another one was left facial skin cancer. 4 cases have been repaired by using platysma myocutaneous flap plus pectoralis major muscle flap during operation. 1 case with

buccal mucosa carcinoma, recurred after pectoralis major muscle flap repairing, has been repaired by platysma myocutaneous flap only. result All patients were followed up for 1 year. No skin flap necrosis occurred after operation, and no tumor recurred.

Conclusion: To the patients with more advanced oral and maxillofacial tumor, it is desired to reconstruct oral and maxillofacial defects with platysma myocutaneous flap plus pectoralis major muscle flap.

Keywords: platysma myocutaneous flap pectoralis major muscle flap reconstruction of oral and maxillofacial defects

Clinical features of papillary thyroid carcinoma and explore the extent of surgical resection

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Objective: To investigate the biological characteristics of papillary thyroid carcinoma (PTC) and discuss its surgical method.

Methods: 221 patients of PTC underwent total thyroidectomy and conventional central lymph node (CLN) dissection from Jul. 2009 to Feb. 2011 in our Hospital. Their clinical data were retrospectively analyzed.

Results: There was no permanent iatrogenic injury of recurrent laryngeal nerve. Only one patient had permanent hypoparathyroidism. Postoperative pathological results showed that bilateral cancer was found in 69 cases (31.2%). Thyroid membrane invasion was found in 143 cases (64.7%), in which the invasion rate of bilateral cancer was 68.1% (47/69). CLN metastasis (CLNM) was found in 95 cases (43%), in which CLNM rate of bilateral cancer was 46.4% (32/69), CLNM rate of unilateral cancer was 41.5% (63/152), CLNM rate of thyroid membrane invasion was 49.7% (71/143). Thyroid membrane invasion or CLNM rate in all cases was 75.6% (167/221). There were 42 cases who were found with suspicious unilateral cancer before surgery but proved to have bilateral PTC by postoperative pathological diagnosis (60.9%).

Conclusions: Most PTC often occurs bilaterally and the ratio of CLNM is very high. We suggest that most patients with PTC should undergo total thyroidectomy, conventional central lymph node dissection, and combine with postoperative endocrine suppression therapy and selective I¹³¹ treatment.

Discussion on the related problems of reoperation of different surgical treatment of differentiated thyroid carcinoma

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Objective: To investigate the rate of residual cancer and lymph node metastasis of differentiated thyroid carcinoma in different Operation mode postoperative.

Methods: to analyse for a total of 147 cases of differentiated thyroid carcinoma patients who undergone different surgical

treatment in other court come for two times operation in our hospital department in 2010 March -- 2012 year in November.

Results: the first operation mode: tumor enucleation in 50 cases, part gland resection in 46 cases, subtotal resection in 38 cases, unilateral lobe resection in 13 cases. Our hospital operation mode again: for the ipsilateral residual thyroid gland resection in 134 cases. with ipsilateral VI area lymph node dissection in 125 cases. For the ipsilateral lateral cervical lymph node biopsy in 147 cases, such as frozen confirmed lymph node metastasis, immediately functional neck dissection. The residual cancer rate: the total residual carcinoma rate was 26.53% (39/147), for tumor enucleation of residual cancer rate was 34% (17/50), for partial resection of residual cancer rate was 34.78% (16/46), for subtotal resection of residual cancer rate was 15.79% (6/38), lobectomy in 13 patients was no clear residual cancer. The Ipsilateral VI lymph node total metastasis rate was 50.4% (63/125). the lateral lymph node total metastasis rate was 42.86% of (63/147), and lateral lymph node metastasis was related to the primary tumor invasion ($P < 0.05$). Due to the initial operation of vocal cord paralysis rate was 9.52% (14/147).

Conclusion: because of the high rate of residual cancer rate of differentiated thyroid carcinoma in local resection of thyroid gland. This operation mode should be avoided as far as possible. After partial excision, the secondary surgery is necessary for the treatment of differentiated thyroid carcinoma, at least for unilateral lobe with isthmus plus ipsilateral VI region lymph node dissection, and exploration the lateral cervical lymph node, according to the result of frozen section determines whether dissection.

Keyword: differentiated thyroid carcinoma; resection; reoperation

Epidemiological studies progress of thyroid cancer in Beijing area and our country and review of thyroid cancer therapy progress with new technology application.

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Object: Analyze the reason of increase of thyroid cancer incidence to offer thought for further study; Introduce intraoperative neural monitoring (IONM) for protecting recurrent laryngeal nerve and application of lymphatic mapping to recognize and protect negative stained Parathyroid in thyroid carcinoma surgery by using carbon nanoparticles (LMUCN) helping reduce injury rates of the recurrent laryngeal nerve and parathyroid surgery in thyroid cancer surgery. method Make a statistics of thyroid cancer epidemiological incidence and mortality data in Beijing area and our country up to 2012; introduce the application of intraoperative nerve monitoring technology protecting RLN and lymphatic mapping to recognize and protect negative stained parathyroid by using carbon nanoparticles and make the relevant literature review.

Results: There are two main views for rapid increased incidence of thyroid cancer nowadays at home and abroad, One view is that the concept of a more perfect system of diagnosis and treatment, more advanced diagnostic imaging equipment and more medical resource applied to the promotion, the opposite one is that overchecked is one of the reason of rapid increased incidence of thyroid cancer, but not the only one. It could be found that lower rate of RLN injury happens in thyroid cancer surgeries with help of IONM than those without IONM, especially

in complicated surgeries like thyroid reoperation and total thyroidectomy; visual and functional integrity of parathyroid can be protected effectively. The incidence of postoperative tetany happened less with LMUCN and fewer days after stopping calcium supplement that hypocalcemia symptoms occur exist.

Conclusion: More views are prone to that advances in imaging diagnosis technology and is widely application, improvement of the technical level of diagnosis, more availability of medical resource count for rapid increased incidence thyroid cancer; IONM and LMUCN are beneficial to detecting and protecting RLN and parathyroid respectively during surgery, reducing rate of postoperative complications of RLN and parathyroid.

Reasonable Choice on Central Lymph Node Dissection for Papillary Thyroid Carcinoma

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Objective: To probe the central lymph node dissections of papillary thyroid carcinoma under different situations.

Methods: Clinical analysis of 184 papillary thyroid carcinoma cases according to the research criterion during October (2013) until April (2014), all the patients are under the treatment of the same group of surgeons in Thyroid Surgery of the First Affiliated Hospital of the Kunming Medical University, a review of the former references is also carried out.

Results: All patients have undergone operation of bilateral total resection of thyroid gland and lymph node dissection. The result are below: a 64.1% (118/184) of minimum cancer, 40% (68/184) of multifocal carcinoma, 40.2% (74/184) metastasis of central lymph node, the percentage of minimum cancer patient and multifocal carcinoma are 10.5% (9/86) and 29.4% (15/51), an 18.3% (24/131) overall unilateral lesions metastasis to hemi-central lymph node, the metastasis of hemi-minimum cancer and hemi-multifocal carcinoma to bilateral central lymph node are 10.5% (9/86) and 29.4% (15/51), the metastasis unilateral single focus and unilateral multi-focus are 16.8% (19/113) and 27.8% (5/18), the metastasis of central lymph node of bilateral multi-focus is 54.5% (25/46), the metastasis of overall right recurrent laryngeal nerve lymph nodes is 11.5% (17/148), the metastasis of right recurrent laryngeal nerve lymph nodes is 14.3% (9/63), the metastasis of micro-carcinoma and non-micro-carcinoma of right recurrent laryngeal nerve lymph nodes are 9.5% (4/42) and 23.8% (5/21), the metastasis of bilateral multi-focus of right recurrent laryngeal nerve lymph nodes is 16.2% (6/37), the metastasis of unilateral of right recurrent laryngeal nerve lymph nodes is 16.7% (3/18), the metastasis of right recurrent laryngeal nerve lymph nodes on left side is 4.4% (2/45), the metastasis of non-micro-carcinoma of right recurrent laryngeal nerve lymph nodes on left side is 15.4% (2/13). Patients of metastasis of non-micro-carcinoma of right recurrent laryngeal nerve lymph nodes are not identified, which is perhaps related to a comparatively smaller sample. With an increase in cases related, more Conclusion will be drawn.

Conclusions: According to the study, a suitable central lymph node dissection (CLND) should be: overall CLND for multi-focus cancer and unilateral non minimal cancer (from thyroid cartilage to thymus, inside central part of vagina carotica including lymph nodes before and around trachea and larynx,

CLND for lymph nodes on central right should include both the anterior and posterior branches of the recurrent laryngeal nerves until the prevertebral fascia); for minimal cancer on the right, CLND should be from laryngeal nerve on right center to posterior branches; and the minimum cancer on the left should at least have left central lymph node dissection.

Keywords: papillary thyroid carcinoma; central lymph node; the central lymph node dissection; cN0

The experiences of surgical diagnosis and treatment of non-functioning parathyroid cysts

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Objective: To summarize the experiences of diagnosis and surgical treatment of non-functioning parathyroid cysts;

Methods: 21 cases of non-functioning parathyroid cysts that were treated during 2003–2013 in the Head&neck department of Henan Tumor Hospital were retrospectively analyzed, and their clinical characteristics, key point of diagnosis and surgical treatments were summarized;

Results: The sensitivity of preoperative Ultrasonography was 81.0%. CT scan demonstrated well-demarcated, homogeneously hypodense (10–15HU) lesions in thyroid area with no obvious enhancement. The preoperative serum T3, T4, PTH, calcium level showed no abnormalities. All 21 cases underwent surgeries with traditional neck approach, and no recurrence were noticed after 2mon–6yrs postoperative follow-up.

Conclusions: Non-functioning parathyroid cysts are difficult to diagnose preoperatively. Aspiration of the content alone has a high recurrent rate and increases the risks of surgery afterwards, so it should not be the prior option of treatment. Parathyroid cysts in mediastinum usually could be removed surgically through neck approach.

Keywords: parathyroid gland; parathyroid hormone; parathyroid cysts

Clinicopathologic characteristics in familial versus sporadic papillary thyroid carcinoma

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Objective: It is unclear whether familial nonmedullary thyroid carcinoma (FNMTc) is more aggressive than sporadic carcinoma. In this study, we investigated the clinicopathologic features of familial papillary thyroid carcinoma (PTC) compared with its sporadic counterpart.

Methods: We used data obtained from our hospital between 2008 and 2014 to compare the features of 20 familial PTC with 80 sporadic PTC.

Results: The prevalence of familial PTC was 1.3%; 30% of the familial PTC exhibited a parent-offspring relationship, and 70% exhibited a sibling relationship. There were significant differences in terms of Hashimoto's thyroiditis, multicentricity, bilaterality, histologic variant, and central lymph node metastasis (LNM) between the familial and sporadic PTC groups. When we

compared sporadic PTC with parent-offspring or sibling familial PTC separately, parent-offspring familial PTC was more Hashimoto's thyroiditis, T3+T4 cancer, and Central LNM, while sibling familial PTC was more prevalent in multifocality and bilaterality than sporadic familial PTC. The recurrence rate was not significantly higher than that of sporadic PTC in familial PTC. The second generation in parent-offspring familial PTC patients exhibited an earlier age at diagnosis, greater multifocality, and a higher metastasis rate than the first generation.

Conclusion: We conclude that familial PTC is a clinically distinct entity with an aggressive nature. Based on our results, total or near-total thyroidectomy with neck dissection might be recommended for familial PTC. To date, the optimal clinical treatment is yet to be established, but improved awareness and screening will permit earlier detection, more timely intervention, and improved outcomes for patients.

Epidemiological studies progress of thyroid cancer in Beijing area and our country and review of thyroid cancer therapy progress with new technology application

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Object: Analyze the reason of increase of thyroid cancer incidence to offer thought for further study; Introduce intraoperative neural monitoring (IONM) for protecting recurrent laryngeal nerve and application of lymphatic mapping to recognize and protect negative stained parathyroid in thyroid carcinoma surgery by using carbon nanoparticles (LMUCN) helping reduce injury rates of the recurrent laryngeal nerve and parathyroid injury in total thyroidectomy. method Make a statistics of thyroid cancer epidemiological incidence and mortality data in Beijing area and our country up to 2012; introduce the application of intraoperative nerve monitoring technology protecting RLN and lymphatic mapping to recognize and protect negative stained parathyroid by using carbon nanoparticles and make the relevant literature review.

Results: There are two main views for rapid increasing incidence of thyroid cancer nowadays at home and abroad, One view is that the concept of a more perfect system of diagnosis and treatment, more advanced diagnostic imaging equipment and more medical resource applied to the promotion, the other one is that the incidence of thyroid cancer is indeed increasing. A number of medical centers' statistics show that IONM can shorten the RLN exploration time and reduce the rate of RLN injury, nano-carbon as a tracer negative stained parathyroid protection technology can reduce the rate of parathyroid cut mistakenly, also with the rate of tetany and hypocalcemia.

Conclusion: The current high incidence of thyroid cancer rate is related to improve of the diagnosis and treatment of thyroid cancer, but the main factor is that the incidence of thyroid cancer is indeed increasing. IONM and nano-carbon as a tracer parathyroid protection technology can help the surgeon to effectively detect and protect parathyroid RLN during surgery, reduce the incidence of postoperative complications of RLN and parathyroid.

CLINICAL PREDICTORS OF CERVICAL LYMPH NODE METASTASIS IN PAPILLARY THYROID MICROCARCINOMA

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Background: . To investigate the clinical predictors of cervical lymph node metastasis in papillary thyroid microcarcinoma and provide guidelines for indications for, and extent of, lymph node dissection.

Methods: We retrospectively studied 1180 consecutive patients with papillary thyroid microcarcinoma who had undergone thyroid surgery in our institution, reviewed their clinicopathological characteristics, and identified predictors of cervical lymph node metastasis.

Results: Significantly more men than women had central (44.9% and 21.8%, respectively; $P < 0.05$) and lateral cervical lymph node metastasis (39.8% and 9.0%, respectively; $P < 0.01$). Both central and lateral cervical lymph node metastasis occurred more frequently in patients aged ≤ 45 years (30.3% and 17.3%, respectively) than in older patients (17.9% and 10.6%, respectively). Tumors ≤ 5 mm (20.2%) and > 5 mm (33.2%) had significantly different outcomes in patients with central cervical lymph node metastases ($P < 0.05$). Significantly fewer patients with solitary (15.7%) than with multifocal lesions (45.0%) had central cervical lymph node metastasis ($P < 0.01$). Significantly more patients with extracapsular invasion (44.4%) than those without it (14.2%) had lateral cervical lymph node metastasis ($P < 0.05$). Significantly more patients had both central and lateral cervical lymph node metastasis (45.5%) than lateral without central cervical lymph node metastasis (4.3%) ($P < 0.01$).

Conclusions: . Lymph node metastasis was significantly correlated with age ≤ 45 years, male sex, tumor size > 5 mm, and presence of multifocality and extracapsular invasion. Therefore, individualized therapeutic strategies based on these predictors of the presence and extent of cervical lymph node metastasis should be developed for patients with papillary thyroid microcarcinoma.

Keywords: papillary thyroid microcarcinoma; lymph node metastasis; predictors

RAPID INTRAOPERATIVE PARATHYROID HORMONE ASSAY THROUGH FINE NEEDLE ASPIRATION FOR IDENTIFICATION OF PARATHYROID IN THYROID SURGERY

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Background: Hypoparathyroidism is a frequent and serious complication of thyroid surgery and identification and preservation of the parathyroid glands are key factors. We investigated the efficacy of a rapid intraoperative parathyroid hormone (rIO-PTH) assay through fine needle aspiration (FNA) in identifying parathyroids in thyroid surgery.

Methods: We performed rIO-PTH assay through FNA and frozen section examination on 194 suspected parathyroids from 50 consecutive patients undergoing thyroidectomy (rIO-PTH group). We then analyzed the relationship between the rIO-PTH values and the histological Results: The clinical effects were compared between the rIO-PTH group and a control group of 50 patients undergoing similar surgery.

Results: The rIO-PTH levels from 93 of 194 aspirated suspected parathyroids were certified as parathyroid tissue histologically with a mean PTH value of 3369 pg/mL (range, 145.2–5000 pg/mL), significantly higher than for non-parathyroid tissues ($P < 0.001$). We identified 3.76 parathyroids in the rIO-PTH group by visualization combined with rIO-PTH assay through FNA, significantly more than with visualization alone ($P < 0.05$). No rIO-PTH group patient experienced postoperative permanent or transient hypoparathyroidism. The difference between the postoperative serum calcium level and blood PTH values between the two groups was not statistically significant ($P > 0.05$).

Conclusions: rIO-PTH assay through FNA effectively differentiated parathyroid and non-parathyroid tissue. The technique is reliable, quick, simple, and non-invasive with a short learning curve, especially for inexperienced surgeons. This method may replace frozen section examination and a surgeon's personal experience using topographic or morphologic criteria for recognizing parathyroids.

Keywords: Rapid intraoperative parathyroid hormone; Fine needle aspiration; Parathyroid; Thyroid; Hypocalcemia; Hypoparathyroidism; Thyroidectomy

Robotic total parathyroidectomy with trace amounts of parathyroid tissue autotransplantation using axillo-bilateral-breast approach for secondary hyperparathyroidism

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Background: Secondary hyperparathyroidism (sHPT) is common in patients with chronic renal failure, affecting most of those who are receiving hemodialysis. It may result in potentially serious complications including metabolic bone diseases, severe

atherosclerosis and undesirable cardiovascular events. Some cases are resistant to medical treatment thus parathyroidectomy is indicated as the final treatment for sHPT. The aim of this study was to evaluate the feasibility of da Vinci Si surgical system in total parathyroidectomy for sHPT.

Methods: From Feb.2014 to Oct. 2014, robotic total parathyroidectomy was done for eleven patients with secondary hyperparathyroidism in Jinan Military General Hospital of PLA. Surgery was performed with the da Vinci Si surgical system using the four-trocars axillo-bilateral-breast approach for total parathyroidectomy. The patient was placed in the supine position. The operation procedure included draping, preparation of a working space, docking the patient cart, and console stages. The camera arm was centered in the working space. Three working arms were then placed adjacent to the camera. The harmonic scalpel was used for hemostasis and gland resection, and dissected parathyroid was took out by a specimen pouch.

Results: Total parathyroidectomy with trace amounts of parathyroid tissue autotransplantation in eleven patients was successfully completed by da Vinci Si surgical system. Ten patients had 4 parathyroid glands. Three glands were removed in one patient. There were no operation related complications and without conversions to open or endoscopic surgery. Mean operation time was 141 minutes. Pathological diagnosis was parathyroid hyperplasia. Numbness and tingling on the anterior chest were found in all cases. No bleeding under the flap. Patients were discharged from hospital 5.5 days after surgery. The limitations are potential new injuries to esophagus, and trachea, longer operative time, and the high price compared to conventional parathyroidectomy.

Conclusions: The axillo-bilateral-breast approach hence could be suggested as a novel alternative for robotic total parathyroidectomy for selected cases of secondary hyperparathyroidism.

Keywords: da Vinci Si surgical system; robotic total parathyroidectomy; axillo-bilateral-breast approach (ABBA); surgical technique; secondary hyperparathyroidism; autotransplantation

“Scarless” (in the Neck) Endoscopic Thyroidectomy via Breast Approach: A Preliminary Report of 45 Cases with Total or Near Total Thyroidectomy Plus Central Compartment Dissection

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Objective: The purpose of this report was to evaluate the feasibility and safety of “scarless” (in the neck) endoscopic total or near total thyroidectomy plus central compartment dissection (CCD) via breast approach.

Methods: From January 2011 to March 2013, 45 female patients with papillary thyroid carcinoma (PTC) were included in this study. 20 patients were performed with total thyroidectomy; near total thyroidectomy was performed in 25 patients. CCD was performed in all of the 45 patients, including 13 with bilateral CCD and 32 with ipsilateral CCD. Preoperative contrast-enhanced ultrasound (CEUS) and enhanced computed tomography (CT) scan were performed on the patients with suspected metastatic neck lymph nodes or the patients with tumor size >1cm. If the parathyroid glands were mistakenly cut or could not be preserved in situ due to the lack of blood supply, they should

be transplanted endoscopically into sternocleidomastoid via syringe needle. Negative pressure drainage tube was placed via areolar incision and removed after 24–72 hours, according to postoperative drainage volume.

Results: This procedure was performed successfully in all of the 45 patients with mean operation time of 167.25 ± 42.32 minutes. The mean operation time was 154.5 ± 36.47 and 201.25 ± 39.97 minutes in the unilateral and bilateral CCD groups, respectively. 16 patients (35.6%) had lymph node metastases in central compartments. Mean lymph node yield (LNY) was 7.53 ± 4.96 versus 10.46 ± 7.47 in the unilateral and bilateral CCD groups, respectively. Postoperative transient voice changes occurred in 9 patients. Postoperative transient hypocalcemia occurred in 18 cases (40%), including 7 (21.9%) in unilateral group and 11 (84.6%) in bilateral group. Neither permanent hypocalcemia nor permanent recurrent laryngeal nerve (RLN) palsy was noted. No case was converted to open surgical procedure. All patients were satisfied with the cosmetic result of “scarless” (in the neck) endoscopic thyroidectomy (SET). No evidence of residual or recurrent disease was found during a mean follow-up of 22.84 months (range, 12–34). There was no significant bleeding during the operation.

Conclusions: The “scarless” (in the neck) endoscopic total or near total thyroidectomy plus unilateral or bilateral CCD via breast approach for selected PTC patients could be performed feasibly and safely with excellent cosmetic result by experienced thyroid surgeons.

Parathyroid carcinoma recurrence after thyroid cancer resection: a case report

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Purposes: Parathyroid carcinoma is a rare endocrine malignancy, but parathyroid carcinoma recurrence after thyroid cancer resection is rarer. In this paper, one case of parathyroid carcinoma recurrence after thyroid cancer resection is retrospectively analyzed and related literatures are reviewed, in order to further discuss the clinical treatment experience about parathyroid carcinoma.

Case presentation: We report the case of a 56-year-old man. He discovered thyroid nodule and carried out surgical treatment in January 2011. Postoperative paraffin pathology considered the poorly differentiated malignancy. When he reviewed after a year and a half, the neck ultrasound examination revealed a mass in the left neck, with elevated serum calcium and parathyroid hormone. Ultrasound-guided fine-needle aspiration cytology results prompted the source of parathyroid tissue. So neck mass resection was carried out again and postoperative parathyroid hormone and serum calcium of this patient declined to normal level. Finally experts consulted the pathological specimens and confirmed the diagnosis for parathyroid carcinoma. After a year, his serum calcium and parathyroid hormone elevated again and further examination results suggested parathyroid cancer recurrence. So we attempted to use radiofrequency ablation as treat-

ment. Postoperative PTH and serum calcium levels declined, but did not fall to the ideal range. Now the patient is still in follow-up.

Conclusions: Clinically, parathyroid and thyroid disease concomitant is a common clinical phenomenon, so this means that there may be some links between the two diseases. But the real concurrency mechanism remains to be further studied. Parathyroid carcinoma occurs rarely, and is a rare cause of primary hyperparathyroidism. Ultrasound, CT, MRI, scintigraphy with ^{99m}Tc -MIBI scan, whole body bone scan, and fine-needle aspiration pathology, eluent PTH examination can help diagnose and preoperative localization. The frozen sections mean little in differential diagnosis of benign and malignant parathyroid tumors, but postoperative paraffin pathology and immunohistochemistry examination can help confirm diagnosis. The most effective treatment is surgery. Using “en bloc resection” therapy when initial surgery can provide the best prognosis. For local recurrence and metastases focus, embolization, ablation and PTH immune therapy can also attempt to be used. Parathyroid carcinoma is not only difficult to diagnose, but the local recurrence rate is also higher. It can metastasize via the lymphatic and haematogenous routes. So postoperative patients should persist monitoring serum calcium and serum PTH levels, and try hard to early detection of tumor recurrence or metastasis, and early treatment, in order to improve survival rate and disease-free survival.

Comparison of the recurrent laryngeal nerve injury between total endoscopic thyroidectomy and conventional open thyroidectomy via intraoperative nerve monitoring

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Objective: To compare total endoscopic thyroidectomy (TET) with conventional open thyroidectomy (COT) in terms of recurrent laryngeal nerve injury (RLN) via intraoperative nerve monitoring (IONM).

Methods: A single-surgeon series of 622 consecutive patients using standard IONM with 1047 RLNs at risk were enrolled. Through the preoperative evaluation, 290 patients were suitable for TET, 102 of them chose TET (group1) and the remaining 188 patients chose to COT (group2). The other 332 patients without indication for TET underwent COT (group3). Intraoperative electromyographic (EMG) signals and the incidence of postoperative RLN palsy were collected.

Results: The risk of nerve injury in group3 was higher than other groups, and no statistical significance between group1 and group2. The rate of EMG change in group 1, 2, 3 was 9.5% (12/126), 0% (0/288) and 0.94% (6/633), respectively. The incident of transient RLN palsy was 7.1% (9/126), 0% (0/288) and 0.47% (3/633), respectively. No persistent RLN palsy occurred. The most common reasons of RLN injury in TET were compression (70%) and traction (30%), while the disrupted points were berry ligament

(BL) (30%) and inferior thyroid artery (ITA) (70%) region. During COT, the RLN injuries were common in high-risk surgery.

Conclusions: The risk of RLN injury is higher in TET than COT. Compression around ITA and traction near berry ligament are the most common mechanisms of RLN injury in TET. We believe that IONM has an important value in preventing and controlling the RLN injury, especially in endoscopic and high-risk open thyroidectomy.

The importance of continuously monitoring nerve function during recurrent laryngeal nerve dissection in thyroid surgery

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Background: During monitored thyroidectomy, recurrent laryngeal nerve (RLN) injury often occurs after complete nerve dissection as detected by loss of EMG signal. Continuously monitoring nerve function during RLN dissection might be helpful and useful to earlier detect adverse EMG change and prevent imminent nerve injury.

Methods: A total of 120 patients with 208 RLNs at risk were enrolled in this study. A standardized IONM procedure was strictly followed. The RLN was continuously stimulated at the lower exposed end with a handheld stimulating probe and the quantitative change of EMG amplitude was watched during RLN dissection. Once the EMG amplitude decreased >50% as compared with the initial signal, the surgical maneuver was stopped immediately. The nerve was retested to determine the amplitude recovery at the time points of 2, 4, 6, 8 and 10 minutes. After 10 minutes, the operation was restarted with meticulous dissection and gentle thyroid retraction.

Results: 19 RLNs experiencing EMG amplitude reduction > 50% were identified by this procedure, 18 nerves (16 were caused by traction injury and 2 by compression injury) showed progressive gradual amplitude recovery, and 1 nerve caused by thermal injury showed persistent decrease after 10 minutes. Among the 18 nerves with amplitude recovery, the recovery rate was >90% in 8 nerves, 80-90% in one, 70-80% in 6, 60-70% in 1 and 50-60% in 2. No complete loss of signal was encountered in this study, but two nerves with substantial amplitude decrease developed postoperative temporary vocal cord palsy.

Conclusions: During monitored thyroidectomy, continuously monitoring nerve function during RLN dissection is a necessary procedure to earlier detect adverse EMG change and prevent imminent nerve injury.

Feature of pathologic anatomy is about the parathyroid glands in the patients with secondary hyperparathyroidism (with 361 cases)

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Objective: We summarized the location of all parathyroid glands in the patients with secondary hyperparathyroidism for the purpose that the surgery should be radical procedure.

Methods: We recorded the region of anatomy, the number, shape and volume of parathyroid glands after removing all of the parathyroid glands in 361 patients with secondary hyperparathyroidism (male patients, 141, female patients, 220)

Results: In all patients, 96.12 percent have 4 glands (247 cases). The location of upper glands is relative stable but the lower glands maintain flexible. The most position of the upper is nearby thyroid and next is back of thyroid around lower border of thyroid cartilage. The lower glands present nearby thyroid and next is back of thyroid.

Conclusion: When compared to the upper glands, the lower keep more changeable region. Patients with secondary hyperparathyroidism are received total anatomy need to be taken the position where all glands locate in account.

Keywords: Parathyroid gland, pathologic anatomy, secondary hyperparathyroidism, heteromorphosis.

The experience of operation treatment for secondary hyperparathyroidism (SHPT) for 25 cases.

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Objective: To explore the indications and peri-operative management of surgical treatment for secondary hyperparathyroidism.

Methods: The study included 25 SHPT patients who underwent total parathyroidectomy with autotransplantation (TP+AT), and the indications, operative time, postoperative complica-

tions and surgery effects have been summarized and analyzed retrospectively.

Results: There was no surgery-related mortality among any of the patients. The autotransplantation included sliced hyperplastic parathyroid tissues were implanted in forearm skin with 23 patients and in abdominal subcutaneous with 2 patients. The number of excised parathyroid glands was four in 22 patients, five in 1 patients and three in 2 patients. The average time of the operation was 115.5 min. The routine pathohistological results after operation were parathyroid tissue hyperplasia or adenomatous hyperplasia. 1 patient underwent neck bleeding after the operation, subcutaneous hematoma was observed in 1 patient. Other 2 patients have been underwent injuries of nerves during the operation. 12 patients who had numbness recovered after followed up for 1 month. Preoperative symptoms were alleviated, the serum PTH, hyperphosphatemia, and hypercalcemia were improved or normalized in all patients after 6 months.

Conclusion: TP+AT is safe and effective approach for the treatment of SHPT, and it is also important to strengthen the perioperative management and multidisciplinary collaboration after controlling the indications strictly.

Keywords: secondary hyperparathyroidism, operation, indications, peri-operative management

Selection and Thinking of Surgical Approach of Bilateral Thyroid Carcinoma

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Objective: To summarize the clinical features of bilateral thyroid carcinoma and discuss the surgical approach of bilateral thyroid carcinoma.

Methods: Make a comparative analysis of 1999 cases of primary differentiated thyroid carcinoma surgery and 556 cases bilateral thyroid carcinoma within, identify the clinical features of bilateral thyroid carcinoma, and elucidate bilateral thyroid carcinoma surgical treatment.

Results: The primary bilateral thyroid carcinoma accounted for 27.8% of total primary thyroid carcinoma cases. Male to female ratio was 1: 4.7, with no significant difference from unilateral thyroid carcinoma ($P=0.166$). Mean age was 42.58 ± 9.07 years old, with no difference from unilateral thyroid carcinoma (42.90 ± 9.51 , $P=0.494$). Active total or near-total thyroidectomy and routine central lymph node dissection were performed for Bilateral thyroid carcinoma. Bilateral microcarcinoma accounted for 66.3%, T1 period accounted for 88.8%, with maximum tumor diameter larger than unilateral thyroid carcinoma (bilateral 1.01 ± 0.73 cm; unilateral 0.89 ± 0.73 cm; $P=0.002$); metastasis rate of central lymph node was significantly higher than lateral cervical lymph node (central 214/499, 42.9%; lateral 370/1195, 31.0%; $P<0.01$). The metastasis rate in male was higher than female, and with the age growing, the central lymph node metastasis rate was gradually reduced. When mass volume increased, the central and the lateral cervical lymph node metastasis rate significantly grew up.

Conclusion: Bilateral thyroid carcinoma has become common, mainly in clinical stage T1 with higher invasiveness and aggressiveness than unilateral thyroid carcinoma. Total or near total thyroidectomy are recommended. Surgeons should pay close attention to prevent hypoparathyroidism while protecting the recurrent laryngeal nerve with caution. Prophylactic cervical dissection indications should be broadened for the patients who were female, tumor diameter > 1cm or age < 45 years old.

Keywords: thyroid carcinoma ;total thyroidectomy; parathyroid; surgical treatment

Total endoscopic thyroidectomy using three-dimensional technique via anterior chest approach

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Purpose: To summarize the experiences of applying three-dimensional (3D) technique in scarless endoscopic thyroidectomy (SET) via anterior chest approach.

Methods: Medical records of patients who underwent SET using 3D technique from December, 2013 to May, 2014 were retrospectively reviewed. A total of 32 patients who had a preoperative ultrasound-guided FNA diagnosis of unilateral papillary thyroid carcinoma and underwent lobectomy associated with central lymph node dissection were included in this study. All patients were female with a mean age of 36.7 ± 9.7 years at diagnosis. In addition, 45 patients who underwent traditional endoscopic thyroidectomy at the same period were randomly selected as control.

Results: All surgical procedures were successfully finished. The mean surgical time in 3D group was 91.7 ± 11.4 minutes, and mean hospitalization time was 3.2 ± 0.5 d. Contemporary hoarseness was observed in two patients, and no bleeding, infection, hypocalcemia and other postsurgical complications were observed. Compared to the traditional endoscopic surgery group, 3D group had significantly shorter surgical time of lobectomy (28.0 ± 5.0 min vs. 23.2 ± 5.1 min, $P<0.001$), and also shorter total surgical time but with no significant difference (96.1 ± 13.0 min vs. 91.7 ± 11.4 min, $P=0.122$). Negative results were also seen in the time taking of creating surgical space (14.6 ± 3.3 min vs. 15.6 ± 2.5 min, $P=0.131$) and central lymph node dissection (24.4 ± 6.3 min vs. 25.1 ± 5.4 min, $P=0.587$).

Conclusions: Application of 3D technique in endoscopic surgery can offer three dimensional vision of the surgical field, thus significantly shorten surgical time and more easily to achieve fine dissection and functional protection of recurrent laryngeal nerves, parathyroids and other vital anatomic structures.

Keywords: Three-dimensional endoscopy; Thyroidectomy; Cervical lymph node dissection; Thyroid cancer

Thyroid dysfunction, either hyper or hypothyroidism, promotes gallstone formation, but with different mechanisms in male C57BL/6 mice

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Purpose: Previous studies have observed a significant association between hypothyroidism and gallstones in human when investigating risk factors for cholelithiasis. We conducted this study aiming to comprehensively investigate the effects of thyroid function on gallstone formation in a mouse model and explore the underlying mechanisms.

Methods: Gonadectomized Gallstone-susceptible male C57BL/6 mice were randomly distributed into three groups and received corresponding interventions, hyperthyroidism group (sham surgery + T3 injection), hypothyroidism group (subtotal thyroidectomy + PBS injection) and euthyroidism group (sham surgery + PBS injection). After 5 weeks feeding a lithogenic diet (15% butter fat, 1% cholesterol, and 0.5% cholic acid), mice were killed for further experiments. Crystallization of cholesterol and gallstone formation were detected using polarizing light microscopy of fresh bile. Serum cholesterol levels were determined using a mouse cholesterol kit. RNA was extracted from frozen livers and was used for hepatic lithogenic gene expression analysis under real-time quantitative PCR methods.

Results: The incidence of cholesterol monohydrate crystals formation was 100% in hyperthyroidism group, 83% in hypothyroidism group and 33% in euthyroidism group, differences were statistically significant with each P value of <0.05 when comparisons were carried out between hyperthyroidism and euthyroidism group, and hypothyroidism and euthyroidism group. Among the hepatic lithogenic genes, Tr β and Ldlr were up-regulated whereas Rxr was down-regulated in the mice with hypothyroidism. In contrast, Lxr α , Rxr and Cyp7 α 1 were up-regulated whereas Fxr, Ldlr were down-regulated in the mice with hyperthyroidism.

Conclusion: Thyroid dysfunction, either hyperthyroidism or hypothyroidism, promotes formation of cholesterol gallstones in C57BL/6 mice, but with different mechanisms. Hyperthyroidism induces cholesterol gallstone formation by regulating expression of hepatic nuclear receptor genes Lxr α , Rxr and et al. which are major components involved in cholesterol metabolism pathways. However, hypothyroidism induces cholesterol gallstone formation by promoting cholesterol biosynthesis and up-regulating expression of Ldlr which is a crucial component in cholesterol

transport pathways. The author's conclusion is that when treating patients with gallstones or microlithiasis, clinicians might be aware of the possible existence of thyroid dysfunction.

Keywords: Hypothyroidism; Hyperthyroidism; Cholesterol gallstone; C57BL/6 mice; Hepatic lithogenic genes.

Multifocality, together with total tumor diameter is of greater clinical significance than multifocality itself as an independent factor for predicting nodal metastasis and local recurrence risks among patients with papillary thyroid carcinoma

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Purpose: A recently published study proposed a novel concept called total tumor diameter (TTD) which was defined as the sum of the maximal diameter of each lesion in multifocal papillary thyroid microcarcinoma, and found that multifocality together with TTD can better predict LNM risk in papillary microcarcinoma. We conducted this retrospective case-control study to further explore the clinical significance of TTD in multifocal papillary thyroid carcinoma (PTC).

Methods: Six hundred and eighty four patients who underwent initial thyroid surgery and had a pathological diagnosis of PTC between 2011 and 2013 at The Second Affiliated Hospital Zhejiang University School of Medicine were included in this study. Cervical lymph node metastasis (LNM) risk was analyzed according to the clinicopathological features. For multifocal lesions, the greatest diameter was first used as previous studies, total tumor diameter (TTD) was calculated as the sum of the maximal diameter of each lesion for further analyses.

Results: Multifocality occurred in 24.6% of PTCs, and 54.2% of them had LNM. There were no significant differences in LNM risk between multifocal tumors with TTD \leq 1cm and unifocal tumors with diameter \leq 1cm (36.2% vs. 29.6%, $P=0.294$), 1 \leq multifocal PTC with TTD < 2cm and 1 \leq unifocal PTC with diameter < 2cm (61.8% vs. 53.0%, $P=0.708$), and multifocal PTC with TTD > 2cm and unifocal PTC with diameter > 2cm (66.7% vs. 79.5%, $P=0.113$). In the microcarcinoma subgroup, there were also no significant differences in LNM risk between multifocal and unifocal microcarcinomas within the same range of TTD. But LNM risk was significantly increased in multifocal microcarcinoma with TTD > 1cm than unifocal microcarcinoma ($P < 0.001$).

Conclusion: Multifocality, together with TTD is of more clinical significance than multifocality itself as an independent factor for predicting nodal metastasis and local recurrence risks among patients with PTC.

Keywords: Papillary thyroid carcinoma; Lymph node metastasis; Multifocality; Total tumor diameter

PTH: A RELIABLE MARKER OF POSTOPERATIVE HYPOCALCEMIA RISK: OUR EXPERIENCE

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Aims: to evaluate the evolution of PTH and Calcemia in patients undergoing total thyroidectomy for nodular benign euthyroid pathology and to relate this value to the presence of unintentionally removed parathyroids.

Materials and Methods: this was a retrospective study on 650 patients who had undergone total thyroidectomy between 2010 and 2013. 453 of this patients were examined because the others had incomplete or unreliable data.

Calcemia and seric PTH data (1h and 18h postoperative) were analysed referred to the number of unintentionally removed parathyroids.

Results: The correlation between the number of removed parathyroids and the frequency of PTH deficit was clearly observed. Seric PTH data (1h and 18h) were almost identical; therefore the second analysis (18h) can be thought useless, because the small half-life of PTH allows us to give a reliable evolution one hour after surgery.

For what regards calcemia 1h data were proved unimportant because the long half-life of seric calcium doesn't allow a short term evaluation, while the hypocalcemia percentage (18h after surgery) goes together with the seric PTH deficiency.

Although a careful intraoperative surgical exploration had excluded trophic disorders of parathyroids, PTH deficit was observed in 25% of patients who had no accidentally parathyroidectomy performed. The causes of this deficit could be referred to secondary malposition of the vascular peduncle or to a direct trauma due to aspiration drainage.

Conclusions: To reduce the risk of postoperative hypocalcemia is essential an accurate exploration of the parathyroid glands and an early evaluation (1h after surgery) of seric PTH.

Giant Parathyroid Adenoma with Review of Literature

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Background: The size of abnormal parathyroid glands in patients with primary hyperparathyroidism is highly variable, but the clinical significance of giant glands is unknown. Parathyroid adenomas also rarely attain huge proportions.

Methods: 24 consecutive patients were reviewed following parathyroidectomy for giant parathyroid adenoma. Adenomas above the diameter of 2, 5 cm described as giant parathyroid adenomas.

Results: There were no differences between the patients in age, gender, gland location, or the incidence of persistent or recurrent hyperparathyroidism. Additionally, following resection of a giant adenoma, patients are more likely to develop symptomatic hypocalcemia.

Conclusion: Giant parathyroid adenomas have a distinct presentation characterized by single gland disease and lower incidence of symptoms despite increased levels of calcium and parathyroid hormone.

An evaluation of the metabolic profile in total thyroidectomy

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Aim: To investigate the relationship between metabolic parameters and thyroid hormone changes which occur in patients treated with thyroid replacement therapy following total thyroidectomy.

Material and Methods: The study comprised 30 patients who underwent total thyroidectomy. Evaluations were made preoperatively and at 6 and 12 months postoperatively. Body mass index (BMI) was calculated, waist size, arterial blood pressure (ABP) was measured. Peripheral blood samples were taken after 12-hour fasting for the evaluation of low density lipoprotein (LDL), high density lipoprotein (HDL), total cholesterol (TC), triglyceride (TG), fasting glucose, fasting insulin, thyroid stimulating hormone, free T3, free T4, C-reactive protein, and haemoglobin A1c values. We started thyroid replacement therapy to all patients after 2 weeks postoperatively.

Results: In the postoperative 1-year follow-up, a significant increase was determined in TC, LDL, TG levels and postoperative trend of both systolic and diastolic ABP, but no significant change was determined in HDL levels. No significant change was determined in the preoperative and postoperative BMI values. However, a significant increase was determined in the postoperative body weight and waist measurements compared to the preoperative values.

Conclusion: The result of this study showed that even if euthyroid is achieved in patients following bilateral total thyroidectomy, the lipid profile, ABP and BMI values show negative changes in the postoperative period. Therefore, in postoperative follow-up, these parameters must be closely monitored in addition to the thyroid hormones and lifestyle changes should be implemented and where necessary medical treatment should be added.

Pekin-Shela
Sh.I. ALEKBEROVA

EFFECTS OF LEVOTHYROXINE TREATMENT ON HEMOSTASIS PARAMETERS IN PATIENTS WITH HYPOTHYROIDISM

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Purposes: The aims of the study were to evaluate the potential link between overt hypothyroidism (OH) and disorders in blood coagulation system.

Methods: We prospectively included 15 patients with OH (all female; mean age 52.5 years) and 15 healthy individuals who served as controls. Coagulograms were measured by the generally accepted methods. The levels of the result of analyses were evaluated just before and three months after the maintenance of euthyroidism in hypothyroid patients. Significance was defined as $P < 0.05$.

Results: Hypothyroid patients display a distinct pattern of alteration in the coagulation system depending on the severity of the disease. Compared with controls, patients with OH had higher bleeding time, prothrombin time, activated partial thromboplastin time and clotting time and lower the levels of clotting time, factor VIII activity, vWF and platelet counts. Decreases in factor VIII activity and vWF were detected also in the OH group with treatment.

Conclusions: In conclusion, a tendency to hypocoagulable state can be seen in both subclinical and overt hypothyroidism. This alteration in hemostasis is reversed by LT4 replacement. The primary abnormal hemostasis is a sign of primary hypothyroidism and replacement treatment benefit from levothyroxine administration.

Effect of perioperative bleeding hyperthyroidism preoperative lugol use of surgery

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Purpose: In hypertyroidy surgery, reducing gland's vascularity and avoiding thyroid crisis is vital. Inorganic lugol is used in order to cure the patients' thyroid crisis and reducing thyroid vascularity. In this study we searched the effects of lugol solutions, used preoperatively, on the surgical bleedings of hyperthyroidic patients.

Material and Methods: 40 patients diagnosed as Graves, multinodular goitre, nodular goitre were collected between november 2009 and april 2010 in 1st and 4th general surgery department of İzmir Atatürk Hospital. 20 patients were given ten gutt tid of lugol solution (group 1). Rest of 20 didn't use lugol solution (group 2). Preoperatively biochemistry, TSH, fT3, fT4, thyroglobulin, antithyroglobulin, thyroid sintigraphy, USG, PAAC, markers, ECG were obtained and endocrinological consultation and indirect laryngoscopic evaluation were made. Before surgery all patients became euthyroid by using antithyroid drugs.

Results: 24 patients(%60) were diagnosed as toxic nodular goitre while 16 (%40) were Graves, all of were hyperthyroidic. the mean patients' age was 43.97(±9.25) with a range of 25–63. 31(%77) were female and 9(%23) were male. mean blood flow rate and resistance index (RI) in control group were 21.32±8.06 ml/min and %0.62±0.09 consecutively. After lugol solution therapy, basale blood flow rate of graves' patients were much more lower than from the rate after therapy however statistically there was no difference between groups (consecutively 58.61±49.27 and 98.69±81.71 ml/min). the result of RI after therapy wasn't different from the result before therapy and statistically wasn't meaningful (%0.75±1.09 versus %0.77±1.09; p: 0.398). with the lugol solution therapy RI reached to a mean value of %0.75±1.09 and that's close to the value(%0.62±0.09) of control group. Before and after the lugol solution therapy there was no difference between thyroidal volume and level of hormones.

There was a negative correlation between lugol therapy before thyroidectomy and blood flow rate, thyroid vascularization and intraoperative blood loss. Lugol therapy caused 15.5 and 21 fold decrease in blood flow rate and blood loss consecutively. According to logistic regression analysis preoperative lugol usage was the only independent indicator of intraoperative blood loss.

Conclusions: we found out that lugol solution usage before thyroidectomy was an important independent indicator of intraoperative blood flow rate and blood loss. Beside this preoperative lugol therapy reduced blood flow rate, thyroid vascularity and intraoperative blood loss during thyroidectomy

EFFIACY AND FEASIBILITY OF THE IMMUNOMAGNETIC SEPARATION BASED DIAGNOSIS FOR DETECTING SENTINEL LYMPH NODE METASTASIS FROM BREAST CANCER

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Background: As a minimally invasive surgical technique for assessing the regional lymph node metastasis from malignancies, sentinel lymph node biopsy (SLNB) has been one of the standard procedures for breast cancer. The purpose of this study was to establish a novel molecular diagnostic model and provide new insight for the intraoperative evaluation of the sentinel lymph node (SLN) metastasis in breast cancer.

Methods: A total of 124 breast cancer patients met the criteria of SLN biopsy and underwent intraoperative biopsy were consecutively enrolled in this study. After the sentinel lymph nodes (SLNs) obtained from each patient were labeled, moc-31 monoclonal antibody-mediated immunomagnetic separation (IMS) and flow cytometry were used to determine the expressions of breast cancer metastasis-related markers including MUC1, CD44v6, and HER-2. Alternatively, conventional intraoperative hematoxylin and eosin (HE) staining and cyokeratin immunohistochemistry (CK-IHC) were performed to detect the potential SLN metastasis. The sensitivity, specificity, and false-negative rate of the three intraoperative diagnostic methods were compared and analyzed.

Results: A total of 55 positive SLNs were found in 38 breast cancer patients using IMS, yielding a sensitivity of 86.4% (38/44), specificity of 94.7% (36/38), accuracy of 93.5% (116/124), false-positive rate of 2.5% (2/80), false-negative rate of 13.6% (6/44), positive predictive value of 95.5% (42/44), and negative predictive value of 93.0% (80/86). Patients with high expressions of CD44v6, MUC1, and HER2 in SLNs tended to have higher number of positive lymph nodes, among which the MUC1 and HER2 showed significant differences ($P < 0.05$).

Conclusions: Therefore, compared with the conventional HE staining and CK-IHC, IMS technology has remarkably higher sensitivity and specificity and relative lower false-negative rate,

which to some extent enables it as an effective and feasible intra-operative detection method on SLN for breast cancer diagnosis.

Keywords: immunomagnetic separation, breast cancer, sentinel lymph node, MUC1, CD44v6, HER-2

Hernia and abdominal wall surgery

Safety and efficacy of poly lactide-caprolactone composite mesh versus collagen hydrogel matrix for adhesion prevention following laparoscopic ventral hernia repair: a prospective, randomized, single-blind controlled trial

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Purpose: To compare the effectiveness and safety of EasyProsthesTM composite mesh (a polypropylene mesh coated with poly L-lactide-co-ε-caprolactone) with ParietexTM composite (a polyester mesh coated with a collagen hydrogel matrix) when used in laparoscopic ventral hernia repair.

Methods: A total of 80 patients with primary or secondary ventral hernia/peritoneal defects were randomly assigned to an experimental or control group. EasyProsthes composite mesh was used to patch the ventral hernia or the peritoneal defect in the experimental group, while ParietexTM Composite was used in the control group. All patients received laparoscopic ventral hernia repair (with or without the hybrid technique) in the Department of Hernia and Abdominal Wall Surgery, Beijing Chao-Yang Hospital, Capital Medical University. Adhesion between mesh and ventral viscera, hernia recurrence, incidence of chronic pain and seroma formation, incidence of intestinal fistula and obstruction, infection of incision or abdominal cavity, and laboratory tests before and after surgery were evaluated.

Results: At the end of the study, 1 patient in the experimental group and 2 patients in the control group had received the mesh-viscera adhesion (2.5% vs. 5.0%, $P=1.000$); no intestinal fistulas or obstructions were reported. Seventeen patients in the experimental group and 21 patients in the control group formed the seroma in the operation area, indicating no significant difference when compared in chi-square test of four-fold table (42.5% vs. 52.5%, $P=0.370$). One patient from each group was reported to have developed infection after surgery (2.5% vs. 2.5%, $P=1.000$), but no abdominal cavity infections were reported. No chronic pain or hernia recurrence occurred in patients of either groups in the 12 month follow-up.

Conclusions: EasyProsthes composite mesh has a similar anti-adhesive effect to that of ParietexTM Composite and is safe when used in laparoscopic hernioplasty.

Keywords: Ventral hernia; Laparoscopic hernioplasty; Mesh-viscera adhesion

A prospective comparison of preperitoneal tension-free open herniorrhaphy with laparoscopic preperitoneal herniorrhaphy for the treatment of femoral hernias

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Objective: Though many techniques exist for hernia repair, controversy still exists as to the best management of femoral hernias. Thus, we compare the open preperitoneal approach with the laparoscopic technique for the surgical treatment of femoral hernias.

Methods: In this prospective study, 68 patients with primary unilateral femoral hernias were assigned randomly to an open preperitoneal group ($n=35$; 10 males, 25 females) and a laparoscopic group ($n=33$; 14 males, 19 females). EasyProsthes MESH-D10 and EasyProsthes MESH 15×15 (TransEasy Medical Technology Co., Ltd., China) were used, and all operations were performed by the same surgical team. Patient demographics, recurrence rate, duration of hospital stay, and complications were recorded. The duration of follow-up ranged from 3 months to 48 months.

Results: There were no differences between the groups with respect to surgical time, recurrences, postoperative duration of stay, or wound infection rate. There were no postoperative pain (visual analogue score > 4, lasted 3 months) in the laparoscopic group, whereas there were 3 cases (8.6%) in the open group. In the laparoscopic group, there were 5 cases (15%) of seroma that occurred 3 and 5 days after operation and lasted 1 month. In the open group, 1 case (3%) of seroma occurred 7 days after operation.

Conclusions: Laparoscopic preperitoneal herniorrhaphy appears to be associated with a decreased postoperative pain and a major incidence of seroma formation compared with the open technique in the repair of femoral hernias.

Keywords: Femoral hernia; Herniorrhaphy; Preperitoneal approach; Laparoscop

Initiative Volume Reduction Surgery Performed in Huge Ventral Incisional Hernia

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Objective: To discuss our experience in repair of huge ventral incisional hernia with Initiative Volume Reduction Surgery (IVRS).

Methods: From January 2011 to January 2013, we performed IVRS in 26 cases of huge abdominal incisional hernia with acellular tissue matrix (ACTM) grafts which had the ability to withstand infection.

Results: The procedure was completed in all the 26 cases, with a mean operation time of (121.3±17.9) min, range from 95–160 min. The mean intraoperative blood loss was (65.3±28.4) ml, range 30–200ml. About 150–350 cm intestine was resected in these patients, a mean of (212.6±38.3) cm. The Intra-abdominal

Pressure (IAP) during the first week after surgery was monitored, with mean of (7.8±2.1) mmHg, range from 5.2–10.7 mmHg. After the operation, the patients was discharged from our hospital in 9 to 20 days with a mean of (14.2±3.3) days. Two of the patients had postoperative wound infection without anastomotic leak or abdominal organ injuries. We followed up all the patients for (28.1±5.2) months (range 18–42months). A case of recurrence was observed.

Conclusions: IVRS is safe and effective for huge ventral incisional hernia associated with loss of abdominal domain. It can reduce postoperative intra-abdominal pressure (IAH), and to avoid the occurrence of abdominal compartment syndrome (ACS), which finally can reduce the rate of postoperative complications and recurrence rate.

Keywords: Initiative volume reduction surgery; Huge ventral incisional hernia; Hernia repair; Acellular tissue matrix

Lichtenstein repair of indirect inguinal hernias with acellular tissue matrix grafts in adolescent and adult patients (13 to 45 years old)

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Purpose: To evaluate the outcomes of Lichtenstein hernioplasty using acellular tissue matrix (ACTM) grafts in adolescent and adult patients (13 to 45 years old).

Methods: In this study, 317 patients, 13 to 45 years old, with primary unilateral indirect inguinal hernias, received Lichtenstein hernioplasty using ACTM mesh (ThormalGEN® thoracic surgical graft produced by Grandhope Biotech Co., Ltd., bovine pericardium tissue graft, Guangzhou, China). The outcome measures were the length of the operation, postoperative visual analogue scale (VAS) pain score, length of hospitalization, postoperative complications and recurrence rate.

Results: The operative time was (31.2±5.8) min and the length of hospitalization (1.4±0.7) d. The minimum follow-up was 24 months, there were 2 postoperative wound infections(0.6%) and fully recovered by change of dressing for 1 month; there were no chronic postoperative pain (visual analogue score > 4, lasted 3 months) or local foreign body sensation occurred; 13 patients (4.1%) developed scrotal hydroceles and recovered by the scrotal puncturation. There were no recurrences and other complications.

Conclusions: Lichtenstein hernioplasty using ACTM grafts is a safe and available treatment in adolescent and adult patients (13 to 45 years old).

Keywords: Hernia, inguinal; Herniorrhaphy; Acellular tissue matrix

NBCA (n-butyl-2-cyanoacrylate) medical adhesive for mesh fixation in inguinal herniorrhaphy

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Objective: Although the approach of fixing the mesh with non-absorbable synthetic suture has been adopted, it is disadvantaged by the large number of stitches and an increased incidence of complications such as postoperative pain, chronic pain, and hematoma or hydrops formation. With the aim of reducing these complications, some researchers have adapted medical adhesives in tension-free herniorrhaphy and have achieved satisfactory Results. We conducted this study using a novel lightweight polypropylene mesh that has been proven to be associated with fewer complications for inguinal herniorrhaphy to imply the effectiveness of n-butyl-2-cyanoacrylate (NBCA) for mesh fixation in Lichtenstein tension-free herniorrhaphy and laparoscopic herniorrhaphy for inguinal hernias.

Methods: A total of 2136 patients with primary unilateral inguinal hernia were included. In 893 cases, NBCA adhesive (Compont Medical Adhesive, 1.5 ml/ tube; Beijing Compont Medical Devices Co., Ltd., Beijing, China) was used during Lichtenstein herniorrhaphy while the left 1243 cases was used in the fixation of the mesh during the laparoscopic herniorrhaphy. Operation time, postoperative length of stay, visual analogue scale (VAS) score, incidence of chronic pain and hematoma formation, and hernia recurrence were evaluated.

Results: The operative time was 36.2±10.3 min and the postoperative length of stay was 1.2±0.6d. The minimum follow-up was 18 months, there was no hernia recurrence or wound infection in either group. The postoperative VAS score was 1.6±0.7, there was no postoperative pain occurred (visual analogue score > 4, lasted 3 months). Thirteen (1.5%) hematomas occurred in the open cases and 17 (1.4%) cases occurred in the laparoscopic group.

Conclusions: Application of chemical medical adhesive in tension-free herniorrhaphy for inguinal hernia appears to be a safe and effective approach.

Keywords: Hernia, inguinal; Herniorrhaphy; Medical adhesive; Tension-free; Laparoscopic

To evaluate the muscle mass in elderly patients with inguinal hernia: A prospective control study

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Objective: To evaluate the muscle mass in elderly patients with inguinal hernia.

Methods: 30 old male (70–90y) hospitalized patients with inguinal hernia was involved in study group, and 10 male health volunteers (40–50y) was involved in control group. The human body measurement, the body composition (by Bioelectrical Impedance Analysis and dual energy X-ray scanning), CT scanning of the stomach muscles and thigh muscles (using a special software to calculate the muscle area) were all recorded.

Results: The index of grip strength and Calf circumference in the study group was significantly less than the control group; Total body muscle tissue in study group was significantly less than control group, the two method (Bioelectrical Impedance Analysis and dual energy X-ray scanning) can get similar results, the limb skeletal muscle index was 7.53±0.78. Type I Sarcopenia in study group (male < 7.01 kg/m²) was 22.7%, type II (male < 6.08 kg/m²) was 0; the stomach muscle and the thigh muscle mass in study group was significantly less than control group by CT scan-

ning, but there was no difference of vertical spinal muscular mass in both groups, L3 skeletal muscle index was 70.0% (male < 52.4).

Conclusion: The muscle mass and strength in elderly patients with inguinal hernia are significantly lower than adults, Sarcopenia rates are increased significantly.

Keywords: Sarcopenia; The elderly; Inguinal hernia; The grip strength; Dual energy X-ray scanning; Computed tomography (CT)

Laparoscopic strategy for recurrent inguinal hernia repair: a single center experience in 12 years of 259 cases

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Background: The incidence of recurrent inguinal hernia remains high even new surgical techniques have been enrolled. Laparoscopic techniques are now well-pervading in the treatment of inguinal hernia. This study aims to investigate the laparoscopic strategy for recurrent inguinal hernia repair.

Study Design: The laparoscopic technique was retrospectively applied to 259 patients with 276 recurrent inguinal hernias in the past 12 years. The surgical technique selection was analyzed and follow-ups were performed for further evaluation.

Results: There were 17 cases with bilateral recurrent hernias, whilst the rest 242 cases with unilateral disorders. In 46 cases with unilateral recurrent hernia, contralateral primary hernia was discovered and then repaired intra-operatively. Patients were further categorized by previous repair approaches as conventional suture repair, Lichtenstein repair, plug & patch repair and pre-peritoneal repair (Kugel/MK/PHS/UHS/TAPP/TEP). All cases were successfully repaired by laparoscopic approaches including TAPP (217 cases), TEP (46 cases) and IPOM (13 cases). The median operation duration was 38.5 ± 13.4 min. The average VAS score on post-operative day 1 was 2.4 ± 1.1 . The median follow-up time was 36 (9–60) months and there is no record of lost of follow-ups. There was no case of recurrence during the follow-ups. During the follow-ups, 1 sever complication, i.e., intra-abdominal infection were observed and cured, while other complications were as follows: 16 seroma, 5 uroschesis, 3 transient paresthesia and 1 ileus.

Conclusions: The laparoscopic strategy for recurrent inguinal hernia repair is highly related to the type of previous repair and/or the exact anatomical position of the implanted mesh. For cases with recurrence after conventional suture repair and/or Lichtenstein repair, both TAPP and TEP approaches are the proper options. Furthermore, for cases with recurrence after plug & patch repair, we do not recommend TEP but believe that most of the cases can be repaired by TAPP technique. Moreover, TEP approach is also not suitable for recurrence cases that after pre-peritoneal repair, while we suggest the application of TAPP approach as the first-choice attempt. If the TAPP approach cannot separate enough space for mesh implantation or there is not enough peritoneum tissue to cover the mesh, the IPOM can be considered as an alternative solution.

Implementation of the novel trans-abdominal partial extra-peritoneal (TAPE) technique in laparoscopic lumbar hernia repair

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Background: To investigate the feasibility of the novel trans-abdominal partial extra-peritoneal (TAPE) technique in lumbar hernia repair.

Methods: The TAPE technique was applied to 13 patients with lumbar hernia from May 2009 until September 2013. The surgical technique was described in details and follow-ups were performed for further evaluation.

Results: The mean age of the 13 patients was 68 ± 8 years, with the average BMI 25.5 ± 1.1 kg/m². The etiology study showed that 12 cases after surgical operations and 1 case after trauma. The average size of the hernia defect was 86.8 ± 46.4 cm², while the mean size of the mesh implanted was 275 ± 61.2 cm². The mean operative time was 59.2 ± 8.2 min. There was no intra-operative visceral injury in this serial of cases. There was no conversion case and all patients accepted the TAPE technique successfully. The VAS was 3.8 ± 1.9 and 2.2 ± 1.6 on POD1 and POD3, respectively. The mean post-operative hospital stay was 4.0 ± 1.3 (3–7) days. The median follow-up time was 21 months. All patients returned to unrestricted movement within two weeks after surgery. During the follow-ups, no complication as bulge, seroma, hematoma, wound infection, abscess in surgical area and chronic pain, nor recurrence was observed.

Conclusion: According to the experience of this series of investigations, we found the TAPE a feasible and easy-to-learn technique in the treatment of lumbar hernia.

Treatment experiences for complications of abdominal incisional hernia repair

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Objective: To explore the causes and treatment experiences for complications of abdominal incisional hernia repair.

Methods: The clinical data of 120 patients with abdominal incisional hernia who underwent surgical treatment from November 2004 to October 2014 in Fujian Medical University Union Hospital were analyzed retrospectively. The cause, prevention and treatment of postoperative complications were summarized.

Results: The operation time was 45–420 min, and the average time was (160 ± 25) min. No one was dead during perioperative period. 116 patients (96.6%) were followed up. The follow-up time was 1–120 months, and the average time was (38 ± 12) months. 4 patients lost to follow-up because of the change of the way to contact. 17 patients suffered from postoperative complications

(14.1%), including incision infection in 4 patients (3.3%), intestinal obstruction in 5 patients (4.2%), intestinal fistula in 2 patient (1.6%), seroma in 5 patients (4.2%), abdominal pain in 4 patients (3.3%). Other patients had no discomfort. No recurrence, complications or death occurred.

Conclusion: The key point to postoperative complications of abdominal incisional hernia repair is prevention, including the gastrointestinal cleaning and respiratory training before operations, careful separation, correct hemostasis and intraoperative positive anchoring, unobstructed drainage, infection prevention, pressure dressing and to deal with abdominal distension as soon as possible, preventing seroma and incisional infection after operations.

Keywords: incisional hernia; incisional hernia repair

Clinical anatomical skills of “neck -shoulder” technique on the tension-free inguinal hernioplasty with modified Kugel mesh

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Objective: To investigate the clinical anatomical skills of “neck-shoulder” technique in the tension-free inguinal hernioplasty with modified Kugel mesh.

Methods: A total of 87 patients with inguinal hernia were undergone the tension-free inguinal hernioplasty with modified Kugel mesh from January 2011 to December 2013. four methods of “neck-shoulder” technique were applied to all the cases to separate the fascia transversalis from the real “neck” of hernia sac directly at the internal hernia ring and the visceral sac (“shoulder”) connected to the hernia sac. Then a 10 cm×10 cm preperitoneal space was dissociated around the internal ring and a modified Kugel mesh was placed flatly. The operative data, short-term and long-term postoperative complications were collected.

Results: All the 87 cases were performed successfully. The average operating time was 56±13 min. The average duration of hospitalization was 4.2±1.4 d. 26 cases of subcutaneous hydrops, 14 cases of scrotal edema, 2 cases of chronic pain were observed. No recurrence were found after the follow-up from six months to one year.

Conclusion: “Neck-shoulder” technique is an essential and key skill to approach the real preperitoneal space accurately and will make the modified Kugel mesh fill the myopectineal orifice completely in the treatment of tension-free inguinal hernioplasty. The four skills of “Neck-shoulder” technique can help to provide simple process, clear anatomy and little accessory injury, which should be mastered by every hernia surgeon.

Keywords: Inguinal hernia; “Neck-shoulder” technique; tension-free inguinal hernioplasty; preperitoneal space; recurrence

Clinical application of laparoscopic parastomal hernia repair

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Objective: Collecting 54 cases of parastomal hernia repaired by laparoscopy, therapy result were compared among Keyhole method, Sugarbaker method, Sandwich method and Lap-re-do method. Shortcomes and advantages of different method were concluded.

Materials and Methods:

1. Materials: 54 cases of parastomal hernia (between September 2006 and March 2014) were collected in Dalian area, in which totally laparoscopic patch repair methods were performed, including: 20 cases of Keyhole method, 20 cases of Sugarbaker method, 9 cases of Sandwich method, and 5 cases of lap-re-do method.

2. Methods: 2.1 Entrants criteria: patients without tumor recurrence and death during follow-up, exception of the patients with new morbidity and operated by open methods, patients without complication during hospitalization.

2.2 Review the curative effect among the patients performed operations by different methods (Keyhole, Sugarbaker, Sandwich, and Lap-re-do)

2.3 Rating scale to artificial anal function evaluation and satisfaction to appearance of artificial anus was designed to evaluate the therapeutic effect on patients performed different methods

3. Statistical Methods: All the data using SPSS17.0 software for statistical processing.

Results: 1.1 Keyhole method had a highest postoperative recurrence rate (73.6%, 14/19), with the fastest postoperative exhaust time after operations (median 3 days), and the shortest time in ward of 7 days (median). The shortest operation time were found in Sugarbaker method (median 102.5 min).

1.2 Lap-re-do method has a extremely superiority on artificial anal function and patients' satisfaction to appearance of artificial anus compared to other methods

Conclusions: Postoperative recurrence rate were higher in parastomal hernia patients performed laparoscopic surgery. Keyhole method is highest among these totally laparoscopic surgeries. Lap-re-do method has a extremely superiority on artificial anal function and patients' satisfaction to appearance of artificial anus compared to other methods

Keywords: Parastomal hernia Lap-re-do Function and appearance; Laparoscopy

The comparative study of preperitoneal tension-free herniorrhaphy using UHS with open Mesh-plug in tension free

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Objective: To compare the clinical result of open repairing hernia between preperitoneal tension-free herniorrhaphy using UHS mesh and open Mesh-plug in tension free hernia repair.

Methods: a retrospective analysis of 157 cases of adult inguinal hernia were treated during the period 2010 January to 2014 June in our center, open preperitoneal space of partial absorbable mesh repair in 72 cases, open Mesh-plug in tension free hernia repair in 85 cases, compared with two groups of operation time, hospitalization time, postoperative complications and recurrence rate, etc.

Results: UHS group were better than the control group ($P < 0.05$) in operation time (53.33 + 7.14min), the average post-operative hospital stay (3.19 + 1.16), the incidence of postoperative pain (2.78%) and the recurrence rate (0%).

Conclusion: The result of two operations are satisfactory, but the patients underwent preperitoneal herniorrhaphy using UHS mesh can significantly shorten the operation time and postoperative hospital stay, reduce postoperative pain and recurrence rate.

keyword: Hernia, inguinal; Preperitoneal; Tension-free herniorrhaphy; UHS Mesh; Mesh-plug;

Construction of vascular endothelial growth factor165 sustained-releasing multi-walled carbon nanotube-porcine small intestinal submucosa composite scaffold for abdominal wall defect repair in vitro

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Objective: This study evaluated the vascular endothelial growth factor165 (VEGF165) sustained-releasing ability and bioactive performance, mechanical properties, and cytotoxicity of the multi-walled carbon nanotube (MWCNT) -porcine small intestinal submucosa (PSIS) composite scaffold in vitro, detected the optimal concentration of MWCNT in the scaffold, and evaluated the feasibility of repairing abdominal wall defects using the composite scaffold.

Methods: Alkali pretreatment, calcination, and mixed acid treatment were used to purify the MWCNT. VEGF165 was impregnated with MWCNT by mixing solution. The VEGF165-loaded MWCNT was then coated with PLGA film by plasma polymerization and integrated into two-layer PSIS to construct the composite scaffold by dip dyeing. Four experimental groups were constructed: Group A, 1wt%; Group B, 3wt%; Group C, 5wt%; and Group D, 10wt% VEGF-loaded MWCNT in the scaffolds. The leaching liquor of the scaffolds was collected to detect the sustained-releasing ability and bioactivity of VEGF in vitro, a stretching test was carried out to examine its mechanical properties, and a direct contact test and cell counting test were used to determine its toxicity.

Results: The VEGF sustained-releasing properties of the composite scaffolds in the four experimental groups were superior to those of natural PSIS scaffolds in vitro ($P < 0.05$). The MWCNT concentration was positively correlated with the VEGF165 cumulatively released concentration; however, the composite scaffold that contained 5%wt MWCNT obtained the optimal bioactivity of VEGF165 necessary to stimulate the growth of HUVEC in vitro. The strength properties of all composite scaffolds were superior to those of the PSIS scaffold. The scaffold that contained MWCNT $\leq 5\%$ had no significant influence on fibroblast proliferation using direct contact and cell counting measurements ($P > 0.05$), while the scaffolds that contained 10%wt MWCNT inhibited fibroblast proliferation. The corresponding values of the scaffold decreased because of their high MWCNT concentration, which was similar to that in the HUVEC proliferation test.

Conclusions: The 5% wt MWCNT-PSIS composite scaffold possesses excellent VEGF165 sustained-releasing performance, improved mechanical property, and good biocompatibility. It has the potential to be a new type of material for abdominal wall defect repair.

Biologic Mesh versus Synthetic Mesh in Open Inguinal Hernia Repair: System Review and Meta-Analysis

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Background: Biological meshes are mostly used for abdominal wall reinforcement in infected fields, but no consensus has been reached on its use for inguinal hernia repairing. The purpose of this study was to compare biologic mesh with synthetic mesh in open inguinal herniorrhaphy.

Methods: A systematic literature review and meta-analysis was undertaken to identify studies comparing the outcomes of biologic mesh and synthetic mesh in open inguinal hernia repair. Published studies were identified by the databases PubMed, EMBASE and the Cochrane Library.

Results: A total of 382 patients in five randomized controlled trials (RCTs) were reviewed (179 patients in biologic mesh group; 203 patients in synthetic mesh group). The two groups did not significantly differ in chronic groin pain ($P = 0.06$) or recurrence ($P = 0.38$). The incidence of seroma trended higher in biologic mesh group ($P = 0.03$). Operating time was significantly longer with biologic mesh ($P = 0.03$). There was no significant difference in hematomas ($P = 0.23$) between the two groups.

Conclusions: From the data of this study, biologic mesh had no superiority to synthetic mesh in open inguinal hernia repair with similar recurrence rates and incidence of chronic groin pain, but higher rate of seroma and longer operating time. However, this mesh still needs to be assessed in a large, multi-center, well-designed RCT.

Keywords: Biologic mesh; Synthetic mesh; Open inguinal hernia repair

Prevention of Parastomal Hernia with a Prosthetic Mesh: An Update Meta-analysis

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Background: Parastomal hernia is a very common complication after stoma formation. Previous studies have shown that the use of a mesh implanted at the time of primary stoma formation is a safe procedure and reduces the occurrence of parastomal hernia. However, the result might be unreliable due to absence of newly published studies. Thus we carried out this update meta-analysis.

Methods: The PUBMED, EMBASE and Cochrane library were searched extensively through June 2014, and the included studies are randomized controlled trials (RCTs) that comparing primary stoma formation with and without mesh reinforcement. Analysis was performed using the statistical software Review Manager Version 5.2 and Stata 12.0.

Results: A total of 278 patients in five RCTs were reviewed (139 patients with mesh reinforcement; 139 patients without mesh reinforcement). Prophylactic use of mesh at the time of primary stoma formation was associated with a significantly reduced incidence of parastomal hernia ($P < 0.001$) and parastomal hernias that requiring surgical treatment ($P < 0.005$).

Conclusion: Based on the result of this update meta-analysis, comparing to conventional stoma formation, prophylactic use of mesh to reinforce the stoma is a more advanced method. This study gives further support for the use of a mesh to prevent parastomal hernia.

Keywords: Parastomal hernia, Mesh, Prevention

3D Mesh fixation by using medical glue in TAPP

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Purpose: To evaluate the effects of 3D mesh fixation by medical glue (Compont Medical Adhesive) in intraperitoneal preperitoneal technique (TAPP).

Methods: A total of 96 consecutive patients with inguinal hernia underwent 3D mesh repair by using Compont medical adhesive (α -cyanoacrylate alkyl.) for fixation in TAPP procedures. In order to evaluate the effects of medical glue for fixation of 3D mesh, postoperative complications and recurrence rate were investigated.

Results: The operations are uneventful. Operating time in unilateral inguinal hernia was 30 to 100 minutes (mean 50 minutes), while in bilateral hernia time lasted 70 to 180 minutes (mean 100 minutes). The postoperative hospital stay was 3 to 7 days (mean: 3.5 days) without any serious complications. The most common complications were seroma (7 cases, 7.3%). No recurrence was found with a follow-up of 3 to 36 months.

Conclusions: 3D mesh fixed by Compont medical adhesive in the TAPP technique was practical, safe, and reliable with less complication and low rate of recurrence.

Keywords: Mesh fixation, TAPP, Compont Medical Adhesive

A clinical comparison of laparoscopic Nissen and Toupet fundoplication for hiatal hernia

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Objective: To compare the advantages and disadvantages of laparoscopic Nissen and Toupet fundoplication in the treatment of hiatal hernia (GERD) and their indications.

Methods: From 2006 to 2011, 263 patients with GERD were randomized into two groups, 168 patients underwent laparoscopic Nissen fundoplication, and 95 underwent laparoscopic Toupet fundoplication.

Results: None of the 263 patients with laparotomy, reflux was symptoms improved significantly after surgery. Average follow-up was 4.5 years. 3 patients experienced recurrence of symptoms in the Toupet group and were administered acid-suppressing drugs. The average operation time were 120min and 11-min, th-blood loss Was between 10055 ml and 10050 ml. Post-operative oral feedings were resumed after 24048 h of surgery, The median postoperative hospital stay were 6.4days and 5.7 days. A lower incidence of postoperative dysphagia for both early and later post-operative periods, but Patient satisfaction was similar.

Conclusion: Laparoscopic Nissen and Toupet fundoplication are both safe and effective. A lower incidence of postoperative dysphagia for both early and later post-operative periods, but Patient satisfaction was similar. For patients with moderate to severe GERD, the laparoscopic Nissen fundoplication may be optimal; for elderly patients or for patients with significantly reduced esophageal peristalsis detected in preoperative examinations, the laparoscopic Toupet fundoplication should be considered.

A prospective non-randomized controlled trial for hybrid and laparoscopic incisional hernia repair

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Background: The purpose of this study was to evaluate the safety and efficacy of new hybrid technique, laparoscopic combined with open mini-incision, for complex incisional hernia.

Methods: Between April 2009 and April 2011, 40 patients with incisional hernias underwent either laparoscopic or hybrid repair with IPOM mesh at our institution.

Results: The hybrid and laparoscopic groups were comparable in age, sex, American Society of Anesthesiologists score, body mass index, indication for surgery, hernia size, operative duration, pain score, length of hospital stay, and complications. The hybrid group had a significantly shorter operative time than the laparoscopic group, while mean pain score and length of hospital stay were not significantly different between groups. Furthermore, there was significantly less recurrence and bulging in the hybrid group than in the laparoscopic group during the postoperative follow-up period.

Conclusions: Hybrid hernia repair appears to be feasible and safe for patients with difficult incision hernias and to result in less recurrence and bulging compared with laparoscopic repair.

Keywords: Incisional hernia • Hybrid repair • Laparoscopic repair • Complications

Obturator hernia, still a surgical challenge: a 54-year single-center experience in China

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Background: Obturator hernia (OH) is a rare type of pelvic hernia with significant morbidity and mortality. Due to obscure presentations, diagnosis and surgical treatment are often delayed. This study aimed to review a 54-year experience in clinical presentations, treatment and outcome of OH at our hospital.

Methods: Thirty-six OH patients who underwent surgery at our hospital were divided retrospectively into two groups (group A=26 cases from 1960 to 1986; group B=10 cases from 1987 to 2013). Clinical presentations, managements, and postoperative courses were reviewed and compared between the groups.

Results: Mean age was older in group B (75.2 VS 66.3 years, $P=.025$). Male patients ratio increased in group B (30.0 % VS 0%, $P=.017$). All patients presented with mechanical intestinal obstruction and the incidence of OH was lower in group B (0.15 % VS 1.04 % of all mechanical intestinal obstructions, $P<.001$). There was no difference in terms of clinical presentations, operative and postoperative parameters between the groups (All $P > 0.05$). The overall intervals from onset of disease to admission, admission to operation were 6.5 (5.8) days and 31.9 (53.1) hours, respectively. The overall rates of correct preoperative diagnosis, intestinal gangrene, gut resection, major postoperative morbidity were 36.1%, 86.1%, 80.6% and 36.1%, respectively. The overall mortality rate was 13.9% and all died of abdominal infection.

Conclusions: OH patients were older and more rare with higher male/female ratio. But the high postoperative morbidity and mortality of OH did not decreased. To decrease morbidity and mortality of OH, the keys are to operate early even without a definite diagnosis, prevent and control abdominal and incisional infection actively.

Clinical application of the composite repair in suprapubic incision hernia

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Objective To summarize the experience of clinical application of the composite operation in suprapubic incision hernia.

Methods: A retrospective analysis of 2007 March to 2014 during September in our hospital 8 cases who underwent suprapubic incision hernia repair in patients with clinical data, Male 2 cases, female 6 cases; the age ranged from 56 to 78 years of age, the median age was 67 years; which 8 cases are recurrent hernia. The hernia defect distance from the lower edge of pubic arch distance was less than 5 cm. Using a combination of preperitoneal mesh implantation and onlay repair in 8 cases of abdominal

suprapubic incision hernia of abdominal wall reconstruction in patients.

Results: 8 cases of suprapubic incision hernia patients were successfully completed the repair operation, measuring the maximal diameter of the hernia ring was 4.1 ~ 12.8 cm, average 8.5 cm, 8 patients were treated with 2 pieces of patch repair. Operation time was 90 ~ 180 min, average 128 min. 1 cases of complications in the operation, 1 case of bladder injury; postoperative hospital stay was 7 ~ 10 d, average 8.5 D. 8 patients were followed up, followed up for 2 ~ 36 months, the average follow-up was 19 months; no recurrence, no fistula, chronic pain and other complications associated with patch.

Conclusions: By using the double layered patch suprapubic defect, can solve the hernia defect lower edge suture repair or patch can fixed to the surrounding solid structural problems, also can prevent bladder from the front of the pubic symphysis structurally weak re herniation caused by recurrent problem.

Keywords: Incisional hernia, Suprapubic hernia, hernia repair

Clinical comparative study on Self-fixating Mesh and Sutured Mesh for Open Inguinal Hernia Repair under Local Anesthesia

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Objective: Chronic pain following inguinal hernia repair is a complex problem. Mesh fixation with sutures may be a contributing factor to this object. The aim of this study was to evaluate the clinical advantages and effects of Self-fixating mesh (Parietene™ ProGrip™ Mesh) in the Lichtenstein tension-free hernioplasty with local anesthesia.

Methods: A retrospective study was conducted to analyze the clinical data of the patients who underwent the two method of Lichtenstein tension-free hernioplasty in our center from December 2012 to August 2014. 62 cases of inguinal hernias (include I, II, III types of 2003 edition) were divided into 2 groups, 31 cases in each group. The self-fixating mesh for inguinal hernia repairing was divided into the test group and the control group applied with polypropylene mesh. The time of operation, time of hospital stay, cost of total expenses, the postoperative complications include scrotal edema, seroma of incision, infection of incision, foreign-body sensation and acute or chronic pain of VAS scores in three different phases, including 4 hours, one day and one month after operation were compared between the two groups.

Results: Compared with the control group, the test group had less difference in early postoperative pain, but obviously reduced postoperative pain after 24 hours, and the test group also recovered better than the control group a month later. There was no remarkable difference in operation time. The patients in test group had a much higher hospitalization cost when compared to the control group. However, the two groups had no obvious differences in postoperative complications including scrotal edema, seroma of incision, infection of incision, foreign-body sensation and recurrence after a follow-up of 3 to 15 months.

Conclusions: The application of the self-fixating mesh in open Lichtenstein tension-free hernioplasty was safe and simple, which can effectively reduce the postoperative chronic pain. But this surgical method need to select the suitable patients, includ-

ing the I, II, III type inguinal hernias, neither the IV type or complicated recurrent inguinal hernias was suitable for this method. And the placement of the self-fixating mesh should emphasize on such points: transverse fascia repairing, freeing out sufficient space of inguinal cannal and anchoring on the tuberculum pubicum more than 1cm, etc.

Keywords: Inguinal hernia; Herniorrhaphy; Self-fixating mesh;

Comparison of Lichtenstein and Laparoscopic Transabdominal Preperitoneal Repair of Recurrent Inguinal Hernias

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Object: To comparative analysis of the result of two surgical method Tension-free repair by the Lichtenstein technique and laparoscopic transabdominal preperitoneal (TAPP) repair.

Methods: In total 56 patients with recurrent inguinal hernia were randomly assigned to the two groups: 12 patients of Lichtenstein group for epidural anesthesia and 17 patients for general anesthesia, 22 patients of TAPP for general anesthesia. Comparisons between these groups were done by several preoperative, intraoperative, and postoperative factors.

Results: Average operation time for Lichtenstein group was 50.9±6.1 minutes, compared with 52.5±6.2 minutes for TAPP patients ($P=0.338$). In TAPP patients there was less pain in the postoperative period ($P=0.001$) and fewer sick-leave days (12.3±4.4 versus 18.4±10.8 days; $P=0.009$) and, correspondingly, faster recovery. In the Lichtenstein group a total of 7 postoperative complications (infection, hematoma, seroma, urinary retention) were observed, compared with 8 in the TAPP group ($P=0.585$). There were no cases of hernia recurrence observed during the follow-up. Chronic pain developed in 5 patients from the Lichtenstein group (17.2%) and 3 patients from the TAPP group (7.7%; $P=0.829$) more than 6 months after the operation.

Conclusions: For the treatment of recurrent inguinal hernias, which are developed after use of conventional (no mesh) methods, the first choice should be given to the laparoscopic method, especially for young, physically active, no obese patients, and if there are any contraindications for the laparoscopy, the Lichtenstein approach should be recommended.

Keywords: Recurrent inguinal hernia---Lichtenstein technique ---Laparoscopic transabdominal preperitoneal repair

Clinical study on laparoscopic and open treatments of geriatric abdominal wall incision hernia

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Objective: To explore the open incisional hernia repair(OVHR) and clinical effective-ness of laparoscopic incisional hernia repair(LVHR) of geriatric patien.

Methods: A retrospective analysis of 52 patients above 60 years old with abdominal wall incisional hernia from the First

Hospital Affiliated to Dalian Medical University was initiated including 24 cases in the open group and 28 cases in the laparoscopic group.

Results: No significant difference in operation time, wound infection, and seromas was observed. However, blood loss reduction, hospital stay, post-operative pains in the laparoscopy group were significantly superior to the open group. One case of serious adhesion, leaky gut in the process of separation in the laparoscopic group was found and was transferred to open surgery. No death was observed and in the 3-month to 2-year postoperative follow-ups, there were 3 relapsed cases and no recurrence was in the laparoscopic group.

Conclusions: Both of treatments are safe and effective, but laparoscopic incisional hernia repair owns the strengths of fewer traumas, less pain, rapid recovery with shorter hospital stays.

Keywords: abdominal wall incision hernia; Laparoscopes; Herniorrhaphy; geriatric patient

Effectiveness of laparoscopic transabdominal preperitoneal tension-free repair and the reconstruction of the round ligament of the uterus for femoral hernia

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Objective: To study the effectiveness of laparoscopic transabdominal preperitoneal (TAPP) and the reconstruction of the round ligament of the uterus for femoral hernia.

Methods: The clinical data of 8 cases of femoral hernia patients treated in our hospital from 2011 April to 2013 October were retrospectively analyzed. All patients underwent laparoscopic TAPP repair and 8 patients underwent uterine round ligament reconstruction. To study the effect and surgical operation points.

Results: All the 8 cases were discharged after the surgery successfully. They were discharged from our hospital in 3 to 9 days with a mean of (5.2±1.7) d; the operation time ranged from 28 to 51 minutes with a mean of (37.9±4.8) min; the ambulation time ranged from 4 to 6h. The patients felt mild pain after operation, and reconstruction of the round ligament of the uterus has little effect on the female physiological function. There was not all kinds of complications such as incision infection and inguinal hematoma. They were followed up for 6–36 months. There was not Sexual discomfort Among the 8 patients in the round ligament of the uterus were reconstructed. All patients had no chronic pain and recurrence.

Conclusion: The effectiveness of laparoscopic TAPP for the treatment of femoral hernia is well, the reconstruction of the round ligament of the uterus has little effect on the women's physiological functions.

Keywords: femoral hernia; reconstruction of the uterine round ligament; transabdominal preperitoneal

Effects of UPP (Ultrapro Plug) on femoral vein after femoral hernia repair through an infrainguinal approach

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Objective: Hernia repair devices are usually placed close to femoral vein through an infrainguinal approach femoral hernia surgery. We performed this study to find out if the Ultrapro Plug (UPP) adversely affects the femoral vein after femoral hernia repair through an infrainguinal approach.

Methods: Fifteen femoral hernias repaired with UPP through an infrainguinal approach between March 2012 and December 2012 were included. Preoperative and postoperative (three days and one year after surgery) Doppler ultrasound were performed to detect the diameter and blood flow velocity of femoral vein. We observed clinical manifestations of vascular compression and deep venous thrombosis (DVT) in all patients after surgery.

Results: Mean follow-up was 27.4 months (range, 22–30 months) and no patient was lost to follow-up. No significant difference was demonstrated either in the mean diameter or in the blood flow velocity (EDV, end-diastolic velocity; MBFV, mean blood flow velocity; MD, mean diameter and PSV, peak systolic Velocity) of femoral vein. No patient in this study developed DVT during the whole follow-up.

Conclusion: The UPP seems to have no adverse effects on femoral vein after femoral hernia repair an infrainguinal approach.

Keywords: Femoral hernia; Femoral vein; Infrainguinal approach; Compression; Ultrapro Plug

Kugel procedure for inguinal and femoral hernias: a ten-year, single-center experience in 3200 concessive patients

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Background: Kugel procedure is a minimally invasive, preperitoneal, and sutureless herniorrhaphy for inguinal and femoral hernias, which repairs and strengthens the whole anatomic area of myopectineal orifice with a double-layer and self-expanded mesh. It combines the advantages of both open and laparoscopic procedures. The aim of this article is to report a ten-year, single-center experience in 3200 concessive patients with inguinal and femoral hernias undergoing Kugel procedure.

Methods: A retrospective study was made to analyze the clinical data of 3200 consecutive patients (3558 hernias in total) who underwent inguinal or femoral hernia repair with Kugel procedure from November 2004 to November 2014, using Kugel Mesh, Bard, Inc. Operative time, postoperative pain, complications and patient comfort were evaluated.

Results: The cohort of patient included 3150 inguinal hernias and 408 femoral hernias (male 2837, female 363, bilateral 358, and recurrent 312). The mean age was 56.7 year. The mean operative time was 35.5 min for unilateral hernias. Postoperative complications included 92 cases of seroma (2.6%), 35 cases of hematoma (1.0%), 46 cases of subcutaneous ecchymosis (1.3%), 42 cases of foreign body sensation (1.2%), 10 cases of recurrence (0.3%). There was no incidence of chronic pain or mesh infection. 3094 patients (96.7%) were discharged on the first postoperative day. Most of the patients returned to regular activities, including work, within a few days after operation.

Conclusion: Kugel procedure has proven to be an efficient technique for the treatment of inguinal and femoral hernias at our institution, which is associated with minimal postoperative pain and rapid recovery. Low incidence of postoperative complication and discomfort makes Kugel procedure an attractive method for the routine treatment of inguinal and femoral hernias.

Keyword: inguinal hernia, femoral hernia, herniorrhaphy

Laparoscopic lumbar hernia repair

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Purpose: Lumbar hernias are rare, resulting from protrusion through the posterior abdominal wall that may be congenital, acquired or spontaneous. There are two types of lumbar hernia, the superior lumbar hernia through Grynfeltt triangle, and the inferior lumbar hernia through Petit triangle. Many techniques have been described for the surgical repair of lumbar hernias including primary repair, local tissue flaps, and conventional mesh repair. But these open techniques require a large skin incision. In this report, we report our series of cases of superior lumbar hernias, which were successfully repaired using two different laparoscopic techniques.

Methods: We successfully performed two kinds of laparoscopic lumbar hernia repair, the laparoscopic transabdominal preperitoneal approach and the IPOM technique. Trans-abdominoretroperitoneal laparoscopy is undertaken with three trocars placed into the peritoneal space along the midline or along the external border of the rectus abdominis. Surgery is undertaken in a wide intraperitoneal space with a scope. In the traumatic lumbar hernia, the peritoneal cavity is explored, looking for traumatic lesions of the digestive tract. The dissection is begun by incising the peritoneum, after dissecting the peritoneum and retroperitoneal fat, an appropriate sized prolene mesh is used to reconstruct the defect. It was introduced into the abdominal cavity via the 10-mm optical port. The mesh is then positioned in place, and fixed with spiral tacker to the surrounding muscles). And the incision was closed with suture. At the end of the procedure, lateral peritoneum and colon have to be reinserted on the lateral abdominal wall.

Results: 8 cases of lumbar hernia was repair with either TAPP technique (2), and IPOM (6) procedure. Compared with open procedure, both types of procedures provided excellent operative visualisation, preventing damage to nearby structures, and were associated with lower pain scores, shortened hospital

stay, early return to routine activity, more favourable cosmesis and minimal morbidity.

Conclusion: laparoscopic lumbar hernia repair was associated less postoperative complications and early return to normal activity.

Keywords: Lumbar hernia, Laparoscopic hernia repair, Preperitoneal hernia repair

Management of late-onset deep mesh infection after inguinal hernia repair

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Background: Open tension-free hernioplasty using a prosthetic mesh is a common operation for inguinal hernia repair because of the relative ease of the operation and low recurrence rate. Late-onset deep mesh infection can be unexpected complication. The aim of this study was to report our experience on late-onset mesh infection occurring years after open hernia repair.

Methods: Between 2010 and 2014, 1411 patients had inguinal hernias repaired using prosthetic mesh. Eight patients (0.57%) had deep-seated wound infection which required mesh removal for resolution of sepsis. The patients' records were retrospectively reviewed for the purpose of this study. The main outcome measures were incidence of hernia recurrence and chronic groin pain.

Results: The patients were re-operation and the meshes were removed. There were 8 men. The median age was 49 years (range 31–73). Staphylococcus aureus was found in two patients and Escherichia coli in one patient. All patients treated with negative pressure wound therapy following 7–14 days. There was no recurrence and none of the patients had chronic groin pain for a period of 6–24 months postoperatively.

Conclusion: late-onset deep mesh infection following inguinal hernia repair is uncommon. When deep infection occurred, there should be no unnecessary delay in removing the infected mesh in order to allow resolution of chronic groin sepsis.

Management of mesh related infection after inguinal hernia repair by means of laparoscopic technique

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Purpose: The aim of this study is to assess the outcome of laparoscopic management of infected mesh grafts following inguinal hernia repair.

Methods: 8 patients who developed infected mesh grafts after different inguinal hernia repair have been managed by laparoscopic technique. Mesh have to be removed due to chronic infection and sinus or fistula formation, while others have to be salvaged because it's acute infection and abscess formation. Meshes removed are Mesh Plug in 4 and Kugle in 1 patient, meshes preserved are 3D mesh for TAPP in 3 cases. All operations

were performed by laparoscopic technique. For mesh removal laparoscopic was introduced into the pelvic and to mobilize the adhesion of visceral to the abdominal wall, the plug then was carefully removed and abdominal wall scar tissue was debrided, skin incision was irrigated and a catheter was placed for drainage. For mesh salvaging, the laparoscopic was used to guided the abdomen and then a laparoscopic trocar was inserted to the pre-peritoneal space, suction of the infected fluid was examined for biology study, the antibiotic fluid was used for irrigation, a catheter was placed in the pre-peritoneal space for continuously irrigation and drainage. Local wound care and antibiotics if clinically indicated.

Results: Over a period of 6 years, 8 patients developed infected mesh grafts post-inguinal hernia repair surgery. 4 patients transferred from other hospitals. All patients were successfully treated by our method. Patients their mesh removed stayed in hospital from 2 weeks to 3 months after operation, while mesh salvaging their hospital stay between 1 month to 2 months. There was no operative complications such as bleeding, injury of bowl or urinary bladder.

Conclusion: This series of this study indicates that laparoscopic management of inguinal hernia mesh infection is likely to be successful. The most advantage is to voiding visceral injury during the procedure of mesh removing and salvaging.

Keywords: Inguinal hernia, Mesh, Infection, Laparoscopic

Polylactic acid modified polypropylene meshes and its role in experimental abdominal wall defects

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Purpose: A new type of polypropylene hernia mesh modified by poly (lactic acid) (PLA) was developed and used to repair rat abdominal wall defect.

Methods: The polypropylene (PP) mesh were first treated with oxygen plasma for 30 seconds and then grafted with PLA in phosphorus pentachloride (PCl₅) solution (PCl₅ was the intermediate). The attenuated total reflectance Fourier transform infrared (ATR-FTIR) spectroscopy measurements manifest that the existence of carbonyl groups absorption peak (1756.861 cm⁻¹) and scanning electron microscope (SEM) to observe surface morphologies indicate that the surface of PP meshes were covered by the PLA graft the same. A total of 36 Sprague-Dawley rats were randomly divided into 6 groups and received modified meshes (group 1 to 3, experimental groups) and PP meshes (group 4 to 6, control groups) to repair their abdominal wall defects.

Results: All animals survived until the end point. Experimental group and control group were dissected after repair in different time points (One week, two weeks, one month, respectively) and evaluated the adhesions. Sections of the mesh parietal peritoneum overlap were examined histologically and graded for inflammation. Compared with control groups in each time point after repair, experimental groups showed better ability to resist peritoneal cavity adhesions ($P < 0.05$). There was no difference

between the experimental groups and control groups in degree of inflammation ($P > 0.05$).

Conclusion: New type polypropylene meshes could be obtained by grafting PLA on PP meshes and showed a new added property of anti-adhesion in the procedure of animal abdominal wall defects repair.

Keywords: polypropylene; poly lactic acid; hernia repair; mesh; adhesion

Preliminary Result of inguinal herniorrhaphy with biological mesh

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Objective: To investigate the safety and effectiveness of the biological mesh (Surgisis) in an open inguinal hernia repair using the Lichtenstein technique.

Methods: Retrospective study from March 2011 to February 2014 that a total of 55 patients with 58 inguinal hernias underwent tension-free repair with biological mesh. Postoperative complications including incision infection, fever, pain, recurrence were observed.

Results: 58 lateral inguinal hernias operations were successful, the mean surgery time was 64.9 ± 21.4 min. 11 cases of incarcerated hernia performed after released the entrapment intestine, including that repaired the perforation of intestine and enterectomy of intestinal necrosis for respective 2 cases, furthermore one for appendectomy. Any of postoperative incision infection wasn't observed. One case of incision hematoma, was cured for 2 times debridement; three patients occurred fever and removed without any antibiotic. No recurrence and obvious incision pain and foreign body sensation after 3 months of their operations were observed.

Conclusions: Biological mesh (Surgisis) in inguinal hernia repair is safe and effective, and seems suitable for incarcerated hernia repair.

Keywords: Hernia, inguinal, surgical mesh, absorbable implant

Preventing Parastomal Hernia with Prophylactic Mesh: A Meta-analysis of Randomized Control Trials

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Background: High incidence of parastomal hernia was reported after construction of a stoma, either by physical examination or computerized tomography evaluation. Recent studies suggested that a prophylactic implantation of synthetic mesh at the time of stoma formation may reduce the risk of parastomal hernia, though it was controversial.

Methods: Randomized clinical trials (RCTs) comparing with and without synthetic mesh prophylactic implantation during the initial surgery were retrieved for meta-analysis. Statistical analysis was accomplished by Review Manager 5.2.

Results: After a thorough search of the literature published until January 7th, 2015, we identified five RCTs involving 264 patients (Mesh group, 131; No Mesh group, 133) for final analysis. Meta-analysis revealed that the incidence of parastomal hernia was significantly lower in the Mesh group (16.8%) than in the No Mesh group (40.6%, OR = 0.40, 95% CI: 0.27-0.60, $P < 0.00001$). No significant differences were found between these two groups regarding stoma site infection, overall morbidity and mortality.

Conclusions: A prophylactic implantation of synthetic mesh at the time of stoma formation is safe and could remarkably reduce the risk of developing a parastomal hernia.

Keywords: Parastomal hernia; Mesh; Ostomy; Prevention

Preventing Parastomal Hernia with Prophylactic Use of Dual-Mesh in Patients with Colostomy

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Objective: It is uncertain whether prophylactic implantation of a mesh at the time of a stoma formation could prevent the occurrence of parastomal hernia. We sought to investigate the role of a prophylactic mesh in prevention of parastomal hernia in patients with colostomy.

Methods: A total 232 consecutive patients who underwent abdominoperineal resection from January 2002 to June 2012 in the First Affiliated Hospital of Sun Yat-sen University were analysed retrospectively. Primary end point was parastomal hernia, secondary end point compromised of stoma size infection, intra-abdominal infection, morbidity and mortality.

Results: A total of 30 patients received prophylactic implantation of Dual-mesh at the time of stoma formation (Mesh group), while the remaining 202 patients received traditional surgery (No Mesh group). One out of 30 (3.3%) patients developed parastomal hernia in Mesh group, which was significantly lower than that of No Mesh group (66/202, 32.7%, $P = 0.001$). No significant differences were found in terms of stoma size infection, intra-abdominal infection, morbidity and mortality whether mesh was used or not.

Conclusion: Prophylactic use of a mesh during an APR operation could remarkably prevent the occurrence of parastomal hernia. To draw a definite conclusion, a large multicenter, randomized control trial is guaranteed.

Keywords: Rectal cancer; Colostomy; Parastomal hernia; Mesh

Prospective study of Chronic Pain after Open Total Extraperitoneal Herniorrhaphy

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Background: The purpose of the present study is to assess chronic pain at 2 y following inguinal herniorrhaphy in which patients were randomized to receive open total extraperitoneal herniorrhaphy (TEP) or open preperitoneal tension-free herniorrhaphy (PTF).

Methods: From January 2013 to December 2013, 120 consecutive candidates for herniorrhaphy were enrolled for this prospective study with an informed consent and compliance to Ethics guidelines. patients were randomized into TEP groups (n=65) and PTF groups (n=55). Demographic data were recorded, Chronic postoperative pain was measured by visual analogue scale.

Results: 120 herniorrhaphies were performed under local anesthesia without any exclusion, There was no technical difficulty, operative conversion or prolonged hospital stay in either group. The incidence of chronic pain was 1.5% (1/65) in the TEP groups and 10.9% (6/55) in the PTF groups, there was a significant difference between the two groups ($P < 0.05$).

Conclusion: Total extraperitoneal open herniorrhaphy can avoid the inguinal region nerve injury and significantly lower the incidence of chronic pain. Total extraperitoneal open herniorrhaphy result in comparatively better "patient reported outcomes" as compared to preperitoneal tension-free open herniorrhaphy.

Keywords: Inguinal Hernia; Chronic Pain; Herniorrhaphy

Single-incision laparoscopic surgery totally extraperitoneal hernioplasty with homemade port: 7 cases report

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Objective: Conventional laparoscopic totally extraperitoneal hernioplasty is generally performed by using 3 ports. In this study, the authors report their initial experience of the single-incision laparoscopic totally extraperitoneal hernioplasty (SILS-TEP) repair of inguinal hernia using homemade port.

Methods: We accomplished 7 cases (9 sides) of SILS-TEP with conventional laparoscopic instruments and homemade port which composed of a wound retractor, surgical gloves and 3 ordinary trocars. All patients' clinic data and follow-up results were retrospectively collected and analyzed.

Results: All 7 patients (9 inguinal hernias) received SILS-TEP uneventfully without the need for additional ports. The median operating time was 90.0 min (range: 70-125min), median intraoperative blood loss was 10.0 ml (range: 5.0-20.0ml) and median postoperative hospital stay was 2.0 days (range: 2.0-4.0d). The median pain score measured using the visual analog scale (VAS) after operation 6h, 12h, 24h and 14d was 3 (range: 2-4), 2 (range: 1-2), 1 (range: 0-2) and 0 (range: 0-1). There were neither intraoperative complications reported nor any conversions and all patients were satisfied with wound healing. There was no hernia recurrence during the 3-month follow-up.

Conclusions: The initial experience of the SILS-TEP with homemade port is safe and feasible. This method can simplify the SILS-TEP with available equipments, reduce the economic burden of the patients, easy popularization and application in basic hospital.

Keywords: laparoscopy; hernia; inguinal; single-incision; hernioplasty

Surgical Treatment for Mesh Infection After Prosthetic Patch Repair of Inguinal Hernia

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Objective: To discuss the surgical treatment and experience of mesh infection after prosthetic patch repair of inguinal hernia.

Methods: The clinical data of 67 cases of mesh infection after prosthetic patch repair who were treated in Chao-Yang Hospital from Jan. 2011 to Jun. 2012 were retrospectively analyzed.

Results: All patients were treated with surgical operation successfully, including removing the infected mesh and surrounding tissues, primary suture, and a placement of wound drainage, without replacement of a new patch substitute. The hospital stay of the patients was 10-25 days with an average of 16 days. Of the 67 patients, 51 patients got primary healed and the other 16 patients healed delayed after local dressing change due to the superficial infection following stitch removal. Sixty-six patients were followed-up for 6-24 months (average of 20 months) after operation with no recurrence and complication, including seroma, wound infection, intestinal fistula, and post-operative pain.

Conclusions: The treatment of mesh infection after inguinal hernia repair is very complicated, but the primary suture repair and a placement of wound drainage after removing infected mesh with complete debridement is a effective therapy for it.

Keywords: Mesh infection; Inguinal hernia; Herniorrhaphy; Surgical treatment

The Clinical Experience of Single-incision surgery for bilateral inguinal hernia

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Objective: To investigate the curative effectiveness and characteristics of the single-incision posterior approach inguinal herniorrhaphy (modified Kugel herniorrhaphy).

Methods: The clinical data of 17 cases subject to the single-incision posterior approach inguinal herniorrhaphy were retrospectively analyzed.

Results: In 17 cases subject to the single-incision posterior approach bilateral inguinal herniorrhaphy, the average time of operation was 100 minutes and the average hospital stay was 7 days, the average time of recovery daily action was 10 days. No incisional infection and chronic neuropathic pain occurred in one case. There was no recurrence during 6 months.

Conclusions: The single-incision posterior approach inguinal herniorrhaphy is characterized by esthetic, minimal trauma, fewer complications and rapid recovery.

Keywords: single-incision; bilateral hernias; posterior approach; tension-free herniorrhaphy

The efficacy of laparoscopic Nissen fundoplication versus anterior 180° partial fundoplication in the management of hiatal hernia: A High Resolution Manometry way

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Aim: To investigate the High Resolution Manometry result of laparoscopic Nissen fundoplication verse anterior 180° partial fundoplication in the management of hiatal hernia.

Methods: 110 patients with esophageal motor abnormalities who had typical gastroesophageal reflux symptoms were enrolled in trial and allocated into two groups to undergo laparoscopic Nissen fundoplication (Nissen group) and laparoscopic anterior 180° partial fundoplication (partial fundoplication group). The patients were followed for 3 months and 3 years after operation by the High Resolution Manometry.

Results: (1) Compare the lower esophageal sphincter pressure before and after the Laparoscopic Nissen fundoplication is significantly different (5.4 ± 2.6 mmHg vs 9.2 ± 4.4 mmHg, $P=0.003$). (2) The patients' lower esophageal sphincter pressure were also increased with Laparoscopic anterior 180° partial fundoplication (5.4 ± 2.6 mmHg vs 9.2 ± 4.4 mmHg, $P=0.003$), while there were no statistical significance of the upper esophageal sphincter pressure. (3) The esophagus body peristalsis amplitude were higher than baseline in different way of fundoplication (all < 0.05).

Conclusion: Laparoscopic fundoplication has good and durable antireflux effect and is associated with a lower incidence of post-operative complications compared to Nissen fundoplication, and can be employed as a routine procedure for treatment of hiatal hernia and gastroesophageal reflux disease.

Keywords: Laparoscopic Nissen fundoplication; Laparoscopic anterior 180° partial fundoplication; High Resolution Manometry

The non-operative treatment stratagem of postoperation pain of inguinal hernia patients after tension free hernia repair

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AIMS: Postoperative pain is a common complication after inguinal hernia repair, sometimes maybe very severe. It is necessary to seek a valid method to relieve the pain symptom.

Methods: From January 2012 to Jun 2014, totally 72 outpatients complain about inguinal area pain who underwent tension free hernia repair. The methods of tension free hernia repair were analyzed in these pain patients. A pain ruler (visual analogue scale, VAS) was used to measure the degree of pain in these patients. Score 1–3 was mild pain, score 4–7 was moderate pain, score 8–10 was severe pain. 24 mild pain patients were given Celecoxib capsules 0.2g Bid oral take one week. Of the 31 moderate pain patients were given Bucinnazine 0.1g Bid oral take one week and nerve block twice. 17 severe pain patients were given pulsed radiofrequency treatment in L3 spinal nerve.

Results: All of the mild and moderate pain patients were relieved from pain. 15 severe pain patients got relieved from pain, 2 of the severe pain patients (2/17) have to be re-operated to remove the mesh due to the intractable pain.

Conclusion: Postoperative pain is a torturous complication after tension free inguinal hernia repair. It is more important to prevent the occurrence of postoperative pain. Non-operation treatment of postoperative pain is the main therapy method. Different non-operative treatment method may be used according to the degree of pain.

The outcome of laparoscopic surgery for gastroesophageal reflux disease complicated with hiatal hernia and asthmatic symptoms: a single center study of 476 cases

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Objective: To investigate the outcome of laparoscopic hiatal hernia (HH) repair plus fundoplication for gastroesophageal reflux disease (GERD) complicated with HH and asthmatic symptoms.

Methods: GERD patients complicated with HH and asthmatic symptoms treated in GERD Department of the Second Artillery General Hospital from January 2008 to January 2012 were documented. The outcomes were followed up with a questionnaire to assess the symptom scores of the typical GERD symptoms, asthmatic symptoms and complications before and after surgery.

Results: 476 patients were included and successfully followed up, with type I, II, III and VI HH in 90.8%, 1.1%, 5.9% and 2.3% of the cases. HH repaired with mesh in 56 cases, Nis-

sen and Toupet fundoplication was done in 310 and 166 cases respectively. The mean follow-up duration was 3.3 ± 1.1 years. No severe complication or death occurred. The overall improvement rate was 95.5%. The symptom scores for The typical GERD symptom and asthmatic symptoms significantly decreased from 13.4 ± 2.0 and 18.2 ± 2.9 to 3.1 ± 1.7 and 5.2 ± 5.0 , with 76.9% and 71.4% of symptom score reduction rate respectively, after surgery ($P < 0.001$). In addition, anti-reflux medication was completely eliminated in 417 (87.6%) of the 476 patients.

Conclusion: The laparoscopic HH repair plus fundoplication is safe and effective for GERD typical symptoms as well as asthmatic symptoms for GERD patients complicated with HH and asthmatic symptoms. The relationship among GERD, HH and asthma is suggested, which is worth further investigating and researching.

Keywords: Hiatal hernia; Gastroesophageal reflux; Asthma; hiatal hernia repair; Fundoplication.

The surgical strategy for laparoscopic approach in recurrent inguinal hernia repair (a report of 225 cases)

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Objective: To evaluate the surgical strategy for laparoscopic approach in recurrent inguinal hernia repair.

Methods: Between January 2001 and December 2011, the clinical data of 213 patients with 225 recurrent inguinal hernias underwent laparoscopic repair were retrospectively analyzed in our hospital. There were 174 TAPP, 41 TEP and 10 IPOM procedures performed with this series of patients. The follow-up period ranged from 15 to 60 months (median 42 months). No patient lost to follow-up during the investigation.

Results: 48 TAPP and 26 TEP were applied to 77 (32.9%) recurrent hernias after conventional suture repair; 23 TAPP and 15 TEP were utilized to 38 (16.9%) recurrent hernias after Lichtenstein repair; 90 TAPP and 1 IPOM were employed for 91 (40.4%) recurrent hernias after Patch and Plug repair; and the other 22 (9.8%) recurrent hernias after preperitoneal repair were repaired by using 13 TAPP and 9 IPOM techniques. No conversion to open surgery was observed. The average operative time was 38.9 ± 14.3 (15–90) min. No patients required analgesia postoperatively. The postoperative average VAS score was 2.4 ± 1.1 (1.2–6.4), the average hospital stay was 1.7 ± 1.5 (1–9) d with the patients returned to unrestricted activities in two weeks was 99.6%. No recurrence was observed during the follow-up. The accumulative postoperative complications rates was 11.1% (25), with one severe complication (surgical intervention was needed) as intraabdominal infection (0.4%), as well as other 24 complications including 15 cases of seroma (6.7%), 5 cases of urinary retention (2.2%), 3 cases with transient paresthesia (1.3%) and 1 case with paralytic ileus (0.4%).

Conclusions: TAPP and TEP are both feasible and efficacious techniques to treat recurrent hernias after suture repair and Lichtenstein repair, while the choice depends on surgeons' experience. Most recurrent hernias after Patch and Plug repair could be treated successfully by TAPP but TEP technique is not

encouraged. For recurrences after preperitoneal repair, the TAPP repair should be recommended as first choice, while IPOM is a good technique to cope with the cases which TAPP failed.

Keywords: Laparoscopic technique; recurrent; inguinal hernia; surgical strategy

Transabdominal partial extraperitoneal repair (TAPE) of lumbar hernia: A clinical study of 12 patients

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Objective: To explore the safety and effectiveness of transabdominal partial extraperitoneal (TAPE) repair of lumbar hernia.

Methods: The clinical data of 12 patients with lumbar hernia underwent TAPE repair between May 2009 and July 2013 in Ruijin Hospital, Shanghai Jiao Tong University School of Medicine were analyzed retrospectively.

Results: The average size of the hernia defect was (81.3 ± 43.9) cm². The average size of the mesh employed was (266.7 ± 103.0) cm². There was no conversion to open surgery. The mean surgical time was (60.0 ± 10.0) minutes. No intra-operative complications occurred. No patients need to take analgesic postoperatively. The mean VAS were (3.9 ± 0.7) and (2.7 ± 0.6) on the first day and the third day after surgery (POD1 and POD3) respectively. The mean postoperative hospitalization was (5.0 ± 1.4) days. All patients returned to unrestricted activity within two weeks after surgery. During the follow-up period, no recurrence and complications were observed.

Conclusion: TAPE is a novel laparoscopic technique with safety and effectiveness for lumbar hernia repair. Its efficacy in short-term is certain.

Keywords: lumbar hernia; transabdominal partial extraperitoneal; laparoscopy; incisional hernia

Trocar site hernia after laparoscopy, case report and review of the literature

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Objective: The increasing use of laparoscopy has resulted in added complications specific to the laparoscopic approach, such as trocar site hernia (TSH), which is an uncommon, but potentially dangerous, complication that occasionally requires emergency surgery. This report attempts to explain the clinical characteristics of TSH, together with the diagnosis and treatment of the disease.

Methods: We describe four cases of TSH after laparoscopy, and review the literature.

Results: The four female patients were aged between 43 and 74, with an average age of 62. One patient was performed laparoscopic right adnexectomy in our hospital, and three patients were treated by laparoscopic cholecystectomy in other hospitals. The diameters of hernia loop ranged from 3 cm to 5 cm. The her-

nia contents included omentum and, less commonly. One TSH repairs were performed as an emergency procedure with incarcerated small intestine. Three cases were repaired by continuous suture with Prolene 2-0, and the last one was performed tension-free hernioplasty. All the patients recovered well and then discharged.

Conclusion: The risk of TSH repair is low, but the risk of an emergency operation for TSH is relatively high, so that all patients with a TSH should be offered elective repair. It is important to clearly and unequivocally classify trocar site hernias to improve management of laparoscopic procedures.

Use of acellular dermal matrix combined with components separation technique for repair of contaminated large ventral hernias: a possible ideal solution for this clinical challenge

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Background: Repair of large contaminated ventral hernias is always challenging because of massive loss of muscular and fascial tissues, high risk of surgical infection and recurrence, and contraindication to use of permanent prosthesis. This study aimed to provide an appropriate solution for this challenge.

Methods: This study reviewed retrospectively data of 35 patients with contaminated large ventral hernias who received repair using acellular dermal matrix combined with components separation technique from 2009 to 2011. Patient demographics, contamination sources, comorbidities, operative techniques, perioperative managements, complications, and recurrences were analyzed.

Results: 21 males and 14 females were identified, with a mean age of 45.5 ± 12.5 years and a mean body mass index of 22.5 ± 5.8 kg/m². Simultaneously, 9 patients underwent bowel fistula resection, 13 patients underwent ostomy takedown, 5 patients underwent recurrent colon cancer dissection, 8 patients underwent infectious permanent mesh removal and wound debridement. Mean defect size was 125.0 ± 23.5 cm². The aponeurosis of the external oblique muscle was transected and separated from internal oblique muscle to reach abdominal closure. Acellular dermal matrix was placed in onlay fashion and mean mesh size was 300.0 ± 65.0 cm². 35 patients had a mean follow-up period of 36.5 ± 12.5 months. A wound bleeding and partial dehiscence occurred at 36 hours postoperatively. 5 patients reported abdominal wall pain during the first postoperative month. 5 patients developed surgical site infection. 4 patients were detected to develop seroma with volume more than 20 ml by routine B-ultrasound examination. No recurrence and chronic foreign-body sensation were followed up.

Conclusions: Use of acellular dermal matrix combined with components separation technique is a safe and efficient management for repair of contaminated large ventral hernia, in which permanent prosthesis placement is contraindicated.

A clinical comparative study to compare laparoscopic inguinal herniorrhaphy and the Lichtenstein procedure of inguinal hernia repair

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Objective: To know the feasibility and advantage of the laparoscopic herniorrhaphies in inguinal hernia repair, we adopt 7 common factors to compare laparoscopic with Lichtenstein procedure.

Methods: A total of 454 patients were involved in this study and all of them were received Tension-free inguinal hernia repair from March 2005 to March 2014. 299 patients were received laparoscopic herniorrhaphies (164 of TEP and 135 of TAPP) and 155 patients were received the Lichtenstein procedure of inguinal hernia repair. 7 factors of the average operating time, numerical rating scale (NRS), scrotum seroma, esthesiodermia, chronic pain, recurrence rate and cost of hospitalization were included in our comparative study.

Results: 299 patients who suffered laparoscopic surgery were successfully completed, and in which of 243 patients were followed up. The NRS and recurrence rate were significantly better in the laparoscopic herniorrhaphy group than those in the Lichtenstein procedure group ($P < 0.05$), the cost of hospitalization was more in laparoscopic herniorrhaphy group than those in the Lichtenstein procedure group ($P < 0.05$). But no significant difference was found in operating time, scrotum seroma, esthesiodermia and chronic pain between two groups ($P > 0.05$).

Conclusions: The laparoscopic herniorrhaphy is a good method for inguinal hernia repair and it is a safe and feasible technique for inguinal hernia repair and especially for IV cases and bilateral hernia by TAPP. However, the relatively high cost might be a reason for its postponed popularization. Laparoscopic hernia repair would certainly have been widely used with the laparoscopic technique developed and received the conception of minimally invasive.

Keywords: Laparoscopy; Inguinal hernia; Hernia repair; Lichtenstein; Comparative study

Application of synthetic mesh in contaminated ventral hernia repair

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Background: It is well known synthetic mesh cannot be applied to contaminated hernia repair. For the ventral hernia repair, most scholars believed that the operation should be terminated or biological mesh should be used when the separation of severe bowel adhesions caused contamination. The synthetic mesh for contaminated fields has remained a heavily debated topic, at least, it was not recommended. To investigate the safety and feasibility of synthetic mesh in contaminated ventral hernia repair, we retrospectively analyzed 19 patients.

Methods: The clinical data were retrospectively analyzed in 19 patients with contaminated incision hernia and parastomal hernia who had undergone surgery from January 2006 to October 2013. We analyzed the concomitant diseases, contamination of operation, characteristic of synthetic mesh, preoperative

preparation, intraoperative management and occurrence of post-operative complications. All patients had bowel preparation, as in colorectal cancer surgery. There are 5 patients with diabetes, one case with chronic obstructive pulmonary disease (COPD), 2 patients had incomplete intestinal obstruction. Intestinal rupture occurred in nine patients because of serious abdominal adhesions, even three times occurred in two patients. The serious adhesions cannot be separated in 2 cases, because of heavy and dense adhesions, and partial small intestine resection and anastomosis were done for incomplete intestinal obstruction. The fistula was found between the intestinal and umbilical in one patient. Right hemicolectomy was complied due to intestinal obstruction caused by colon cancer recurrence in one another patient. Colon resection and colostomy in the right upper abdomen were reimplemented for the 9 parastomal hernia patients. The isolation, disinfection and suture were done for the intestine damage found immediately. Before placing mesh, peritoneal lavage was done by 5000ml of diluted povidone-iodine and water in turn. All patients were placed abdominal drainage tube. Wound infection or intraperitoneal infection was observed after the operation. All the patients were operated with the Johnson Proceed mesh.

Results: Outpatient follow-up was performed at 1, 3, 6 and 12 months after operation. All the 19 patients showed no recurrence. Postoperative complication rate was 15.8% (3/19). There were one case of wound infection, one case of mesh infection 2 years and 6 months after operation, which was healed after debridement and dressing. There was one case with bowel obstruction, which was recovered after conservative treatment.

Conclusions: The operation for contaminated ventral hernia should emphasize the management of pollution, use of appropriate synthetic mesh, which could be applied to stage I repair.

Keywords: synthetic mesh; ventral hernia; contaminated; stage I repair.

ASSESSING THE SAFETY OF VICRYL MESH AS AN ADJUNCT TO POSTERIOR FASCIAL CLOSURE DURING POSTERIOR COMPONENT SEPARATION WITH RETROMUSCULAR PLACEMENT OF SYNTHETIC MESH IN A PORCINE MODEL

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Background: Posterior component separation has become a common approach to complex abdominal wall reconstructions. This technique includes creation of an extraperitoneal retromuscular space for subsequent large synthetic mesh reinforcement. In certain cases, when complete restoration of "posterior" layer is precluded by significant tissue loss/damage, one proposed strategy is to replace the posterior fascia with an absorbable synthetic

polyglactin (Vicryl) mesh. However, the safety of this strategy to prevent mesh-related visceral complication is unknown. Herein, we aimed to characterize mesh-viscera adhesion profiles and host tissue response of synthetic mesh either exposed directly to the viscera, or protected with Vicryl mesh.

Methods: Using adult Yorkshire pigs, 5x5 cm pieces of mesh were secured to the intact peritoneum in each of the 4 quadrants (n=6 pigs, 24 mesh samples). The study groups were Vicryl (V), Marlex (M), Softmesh (S), Marlex+Vicryl construct (MV), Softmesh+Vicryl construct (SV). The self-made composite meshes were then implanted with the Vicryl side facing the exposed viscera. The pigs were survived for 60 days. At necropsy, grossly, the extent and tenacity of visceral adhesions were evaluated using established scales; Histologically, all specimens for fibrous encapsulation on the visceral surface of the mesh were reviewed by an experienced pathologist blind to meshes used.

Results: At necropsy, all Vicryl meshes were completely resorbed. The mean adhesion and tenacity scores for M and MV were 0.75 and 1.08 (P>0.05), 2 and 1.5 (P>0.05) respectively; while the mean adhesion extent scores and tenacity scores for S and SV were 2 and 1.17 (P>0.05), 2 and 1.67 (P>0.05). No significant difference in adhesion extent and tenacity was observed between Synthetic and Vicryl composite mesh groups. Histologically, Marlex+Vicryl mesh and Softmesh+Vicryl mesh constructs had thicker fibrous capsules than the corresponding unprotected Marlex and Soft mesh implants. Furthermore, visceral adhesions in the composite groups were noted to be to the fibrous capsule and not synthetic mesh itself.

Conclusion: Utilization of the absorbable polyglactin (Vicryl) mesh as a separating layer between a synthetic mesh and intestines, did not reduce adhesions across various mesh types and composites. Histologically, however, a thick fibrous capsule replaced the Vicryl mesh and may be an important layer to prevent intestinal erosion into retro-muscular synthetic meshes.

Keywords: hernia, absorbable mesh, adhesion profile, posterior component separation, retrorectus, transversus abdominis release, synthetic mesh

Use 3DMAX mesh front of an open prospective study anterior peritoneal inguinal hernia repair

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Objective: To study conducted using 3DMAX mesh front of the open inguinal hernia repair anterior peritoneal effect.

Methods: A prospective study of 100 patients were selected by single-blind method diagnosed with unilateral inguinal hernia, the patients were randomly divided into two groups, the case group using 3DMAX preperitoneal space mesh inguinal hernia surgery control group with Lichtenstein. Further, analysis was done by doing follow up in selected time that is 1 week after surgery, one month, six month respectively. The criteria for evaluation was the postoperative pain, the complication documented after surgery and the conditions with or without recurrence after the patients underwent surgery in each of the randomly selected groups; the case and control group patients.

Results: There was low incidence of pain documented in patients after one week of surgery using 3D max on comparison with the Lichtenstein surgery but no significant difference in chronic pain after 6 months in both groups of patients. No significant difference in hernia recurrence and the postoperative complication between the two groups of patients.

Conclusion: Using 3DMAX open mesh inguinal hernia repair incidence of acute postoperative pain was below on compare to the Lichtenstein surgery, but long-term effect same as Lichtenstein surgery.

Keywords: inguinal hernia; formerpreperitoneal space; 3DMAX mesh

Clinical Investigation of the individually tailored surgery for abdominal hernias: a report of more than 18000 cases

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Objective: To 2013, more than 18, 000 patients, who underwent abdominal hernia operations in our department, were analyzed. The patients were assigned to different treatment groups according to specific conditions and hernia classification.

Methods: Group I: pediatric inguinal hernias <6 year-old, had laparoscopic hernia sac high ligation vs traditional open operation (1464 vs 528).

Group II: adolescent inguinal hernias in 6–18 year-old, had the herniorrhaphy with acellular tissue matrix grafts vs traditional repair (566 vs 274).

Group III: nearly 12,000 cases of adult inguinal hernias, for whom the comprehensive evaluation was proposed according to gender, age, hernia type, general conditions, etc., had laparoscopic hernia repair (TAPP/TEP, as 3018/1194), or open tension-free hernia repair in 7788 cases (Lichtenstein 1874, Plug 2120, Stoppa 3794).

Group IV: in cases of abdominal wall hernia, especially huge incisional and parastomal hernia, a small-incision assisted laparoscopic hernia repair (as a hybrid technique), traditional open operations, or laparoscopic operations were performed (1193/812/1304).

Group V: the giant ventral hernias (as defect diameter more than 15cm, the volume of secondary abdominal cavity larger than original cavity by 20%, BMI >28, and preoperative intravesical pressure >15), underwent Initiative Volume Reduction Surgery (IVRS).

Results: Group I: 3 recurrence occurred in open group (3/528), and none in laparoscopic group; scrotal seroma was observed in 127 children from laparoscopic group (127/1464), and 39 in open group (39/528); no differences in recovery time or hospital stay.

Group II: 2 recurrence in traditional group (2/274), none in laparoscopic group; there were no differences in seroma, pain, hospital stay and recovery time between two groups.

Group III: there were 4212 in laparoscopic group and 7788 in open group, respectively. The complications in the former included recurrence (3), seroma (173), chronic pain (3). According to our experience, laparoscopy was suitable for bilateral, occult and recurrent hernias. While open tension-free hernia repair was more acceptable to patients who were older or in presence of comorbidities (complications: 31 recurrence, 139 seroma, 8 infection, 4 chronic pain).

Group IV: postoperative intestinal fistula was significantly higher in laparoscopic group (12/1304), than hybrid group

(3/1193) and traditional group (2/812). Open group (1.1%) had a higher wound infection rate than the other groups (0.08% in hybrid group, 0.0% in laparoscopic group). The difference of recurrence in hybrid group (2/1193), traditional group (1/812), and laparoscopic group (2/1304) did not reach significance. No differences were found in hospital stay, recovery time and cost.

Group V: a total of 36 cases of giant ventral hernia were repair with IVRS with the mean operation time of (124.3±17.6) min. The patients had the postoperative intravesical pressure in (6.8±1.9) mmHg. Wound infection occurred in 3 cases. Only one case of recurrence was observed in follow-up (16–24 months).

Conclusion: Individually tailored surgery for abdominal hernia can improve the treatment effect, and is a safe and effective guidance strategy for hernia repair.

Host tissue integration process in abdominal wall defect repair: a comparison of two porcine-derived grafts in a long-term study

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Background: The aim of this study was to compare the host tissue integration process and biomechanical behaviour after implantation of porcine small intestine submucosa (PSIS) and porcine acellular dermal matrix (PADM) grafts in a rat abdominal wall defect model during a long-term follow-up of 360 days.

Objectives: Full-thickness abdominal wall defects were created in 40 Sprague--Dawley rats and repaired with either PSIS or PADM grafts. Rats were sacrificed at 14, 30, 90 and 360 days to evaluate the presence of herniation, infection, adhesions and changes in thickness and strength properties of the regenerated tissue at the defect site. Histopathology and immunohistochemistry were performed to evaluate the host tissue integration process assessed by the level of collagen deposition, vascularization and inflammatory host sub-chronic and chronic responses.

Results: PADM grafts had greater strength in vitro ($P < 0.01$). Moreover, the strength of the PADM grafts integrated with the surrounding host tissues was greater than that of the PSIS grafts at 360 days postimplantation ($P < 0.05$). A stronger integration into the host tissue was observed for the PADM grafts, which showed oriented bands of collagen deposition intermixed with similar newly formed blood vessels compared to that of PSIS grafts after 360 days. The PADM grafts showed slower infiltration of macrophages but developed into a more heavily infiltrated tissue compared to the PSIS grafts ($P < 0.05$). The level of leukocyte infiltration after implantation was similar in both grafts ($p > 0.05$).

Conclusion: PADM grafts exhibit more delayed but also more effective host integration than PSIS grafts during the 360 days following implantation, supporting the development of more robust abdominal wall strength.

Construction of vascular endothelial growth factor₁₆₅ sustained-releasing multi-walled carbon nanotube-porcine small intestinal submucosa composite scaffold for abdominal wall defect repair *in vitro*

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Objective: This study evaluated the vascular endothelial growth factor₁₆₅ (VEGF₁₆₅) sustained-releasing ability and bioactive performance, mechanical properties, and cytotoxicity of the multi-walled carbon nanotube (MWCNT) -porcine small intestinal submucosa (PSIS) composite scaffold *in vitro*, detected the optimal concentration of MWCNT in the scaffold, and evaluated the feasibility of repairing abdominal wall defects using the composite scaffold.

Methods: Alkali pretreatment, calcination, and mixed acid treatment were used to purify the MWCNT. VEGF₁₆₅ was impregnated with MWCNT by mixing solution. The VEGF₁₆₅-loaded MWCNT was then coated with PLGA film by plasma polymerization and integrated into two-layer PSIS to construct the composite scaffold by dip dyeing. Four experimental groups were constructed: Group A, 1 wt%; Group B, 3 wt%; Group C, 5 wt%; and Group D, 10 wt% VEGF-loaded MWCNT in the scaffolds. The leaching liquor of the scaffolds was collected to detect the sustained-releasing ability and bioactivity of VEGF *in vitro*, a stretching test was carried out to examine its mechanical properties, and a direct contact test and cell counting test were used to determine its toxicity.

Results: The VEGF sustained-releasing properties of the composite scaffolds in the four experimental groups were superior to those of natural PSIS scaffolds *in vitro* ($P < 0.05$). The MWCNT concentration was positively correlated with the VEGF₁₆₅ cumulatively released concentration; however, the composite scaffold that contained 5%wt MWCNT obtained the optical bioactivity of VEGF₁₆₅ necessary to stimulate the growth of HUVEC *in vitro*. The strength properties of all composite scaffolds were superior to those of the PSIS scaffold. The scaffold that contained MWCNT $\leq 5\%$ had no significant influence on fibroblast proliferation using direct contact and cell counting measurements ($P > 0.05$), while the scaffolds that contained 10%wt MWCNT inhibited fibroblast proliferation. The corresponding values of the scaffold decreased because of their high MWCNT concentration, which was similar to that in the HUVEC proliferation test.

Conclusions: The 5%wt MWCNT-PSIS composite scaffold possesses excellent VEGF₁₆₅ sustained-releasing performance, improved mechanical property, and good biocompatibility. It has the potential to be a new type of material for abdominal wall defect repair.

Open preperitoneal mesh repair for recurrent inguinal hernia: long-term outcome

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Aim: Recurrent inguinal hernia represents a major challenge for surgeons with high risks of re-recurrence and complications, especially when an anterior approach is adopted. The aim of this study was to evaluate the long-term results of the open preperitoneal mesh repair for recurrent inguinal hernia.

Methods: We performed a prospective clinical study of 107 consecutive patients having recurrent inguinal hernias between April 2006 and November 2010. All patients were operated on using open preperitoneal mesh repair. The demographics, perioperative variables, complications and recurrences were evaluated with all patients.

Results: There were no major intraoperative complications. The average operative time was 42.1 minutes (range 28–83 minutes) for unilateral and 62.7 minutes (range 38–106 minutes) for bilateral hernias. The mean postoperative hospital stay was 1.6 days (range 1–9 days). The overall complication rate was 8.4%. There were two superficial wound infections, two groin seroma and three urinary retention. The mean follow-up time was 42.3 months (range 28–73) months, three patients developed hernia recurrence. No testicular, chronic pain or mesh-related complications were noted in these series.

Conclusion: Open preperitoneal mesh repair offers a viable option for recurrent inguinal hernias with acceptable complication and recurrence rates. It is safer and easier to learn than laparoscopic repair and has become the preferred approach for treatment of the majority of recurrent inguinal hernias at our institution.

Keywords: inguinal hernia; recurrent hernia; open preperitoneal repair

The application of hernioscopy for the exploration of contralateral inguinal region in unilateral open tension-free inguinal herniorrhaphy – experience by one hernia center

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Objective: Hernioscopy was adopted to explore the contralateral inguinal region for those patients with the confirmed diagnosis of unilateral inguinal hernia accompanied by the discomfort in contralateral inguinal region to decide further management according to the results of exploration by hernioscopy.

Methods: In our practice, due to the limitation of anatomical structure of bilateral inguinal areas, a 30-degree laparoscope's visualization of contralateral inguinal region through a hernia sac is not as adequate as that for contralateral myopectineal orifice using a laparoscope through umbilicus. Plica umbilicalis lateralis often interrupted the view of part of contralateral internal ring and so the observation of hernia sac or patent processus vaginalis. In order to obtain the clear view of peritoneum in the internal ring to evaluate whether indirect hernia or patent processus vaginalis coexisted, two techniques were adopted singly or in combination: 1) trocar that the laparoscope went through were pulled cranially to lift the laparoscope to the direction of umbilicus and so observation angle changed; 2) slight press of the contralateral internal ring from body surface so that sac or patent processus vaginalis, if existed, in the internal ring could protrude into peritoneal cavity.

Results: For unilateral inguinal hernia patients with contralateral groin complaint (without apparent swelling in the groin region), the hernioscopy could be safely used for the diagnosis of occult contralateral inguinal hernia without more surgical trauma to the abdominal wall, avoiding the metachronous inguinal hernia repair.

Conclusion: Hernioscopy could be adopted for the diagnosis and management of occult contralateral inguinal hernia

EFFECTS OF FISH OIL-SUPPLEMENTED PARENTERAL NUTRITION ON INFLAMMATION AND IMMUNE RESPONSE IN RATS WITH ABDOMINAL SEPSIS.

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Objective: To investigate the effect of n-3PUFA on inflammation and immune response in rats with abdominal sepsis.

Methods: Thirty-six adult male Sprague-Dawley rats were divided into four groups randomly. Two days after central venous catheterization, rats in 3 sepsis groups were subjected to cecal ligation and puncture to produce abdominal sepsis models. Rats were assigned to receive normal saline (NS group) or total parenteral nutrition (TPN) containing a standard soybean oil emulsion (SO group) or FO-supplemented TPN (FO group) at the onset of sepsis for 5 days. Rats in the control group underwent sham operation and appropriate control treatment. Then the serum concentrations of IL-6, IL-10 and distribution of T lymphocyte subsets in peripheral blood were measured.

Results: Compared with normal saline and TPN without fish oil, FO-supplemented TPN could increase the proportions of CD3⁺, CD4⁺ and CD4⁺/CD8⁺ in peripheral blood, which is still lower than that in the control group. Plasma IL-6 as well as IL-10 and Tregs in peripheral blood in FO group were lower than that in NS group.

Conclusion: FO-supplemented TPN can modulate immune function and reduce inflammation in rats with abdominal sepsis.

Keywords: fish oil; parenteral nutrition; Sepsis; cytokines; immune function

13 year's experience of laparoscopic inguinal hernia repair (Report of 3203 cases)

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Objective To evaluate the clinical effect of laparoscopic inguinal hernia repair (LIHR).

Methods: The clinical data of 3203 patients (3847 hernias) underwent by LIHR between Jan. 2001 and Dec. 2013 was retrospectively analyzed. There were 1677 TAPP in 1475 patients, 2154 TEP in 1718 patients, and 16 IPOM in 16 patients. The follow-up period ranged from 11 to 60 months (median 39 months).

Results: There was one conversion from attempted TAPP to Lichtenstein repair, because of the extensive adhesion. The mean operation time was 30.6±11.9 minutes. No analgetic was required. The VAS pain grade one day after the surgery was 2.3 ± 1.0. The length of postoperative hospital stay was 1.5±1.2 days. Patients returned to usual activities in 2 weeks and 4 weeks were 99.3% and 99.9% respectively. The overall recurrence rate was 0.29% (12/3847). The 12 recurrences occurred at the 8th, 19th, 34th, 92th, 255th, 338th, 409th, 504th, 1501th, 1842th, 1908th, and 2436th patients respectively. The recurrence rate in TAPP, TEP and IPOM were 0.24%(4/1677), 0.32%(7/2154) and 6%(1/16) respectively. There were 3 severe complications: port-site hernia, bowel injury and mechanical intestinal obstruction. Other complications included 181 seroma (4.7%), 50 urinary retention (1.3%), 21 transient neurapraxia (0.5%) and 3 paralytic ileus (0.07%).

Conclusion: LIHR is a safe and efficient technique. With reasonable selection and standard operation, LIHR can achieve good clinical result.

Keywords: Inguinal hernia; Laparoscopic repair

ADVANTAGES OF RAMIREZ TRIPLE MESH TECHNIQUE IN THE TREATMENT OF GIANT INCISIONAL HERNIAS

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Background: Management of giant hernias with loss of abdominal domain remains a surgical challenge. Huge hernias are more liable to complications. Problems associated with the management of the giant hernias are: Concomitant diseases; intraoperative anatomical and technical difficulties; several postoperative complications - compartment syndrome; respiratory (embolism, hemorrhage, infection) etc.

Purpose of the study: was to compare different method of hernia repair in achieving the best result in the treatment of giant hernias.

Methods: n=186, 2009–2014 (from total 711 incisionals); Male/female 119/77. Mean BMI 36.39% > 15 cm (largest 45 cm x 20 cm), Concomitant diseases - 156 patients; Ramirez (original) - 17 Ramirez with triple mesh technique - 81; Ramirez with Rives - 14; Total 112.

Results: Mean operation time - 135 mins (45–500). Complications 43 (38, 3%); 84 patients required ICU (up to 18 hrs in postop.); 18 patients ventilated postoperatively for 2/7 days; Mean length of stay 6.4 days (3–50); 5 patients required further surgery.

Conclusion: Considerable increasing of the abdominal capacity is achieved only by Ramirez's method! Low risk of: compartment syndrome, postoperative respiratory and cardiovascular complications Advantages of Ramirez method with triple mesh technique are: More flexibility of anterior abdominal wall is maintained consequently an amplitude of diaphragm movement higher; lower risk of pulmonary complications, Less seroma formation, mesh expenses are considerably less.

THE EFFECT OF HIGH INTRA-ABDOMINAL PRESSURE ON THE FUNCTIONS OF EXTERNAL RESPIRATION IN PATIENTS WITH LARGE HERNIA AND ITS CORRECTION

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Purposes: We wanted to evaluate the capabilities of non-invasive pulmonary ventilation (NIPV) in the treatment of acute respiratory insufficiency combined with intensive therapy of intra-abdominal hypertension in patients with large hernia.

Methods: 62 patients with large ventral hernia were observed. 32 patients showed abdominal hypertension (AH) of mild degree, 21 patients developed AH of mean severity and 9 patients developed AH of severe degree.

Results: It is possible to establish that the basic mechanisms of respiratory insufficiency (RI) developed in early postoperative period in patients are found to be restriction and obstruction or their combination resulting in alveolar hypoventilation. Acute respiratory insufficiency showed 91.9% of patients, it arises due to intra-abdominal hypertension (82%), exacerbation of chronic obstructive pulmonary disease (5%) and a combination of above reasons (13%). The use of NIPV at PSV and PAV regimens is accompanied by reduced breathing work, increased oxygenation index, disappearance of hypercapnia in the absence of significant differences between the regimens. The NIPV in PAV regimen is determined by significant reduced time of a patient's moving away from respiration apparatus and having a restrictive component of RI twice as much as compared with the PSV regimen.

Conclusions: We think that the use of NIPV within the limits of "algorithm of respiratory assist in patients after surgical treatment of large and giant hernias and respiratory insufficiency developed in early postoperative period allows us to administer the intensive therapy of acute respiration insufficiency" with no endotracheal and artificial pulmonary ventilation in 92% of cases. 196, Sharifzade str, - Baku, Azerbaidjan Republik

TAPP MODIFICATION FOR LARGE AND GIGANTIC INGUINAL HERNIA REPAIR

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Aim of study: To improve laparoscopic treatment results of large and gigantic scheduled and strangulated inguinal hernia repair.

Materials and Methods: 18 patient operated using author's modified TAPP method with one-sided scheduled, and 3 with one-sided strangulated hernia. According to Nyhus classification there were 3a, 3b and 4 type hernias, according to Gilbert-Rutkow-Robbins there were 3, 4, and 5 type hernias. Size of hernia sac was equal or more than 7cm, average 10, 1 ± 1, 2 cm. Soft meshes of average size 10x15 cm were used. Control group consisted of 30 patients with same pathology and operated by unmodified method ic.

Result and discussion: specific technics modifications for operated patients in investigated group were used. Additionally after fixation of mesh to pubic bone, fixation of mesh to the transverse fascia and superficial fascia by one or more staples were performed. The resultis achieved by using finger-assisted invagi-

nation of stretched skin into abdominal cavity so that derma to contact with mesh. Thus cavity of former hernial sac becomes obliterated. In nearest post-operational period the level of such common complication as seroma was rated. There were 2 cases in investigated group, which is 9, 5%, and 5 cases in control group, which is 16, 7%. Patients in investigated group noted better cosmetic effect and faster skin retraction than in control group.

Conclusion: usage of modified laparoscopic hernioplastic in cases of scheduled and strangulated large and gigantic inguinal hernia can improve treatment results By using proposed method level of nearest complications decreased almost twice in comparison with standard TAPP. Subjective rate of patient's life quality increased.

Surgical Treatment of Strangulated Hernia of Anterior Abdominal Wall

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Background: Treatment of strangulated hernia stays still relevant, whereas operations are held in emergency situations and resultshow high rate of recurrences, complications, mortality. This is due to the presence of serious comorbidities in elderly and senile, for full correction of them usually is never enough time, because of late negotiability and qualification of operator.

Goals: To analyze reasons of recurrences and complications.

Materials and Methods: For the last five years (2009–2013) 592 patients with different locations of strangulated hernias of anterior abdominal wall were operated. Inguinal hernias were 367 (62%), from which primary hernias - 207 (56, 4%), once recurrent - 96 (26, 1%), multiply recurrent - 64 (17, 4%). Umbilical - 65 (11%), femoral - 42 (7, 1%), postoperative - 118 (19, 6%).

Strangulated hernias were diagnosed in different ages - from 18 to 75 and older, but more often in employable patients - 426 (72%).

24 hours and later were hospitalized 106 (17,9%), later 6–7 days 17 (16,03%) patients. Mostly occurred strangulation of the small intestine - in 254 (43%) patients, loop of the small intestine and the greater omentum - in 126 (21,2%), greater omentum - 165(27,8%), other organs (cecum, transverse colon, sigmoid colon, appendix, adnexal) - in 47(8%) patients.

Method of surgical treatment for strangulated inguinal hernias were hernioplasty by Liechtenstein - 97 (26, 43%), by Gvenetadze (complete isolation of the spermatic cord from the grid and the creation of a three-layer posterior wall of the inguinal canal) - 270(73, 57%). While strangulated femoral hernias - in 42 patients - was used "Plug" technics by femoral approach. During strangulated umbilical hernias (with saving umbilicus) Onlay technics in - 53(81, 5%), Inlay - in 12(18, 5%) patients.

Patients with postoperative strangulated hernias in mesogastric and epigastric areas, in view of localization and size, were operated by Sublay technics in - 65(55%), hypogastric areas by Onlay technics in 27(23%), Sendvih in - 9(7, 6%) and operation of Ramirez in - 17 (14, 4%) patients.

In 27 patients with necrosis of intestines was completed resection of intestine by formation various types of entero - entero anastomosis.

Results: In early postoperative period following complications were observed: suppuration of wounds - 35 (5, 91%), hematoma of wounds - 65 (10, 98%), wound seroma - 86 (14, 53%), wound infiltration - 17 (2, 87%). All complications were cured by conservative method - dressings, punctures, physiotherapies. From 592 strangulated hernia operated patients - 16 (2, 8%) died

during postoperative period. Reasons of death in 9 of them were peritonitis, in 5 – cardiac insufficiency, in 2 – pneumonia.

Long-term results were studied from 2 to 5 years in 423 (71, 4%) patients. Recurrence at inguinal hernias occurred in - 6 (1, 4%) patients, from them during primary hernias - 1 (0, 2%), in multiple recurrences 5 (1, 1%). After operation by Gvenetadze there were not observed recurrences. Also, there were not observed recurrences of femoral hernias. Recurrence of umbilical and postoperative hernias were observed in 7 (1, 2%) patients.

Conclusion: In case of multiple recurrent hernias reasonable to perform hernioplasty in according to Gvenetadze's, Archvadze's or Trabuco's method. In case of small and medium sized mesogastric hernias "Sublay" mesh placement is indicated. "Onlay" method is attributed in case of hypogastric location. method of choice is "Sandwich" technique or Ramirez repair in the treatment of large defects of anterior abdominal wall.

Effects Of Long Lasting Local Anesthetic Application At Varied Nerve Fibers Areas And The Comparison Of Short Term Outcomes In Patients Who Have Underwent Inguinal Hernia Surgery

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Background & Aims: Inguinal hernia (IH) is the union problem of young male adults in the world. Although many procedures have been used to treating inguinal hernia (IH) in adults. Inguinal hernia repair (IHR) by mesh is the most common process performed in clinics. The aim of our work was to determine and compare the peroperative outcomes between local long-acting anesthetic (prilocain) applying to incisional area (IA) and Spina iliaca anterior superior (SIAS) area peroperatively at inguinal hernia surgery.

Methods: The records of all patients operated for inguinal hernia between December 2011 and December 2014 were detected, retrospectively. All of the patients were divided into two groups independent from demographic data. Hernias were separated to two treatment groups. The first group received a local infiltration of 15mL prilocaine 2% in IA (G1) and the second group in SIAS (G2) during the operation. At the time of anesthetic implementation, vital symptoms were recorded during surgery. The pain survey was performed 30 minutes after the end of the anesthetic impact and during the first 8-hour period, using Wisconsin Brief Pain Inventory (WBPI) pain scores. The time of first dose of analgesia and need for additional analgesia were inscribed.

Results: There were 248 males (77%) and 105 females (23%) with a mean age of 25.1 years (range 17 to 84). BMI of patients were in average 31kg/m². (Range 25 to 38). No major differences were found between groups in terms of time of anesthetic implementation, vital symptom, race, gender, age, width of defect site and BMI. However, in group SIAS, the postoperative analgesic demand was lower than in group IA. Also WBPI pain scores were low in SIAS according to IA group. These two findings were found significant statistically ($p < 0.05$).

Conclusions: Local anesthetic applying during the surgical process is hoped that would affect the patient's felicity, comfort, early return to work and cost effectiveness in the future.

Surgery results evaluation at patients with strangulated inguinal hernia

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Objective: to develop methodology and to study immediate and long-term results, including quality of life and functional status of the abdominal wall after laparoscopic hernioplasty

Materials and Methods: 80 observations (first group - 40 laparoscopic hernioplastics at strangulated hernia, where the modified TAPP method was used the second group - 40 plastics with Liechtenstein operation), the analysis of the nearest and far postoperative period flow, the term of surveillance was between 1 and 5 years on average $1,7 \pm 0,9$ years. For objectification of the data were used traditional method of assessment of the patient (e.g., Visik, SF-36 scales) and ultrasonic method (indicators of tissue perfusion, study of sonographic patterns), electromyography as a method to assess the functional state of the muscles of the abdominal wall.

Results: During the postoperative examination of patients, overall percentage of immediate postoperative complications in the first group was 7.5% in the second - 17.5%. In remote postoperative period, the occurrence of chronic inguinal pain was observed in 7.5% of patients in the first group and 12.5% in the second. On a scale SF-36, results after laparoscopic plastics were the best by all indicators. In sonographic examination are the following group results: the size of the fibrous layer $1,7 \pm 0,2$ cm in the first group and $2,4 \pm 0,4$ cm in the second, vascularization index is $3,6 \pm 0,1$ and $3,96 \pm 0,2$, the index of blood flow is $26,3 \pm 0,5$ and $21,7 \pm 0,6$, vascularization flow index is $7,3 \pm 0,5$ and $5,47 \pm 0,4$, coefficient of variation is 14% and 20% correspondingly, which indicates more homogeneous structure of tissues and higher level of tissue perfusion at patients operated by the TAPP method. By electromyographic examination in 3 months after surgery in the first group the average amplitude of contractions was 410 ± 26 mV, in the second - 356 ± 20 mV. The average correlation of the amplitude to the effective width of the spectrum was $1,1 \pm 0,2$ and $0,9 \pm 0,2$, the coefficient of variation - 20% and 32%, respectively, indicating a higher rehabilitation potential and better functional status of muscles in patients after surgery by the TAPP method.

Conclusions: Laparoscopic hernioplasty technique by strangulated inguinal hernia has advantages over Lichtenstein surgery: the possibility of comorbidity diagnostics in the abdominal cavity, the possibility of extended and at the same time more gentle viscerolysis in hernial sac, less postoperative pain intensity, including late period, an earlier activation of patients, shorter period of treatment and rehabilitation, a low incidence of complications requiring additional treatment, cosmetic effect, positive economic effect

INCISIONAL HERNIA REPAIR SURGERY: OUR EXPERIENCE IN 15 YEARS

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Introduction: Incisional hernia is a common problem following abdominal operations (2–50%).

Materials and Methods: We retrospectively investigated 1324 patients who underwent incisional hernia during January 2000-June 2014.

Results: 401 of the patients were male. Mean age was 57. 195 patients were treated with laparoscopic repair. Mean BMI was 31 in laparoscopic repair, and 30 in open repair. 79 of the patients were ASA 3, others were ASA 1 and 2. The most common hernia developing incision was median incision. Mean hernia defect size was 115 cm². Propylene mesh (n=873), primary repair (n=185) and composite mesh (n=266) were used in incisional hernia repair. Although mesh was spread underlay in all of the laparoscopic repairs, it was onlay in 254 and underlay in 690 of the open repairs. Mean operation time was 41 minutes in laparoscopic repair, and 63 minutes in open repair. Intraoperative complications were 5 small bowel injury in laparoscopic repair and 39 small bowel injury in open repair. Drainage tube was used in 28 of the laparoscopic repairs, and in 880 of open repairs. In our serial 40 mesh reaction, 36 acute mechanic intestinal obstruction, 10 enterocutaneous fistula, 10 chronic pain and 96 recurrence were seen. 4 of the patients died postoperatively. Mean hospitalization time was 5 days in laparoscopic repairs and 7 days in open repairs. Mean follow-up was 60 months.

Conclusion: In our serial, in laparoscopic repairs, hospitalization length, complication rates and recurrence rates were lower than open repairs. We have found that mesh repair had less recurrence rate.

Modifications in the production of cytokines and growth factors in drainage fluids following mesh implantation after incisional hernia repair

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Background: The aim of this study was to evaluate changes in the production of some cytokines (interleukins [ILs]-6, -10, -1, and -1ra), vascular endothelial growth factor, and beta-fibroblast growth factor after polypropylene mesh implantation.

Methods: Twenty female patients were divided into 2 groups. In 1 group, hernia repair was performed with conventional sutures (CR), whereas in the other group polypropylene mesh (MR) was used. Growth factors and cytokines production was analyzed in wound drain fluids based on the amount produced during 24 hours.

Results: IL-1 increased substantially in MR patients on postoperative days 1 and 2. IL-1ra and IL-10 production was always significantly higher in CR patients. IL-6 production did not show any considerable difference between the 2 groups. Vascular endothelial growth factor production was significantly higher in the MR than the CR group at all time points, whereas beta-fibroblast growth factor production was higher in the MR than the CR group only on postoperative day 1.

Comments: Our data suggest that different surgical procedures induce various levels of inflammation and that implantation of prostheses significantly stimulates the inflammatory response.

SINGLE PORT CHOLECYSTECTOMY (SPL) – ADVANTAGES. OUR EXPERIENCE

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Background: SPL is a minimally invasive surgery in which approach done through a single supraumbilical entry point, minimizing the scarring and incisional pain.

The aim was to compare SPA with the standard laparoscopic technique (LC) regarding the duration of the operation, complications, learning curve, late postoperative quality of life (QoL) and incisional hernia.

Methods: Between 2012-2104 107 SPL were performed in the Aversi clinic. Standard LC technique was utilized in 310 patients. In the LC group, 100 patients met the same criteria defined for SPA surgery. The two groups (SPA and LC) were compared by multivariable analysis. Quality of life (QoL) after 6 months, operating time, hospital stay, and perioperative complications were measured and compared. The median follow-up was 9.8 months (3-25 months).

Results: SPL patients were younger and more often female. The mean operating time for group SPA was 67.5 min (40-95 min)-significantly longer than that for group LC with 56 min (31-81 min) ($p < 0.001$). The perioperative and postoperative complications and incisional hernia (5.5%) were the same in both groups. QoL was significantly better in the SPA group in terms of mobility ($p = 0.002$), usual activity ($p = 0.036$), and overall anxiety ($p = 0.026$).

Conclusions: SPL is safe, although the operation is significantly longer. No differences in terms of major complications or the incidence of incisional hernia were seen after 1 year. QoL was significantly better in patients operated on with the SPA technique.

(RARE FORM OF ENDOMETRIOSIS:) INCISIONAL ENDOMETRIOSIS AT THE ABDOMINAL WALL; OUR CLINIC EXPERIENCES

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Background: Incisional endometriosis at the abdominal wall is observed in 0.03-0.4% of the patients after obstetric and gynecologic operations. Mostly it is supposed to be created during the operation by mechanical transportation to the incision area. In this presentation it is emphasized that incisional endometriosis has to be considered in the differential diagnosis when a cyclic painful mass is determined in the front abdominal wall by fertile women who had an obstetric and gynecologic operation.

Methods: Between the years 2010-2013, endometriosis in the anterior abdominal wall diagnosed patients were evaluated retrospectively.

Results: The average age of our 4 evaluated patients was 27 (between ages 25 - 29) at the date of diagnosis. All of the patients had a history of a caesarean operation. All patients were com-

plaining about a palpable painful mass during menstruation period on the caesarean incision area. The time passing between the caesarean operation and the beginning of the symptoms was between 1 - 8 years. In the pre-operative gynecological evaluation of the patients, no intraabdominal endometriosis was determined. Wide surgical excision was applied during treatment of the patients. Graft padding was applied to the excision area by two patients. The diagnosis of endometriosis was verified by the pathological examination of the masses.

Conclusions: Incisional endometriosis has to be considered in the differential diagnosis of masses palpable in the front abdominal wall that are painful during menstruation period by women who had an abdominopelvic operation. Wide surgical excision should be applied to avoid recurrences.

Minimally Invasive Surgery

A comparative study of laparoscopic resection of spleen and laparotomy

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Objective: To improve the safety of the laparoscopic splenectomy applied in splenic diseases through summarize of the application from operation skill, complications occurred and the ways to protection.

Methods: We collected and analyzed the clinical data of 68 laparoscopic splenectomy operations which compared of 47 open splenectomy from May. 2009 to May. 2012 performed in our hospital by summarized the common data, operation skill, and the reasons for complications occurred also collected the way to protect.

Results: LS group operating time (9 ± 50.4) min compared with the group OS (120 ± 42.5) min has significant difference ($P=0.001$). LS group of intraoperative hemorrhage (120 ± 45.6) ml and OS group intraoperative hemorrhage (170 ± 61.5) ml more significant difference ($P=0.000$). LS group length of hospital stay and OS group (4 ± 3.2) days in hospital time (8 ± 5.4) days for more significant difference ($P=0.000$). The complications occurred was no statistics difference between 2 groups.

Conclusions: Laparoscopic operation is the safer and more efficient choice for splenectomy operations as it do have all the advantages be applied in the Minimally Invasive Surgical Technology treatment.

Keywords: laparoscope; Splenectomy

Summary of clinical protocol of postoperative recovery of off-pump-occlusion-of-trans-thoracic-minimal-invasive-surgery on patients of simple congenital heart disease

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Objective: To review and summarize the clinical protocol of postoperative recovery of off-pump-occlusion-of-trans-thoracic-minimal-invasive-surgery (OPOTIMIS) on patients of simple congenital heart disease (CHD).

Methods: During the period from January 2013 to December 2013, Retrospectively analyze between January 2013 and December 2013, a total of 117 CHD were underwent the operation of OPOTIMIS, the result were retrospectively analyzed. Postoperative treatment strategies including: sedation, anticoagulation, maintenance of cardiac function, respiratory care, prevention of infection, timing of extubation, etc.

Results: Of the 117 CHD patients, male/female: 60/67, aged from 5 month to 17 years, averaged 3.14 ± 2.87 yr, weighted 6.7-60kg, averaged 14.74 ± 8.28 kg; ASD was seen in 29, VSD in 70, PDA in 14, ASD+VSD in 3, and VSD+PDA in 1. Successful operation of OPOTIMIS was obtained in 103 cases, 5 cases of secundum central type ASD, 8 cases of perimembranous VSD, 1 case of perimembranous VSD + PDA were converted to under cardiopulmonary bypass surgery, with a success rate of 88.03%. Compared to CPB surgery, the postoperative intubation and recovery length of OPOTIMIS was significantly reduced ($P<0.05$). 1 case of pericardial effusion was found after OPOTIMIS, ultrasonic-guided pericardiocentesis and drainage was done, with a complication rate of less than 1% within 24 hour of postoperation (1/103 cases).

Conclusion: Minimally invasive transthoracic device closure of simple congenital heart disease without cardiopulmonary bypass is feasible and safe under transesophageal echocardiographic guidance, postoperative recovery should be focused on cardiopulmonary function maintenance, anticoagulant therapy, etc.

Keywords: occlusion of minimally invasive surgery; congenital heart disease; postoperative recovery

Minimally Invasive Resection Guided by Ultrasound and FDS Location for Management of Protrusion Lesions in Ductal

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Objective: To evaluate the clinical value of Minimally Invasive Resection which is guided by ultrasound and FDS location for management of ductal protrusion lesions.

Methods: Protrusion lesions in ductal were diagnosed by FDS in 29 patients with nipple discharge. The lesions were resected by vacuum-assisted biopsy system. The FDS and ultrasound were combined to location the lesions during the surgery.

Results: 29 papillary lesions were all successfully removed. 3 cases were DCIS, 22 were intraductal papilloma, 3 were papillomatosis, 1 was intraductal papillary hyperplasia.

Conclusion: Minimally Invasive Resection guided by ultrasound and FDS-location is a safe and accurate method for management of protrusion lesions in ductal.

Keywords: FDS; intraductal protrusion lesions; vacuum-assisted biopsy; ultrasound guided

An Upside Down Umbrella-Like Abdominal Wall-Lifting Device for Gasless Laparoscopic Surgery in Animals

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Introduction: In conventional laparoscopic surgery, a CO₂ pneumoperitoneum is established to create the operative space. However, a CO₂ pneumoperitoneum may have adverse effects, such as respiratory and circulatory system changes, hypotension and hypoxia in infants, reduction in immune function, and contamination of the abdominal cavity by tumor cells. Gasless laparoscopic techniques can avoid these adverse effects. But, the current gasless techniques are limited by their inadequate creation of operative space.

Materials and Methods: We herein describe a new technique. We used a self-designed upside down umbrella-like abdominal wall-lifting device to perform gasless laparoscopic cholecystectomy in five pigs. The time to establishment of the operative space, time to gallbladder removal, volume of intraoperative blood loss, and unexpected occurrences during the operation were recorded. The procedure of establishing operation space with upside down umbrella-like abdominal wall-lifting device was under the condition of CO₂ pneumoperitoneum, and gallbladder removal was performed with totally gasless laparoscopic surgery.

Results: Five pigs underwent gasless laparoscopic cholecystectomy using this technique, with no conversions to open surgery. The time to establishment of the operative space was 8, 6, 7, 6, and 5 minutes, respectively. The time to gallbladder removal was 42, 35, 30, 38, and 32 minutes, respectively. The volume of intraoperative blood loss was 15, 8, 6, 12, and 14 ml, respectively. There were no cases of internal organ injury or other intraoperative complications.

Conclusion: These preliminary findings indicate that use of the upside down umbrella-like abdominal wall-lifting device is feasible and safe and provides sufficient operative space to perform gasless laparoscopic cholecystectomy. Further research is needed before the upside down umbrella-like abdominal wall-lifting device is used in clinical practice.

Keywords: General Laparoscopy; Technical; Oncological Surgery

Clinical application of PEG/PRGJ technology in Peking Union Medical College Hospital

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Objective: Summarizing the clinical application of percutaneous endoscopic gastrostomy (PEG) / Percutaneous Radiologic Gastrojejunostomy (PRGJ) in Peking Union Medical College Hospital, to discuss the indications and efficacy of clinical application of PEG/PRGJ technology.

Methods: Summarizing 104 PEG/PRGJ cases patients in our hospital during 2003–2012, 56 cases in male, 48 cases in female, mean age (68.18±16.42) years. Among them, Nervous system diseases in 61 cases (cerebral infarction in 31 cases, motor neuron disease in 21, other neurological diseases in 9 patients); Digestive system tumor in 26 cases (advanced digestive tract cancer with duodenal obstruction in 19 cases, postsurgical gastroparesis in 7 cases); Non digestive system tumor with digestive tract obstruction / eating difficulties in 10 cases; The other type of disease in 7 patients (acute pancreatitis with pancreatic pseudocyst in 3 cases, hiatal hernia with severe esophageal reflux in 2 cases, short bowel syndrome in 2 cases). Studying four groups about the longest time with tube (LTT), the shortest time with tube (STT) and the average time with tube, Comparing albumin, prealbumin, High sensitivity C-reactive protein (Hs-CPR), the neutrophil-lymphocyte ratio (NLR), hemoglobin and Onodera prognostic nutritionindex (OPNI) within 1 weeks before catheter and 4 weeks after catheter, evaluating Clinical efficacy of PEG/ PRGJ.

Results: Nervous system diseases group (N=61), ATT (39.8±23.0) M, LTT 60.0 M, STT 3.0 M. Albumin ($P=0.006$), Hs-CPR ($P=0.037$), NLR ($P=0.001$), OPNI ($P=0.007$) are significantly different in statistics, Prealbumin ($P=0.154$), hemoglobin ($P=0.257$) without significant difference in statistics.

Conclusions: The digestive tract tumor group (N=26), ATT (6.5±2.1) M, LTT 30.0 M, STT 0.6 M. Albumin ($P=0.000$), prealbumin ($P=0.015$) are Non digestive tract tumor group (N=10), ATT (18.4±6.8) M, LTT 48.0 M, STT 3.0 M. Prealbumin ($P=0.017$) is significant differences in statistics; Albumin ($P=0.303$), Hs-CPR ($P=0.339$), NLR ($P=0.501$), hemoglobin ($P=0.889$), OPNI ($P=0.662$) without significant difference in statistics. Other types of disease group (N=7), ATT (29.0 + 11.3) M, LTT 48.0 M, STT 24.0 M. Albumin ($P=0.044$), prealbumin ($P=0.041$), hemoglobin ($P=0.022$) are significant differences in statistics; Hs-CPR ($P=0.106$), NLR ($P=0.605$), OPNI ($P=0.057$) without significant difference in statistics. The average replacement time of tube is 17.8 months in all the patients, the tube replacement time is 18.4 months in patients with nervous system disease.

Evaluation of completely video-assisted lobectomy for elderly patients with lung cancer

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Objective: To evaluate the clinical application and effect of video-assisted thoracoscopic lobectomy in elderly patients with lung cancer, summarize the experience of treatment.

Methods: From October 2009 to December 2012, there are 120 elderly patients with lung cancer, the total thoracoscopic lobectomy in 75 cases, conventional thoracotomy lobectomy in 45 cases. Compared statistics for the operation time, intraoperative blood loss, number of lymph nodes dissection, postoperative chest fluid, the chest tube intubation time, postoperative hospital stay.

Results: Two groups of patients had no peri-operation period death cases, two groups in lymph node dissection (9.2 ± 5.1) versus 9.1 ± 2.8 , $P = 0.448$) had no significant difference, no statistical significance; the amount of bleeding, the totally thoracoscopic group were less than the thoracotomy group during the operation (200.4 ± 38.1 ml versus 221.6 ± 51.1 ml, $P = 0.005$), the VATS group in the operation time (124.2 ± 24.7 min versus 147.6 ± 32.3 min, $P = 0.000$), postoperative chest fluid volume (150 ± 38.1 ml versus 250 ± 45.1 ml, $P = 0.000$), the chest tube intubation time (5.1 ± 1.1 d versus 7.2 ± 2.6 d, $P = 0.000$), postoperative hospitalization time (7.1 ± 2.6 d versus 9.1 ± 2.8 d, $P = 0.000$) is better than traditional thoracotomy group, with statistical significance. The postoperative complications of two groups had no significant difference (20, 32.0% versus 20, 44.4%, $P = 0.171$).

Conclusion: All thoracoscopic lobectomy for lung cancer in the elderly with shorter operation time, shorter hospitalization time, less bleeding, less postoperative drainage, postoperative complications and the traditional open chest operation had no significant difference, it is worthy of popularization and application in aged patients with lung cancer.

Keywords: completely-video-assisted thoracoscopic surgery lobectomy; the elderly;

Investigate the diagnosis value of ultrasound-guided biopsy technique combined with CT or MRI for cervical neoplasm by using minimally invasive technology

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Objective: To take the retrospective study's method for assessing whether ultrasound-guided biopsy technique combined with CT or MRI by using minimally invasive technology improve the diagnosing correct rate of neck neoplasm, and exploring its clinical application value in diagnosis and differential diagnosis of neck neoplasm.

Methods: To screen of 47 patients with neck neoplasm and perform preoperative CT and MRI in order to clear lesions scope and property, et al. 47 patients then underwent ultrasound-guided fine-needle biopsy, samples were immediately sent

to histopathological examination. The biopsy results of these patients were also compared with surgical results.

Results: The successful rate of aspiration biopsies was 97.8%, and the accurate rate of histopathologic diagnosis was 95.7%, no complications occurred.

Conclusion: Being as a minimally invasion, rapid and safe method in diagnosis and differential diagnosis of cervical neoplasm, ultrasound-guided biopsy technique combined with CT or MRI by using minimally invasive technology has important clinic application value because it can reduce clinical complications and improve the diagnosing correct rate of neck neoplasm.

Keywords: diagnosis value; ultrasound-guided biopsy technique combined; minimally invasive technology

MINIMALLY INVASIVE EXTRACTION AND FLAPLESS IMMEDIATE IMPLANT PLACEMENT WITH NO BONE SUBSTITUTE: A 1YEAR RETROSPECTIVE ANALYSIS

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Purposes: Retrospectively evaluate the short-term clinical results of implant survival rate when using the approach of minimally invasive extraction and flapless immediate implant placement without using bone substitute.

Methods: A retrospective study design was used. Patients were included if they were treated with minimally invasive teeth extraction and flapless immediate implant (Superline[®] implant, Dentium, Korea) placement without using bone substitute in the posterior maxillary/mandibular region in the past 1 year. 25 patients, 38 implants were invited for a clinical examination. Variables collected were surgical site, implant dimension and smoking habits. Peri-implant bone level was determined on periapical radiographs and compared to baseline, before implant insertion.

Results: 38 implants had been placed in 25 patients. Mean bone loss was 0.25 mm (SD 0.48; range - 0.50 - 1.95) after a follow-up of 24 months. Implant success was 100%. No bone substitute was used to fill the residual space and no soft tissue flap to cover the surgical site, but this did not affect the bone loss outcome. Bone loss was only significantly different between maxilla and mandible (0.48 mm vs. 0.27 mm) and between the 5.5 and 6.5 mm diameter implants (0.35 mm vs. 0.18 mm.).

Conclusion: The advantages of this minimal invasive extraction and implantation protocol is that it's quick compared to deferred dental implants and they essentially shorten the rehabilitation treatment. In deferred implants 3-6 months are needed for the healing of the extraction site before inserting the dental implants and, once the implants are imbedded, a further 3-6 months is required before attaching the fixed teeth.

Another of the advantages of this flapless protocol is no need for flap preparation and suture thereby saving time for the patient and surgeon.

The bone left following the minimally invasive dental extraction provide sufficient retention for the insertion of the dental implants. The socket contour is ideal for root shape implant system that require minimal preparation of the implant site. Inserting the immediate dental implant at the time of the dental extraction enables us to save time, preserve the gum and minimize the bone reabsorption which always takes place after a dental extraction.

The present study with a 1 year follow-up and a small sample yielded satisfied in implant success rate and peri-implant marginal bone loss. The protocol of minimal invasive extraction and flapless immediate implant placement is worthy of clinical application.

Keywords: Minimal Invasive Extraction Implant Placement

Minimally-invasive ablation or hepatectomy for liver metastasis from laryngeal cancer and nasopharyngeal carcinoma: our experience

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Purposes The effect of minimally-invasive ablation for liver metastasis from laryngeal cancer has not been described, and how is it about hepatectomy combined with dissection of the retroperitoneal multiple lymph node for liver and retroperitoneal multiple lymph node metastasis from NPC is still obscured. This article is about our experience of minimally-invasive ablation and hepatectomy for hepatic metastasis from laryngeal cancer and NPC.

Methods: One case with liver metastasis from laryngeal cancer and 2 cases with liver metastasis from NPC were treated by RFA or PEI. One case with liver and retroperitoneal multiple lymph node metastasis from NPC is treated by hepatectomy combined with dissection of the retroperitoneal multiple lymph node. All patients' liver function are Child A and PS (Performance Status) are 0-1.

Results: The patient suffered from laryngeal cancer is disease free survival now (69 months after operation). The case with liver and retroperitoneal multiple lymph node metastasis from NPC had not any complication after hepatectomy combined with dissection of the retroperitoneal multiple lymph node, recovered and discharged in January 5, 2015. The other 2 cases of NPC metastasis had not any complication after RFA for the liver tumors and both patients were tumor free survival more than one year.

Conclusions: Minimally-invasive ablation is one of the effective and safe therapy for liver metastasis from laryngeal cancer and NPC with CHILD A liver function. Partial hepatectomy and dissection of the multiple lymph node is safe for hepatic and retroperitoneal multiple lymph node metastasis from NPC without other organs metastasis.

Keywords: Radiofrequency ablation; percutaneous ethanol injection; Laryngeal cancer; Nasopharyngeal carcinoma; Liver metastasis

The first clinical trials of domestically produced Chinese minimally invasive surgical robot system "Micro Hand S"

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Conflict-of-Interest Disclosure Statement: The authors, Bo Yi, Guohui Wang, Jianmin Li, Zhi Son, Han Su, Juan Jiang, Shaihong Zhu all declare that there are no conflicts of interest.

Objective: Recently, our center launched the first clinical trials of the domestically produced Chinese minimally invasive surgical (MIS) robot system "Micro Hand S", including two cases of robotic appendectomy and one case of robotic gastric perforation repair. The "Micro Hand S" This new MIS robot, which was developed by Central South University in collaboration with Tianjin University, The clinical trials were an important component of the research regarding this domestic Chinese MIS robot system, the trials were authorized by the Ethics Committee of the Third Xiangya Hospital at Central South University.

Methods: From March to April 2014, 3 patients who met the included criteria were recruited and undergo either appendectomy or gastric perforation repair used domestically produced Chinese MIS robot system. All of the patients were followed for 6 months, and pre- and postoperative changes in the time in surgery, hospital stays, the total robotic setup time, the total robotic operative time, intraoperative blood loss, the total postoperative drainage amount, the period of bearing drainage tubes, the routine blood test and hepatorenal function were recorded.

Results: In these procedures, the domestically produced MIS robot system which was under control by master-slave motion mapping strategies provided 7 degrees of freedom of the surgical instruments and 3-dimensional visualization of the operative field. No intraoperative complications or technical problems were encountered. At a six-month follow-up, all patients were found to be progressing well, without evidence of adverse reactions.

Conclusions: The first domestically produced Chinese surgical robot system was found to be safe and feasible for use in selected patients, and it offers the advantages of low-cost and ease of use.

Keywords: Chinese minimally invasive surgical (MIS) robot system; robotic appendectomy; robotic gastric perforation repair; safety; feasibility

SHOULD WE THINK SMALL – SOUNDING NANOSURGERY

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Introduction: Nanotechnology, the manipulation of matter at the atomic and molecular scale to create materials with remarkable new properties, is a rapidly expanding area of research with huge potential in many sectors. It promises to revolutionize many areas of research, development and clinical application in medicine and particularly in surgery.

Objectives: To place into a sensible perspective an overview of present developments and application as well as projected ones emphasizing implications in surgery.

Methods: Nanotechnology is defined and its applications in surgery at present and in the future, outlined. The diffusion of the technology, its effects on clinical practice and research, as well as impacts on society and potential dangers are explored.

Results: A checklist that surgeons should keep in mind when considering the applications of nanotechnology to medical practice is indicated. Surgeons are encouraged to be informed and get involved in nanotechnology applications. Failure to do this would have adverse consequences on the surgical profession and on patients.

Conclusion: Imagination is essential to develop new ideas. The next phase of innovation, however, requires testing and quality control. If this is done, we could confidently embrace the drastic changes that will occur in surgery stemming from developments in nanotechnology. Though change does not always result in progress, there can be no progress without change.

THE SAFETY AND EFFICACY OF DIFFERENT METHODS FOR APPENDICEAL STUMP CLOSURE

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Background: The most critical point of appendectomy is the Closure of the Appendiceal Stump (CAS). Insufficient closure will lead to leak from the stump. In open technique the stump is classically suture ligated but different techniques for closure is used in laparoscopic appendectomy procedures for CAS.

Methods: In this retrospective clinical study we tried to compare the safety and efficacy of the use of endo-loop ligation, hem-o-lock clip application, both endo-loop and hem-o-lock clip application and Endo-stapler use in CAS in laparoscopic appendectomy surgeries. These cases were subgrouped into 4 according to CAS. These 4 groups were compared for the stump leak.

Results: A total of 232 laparoscopic appendectomies were performed in 5 years. In the endoloop group there were 183 patients and the hem-o-lok group was composed of 32 patients. In 14 cases, endoloop and hem-o-lok clip were both used. In 3 cases, vascular endo-stapler was used due to the enlargement and severe inflammation of the appendix base. No specific intra-operative or postoperative complications, stump failure were observed in either group.

Conclusion: The use of endoloop ligatures, hem-o-lok clips or both together for CAS in laparoscopic appendectomy is a feasi-

ble, safe, fast and cost-effective procedure in patients with a mild to moderately inflamed appendix base. In the cases of enlarged and severely eflamed, wide appendix stump endo-stapler can be a safe option to prevent stump leak.

Laparoscopic operations with natural orifice speciemen extraction in abdominal oncology

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Background: Current techniques of laparoscopic colorectal procedures and gastrectomy require an abdominal incision for specimen extraction, which may reduce the advantages of laparoscopic surgery. We want to represent our experience in performing totally laparoscopic anterior resection (TLAR) and totally laparoscopic subtotal gastrectomy (TLSGE) with transvaginal extraction of the specimen.

Methods: In this study 136 consecutive patients operated in our clinic were included (75 TLAR for rectal cancer and 61 laparoscopic gastrectomy for gastric cancer). For specimen extraction in 21 female patients the natural orifice (NOSE) transvaginal route was used. TLSGE with D2 lymph node dissection was performed using five trocars and a conventional procedure. Reconstruction was performed using the intracorporeal Roux-an-Y method and an endo-GIA 60. Standard four ports technique was used for TLAR. Posterior colpotomy was done with 11-mm trocar. The specimen was extracted through vagina. Then anastomosis was done using circular stapler.

Results: The mean number of lymph nodes - 17.8. The average operative time 142 minutes for TLAR and 330 - for TLSGE. No death or complications occurred. The median hospital stay was 4.2 days after rectal surgery, 6.7 - after gastrectomy and was shorter then after conventional procedures. The level of postoperative pain was assessed by visual-analog pain scale and was lower after transvaginal extraction vs "traditional".

Conclusions: The NOSE approach is feasible and safe in abdominal oncology. This minimally invasive technique may provide an effective way to reduce postoperative pain and abdominal wall morbidity, with low complication rate.

Transanal surgery in rectal cancer the role of local excision

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Background: Transanal endoscopic microsurgery is a well-regarded minimally invasive technique for surgery of benign and selected malignant rectal lesions (T1/T2, N0). The aim of this retrospective study was to analyze the long-term result of introducing the TEM procedure in two surgical centers by evaluating surgical morbidity, mortality and local recurrence rate.

Methods: 297 patients were treated using the TEM technique in 18 years experience. Full-thickness excision was performed in 115 patients with cancer (final pathologic exams) and 182 partial or full thickness in adenomas. All patients with cancer stage pT2/3 after final microscopic examination were treated with conventional, radical surgery. Analysis of TEM cancer patients (T1N0M0) was done and compared with conventional surgery

group (24 vs. 34 pts). In both group follow up was performed including anorectal manometry procedures.

Results: 2 patients died because of surgical complications (sepsis). Minor complications (such as urinary retention, bleeding etc.) occurred in 12%, whereas major complications (wound dehiscence, fecal incontinence) were found in less than 7% patients. At mean follow-up of 12 months local recurrence rate was reached 5.6% in the adenoma group, and 9% in cancer.

Conclusion: TEM was effective treatment for rectal adenomas with low morbidity rate. The long-term result of early stage rectal cancer in selected TEM patients were similar to radical surgery. TEM procedure had only temporary negative influence on the anorectal sphincter function.

New imaging technique for breast carcinoma; Cerrahpasa experience. Preliminary Report

Introduction: Breast cancer is the most common malignancy in women. Most effective method for treatment is early removal of cancer tissue. Widely used modalities in detection of breast cancer are mammography, magnetic resonance imaging (MRI), and ultrasonography. An alternative technique, which is in developmental phase, is microwave breast tomography (MBT).

MBT is specific for cancer tissues. It relies on high contrast of dielectric coefficient between healthy and cancer tissue. MBT aims three-dimensional mapping of breast's dielectric coefficient.

Methods: To evaluate the MBT in clinical settings, patients admitted to clinic with complaint of lump, pain or swelling in breast was referred to MBT after informed consent was obtained. In addition, voluntary patients with diagnosis of breast cancer waiting for surgery and already have a MRI were included to study. Pre-operative MBT data were obtained from these patients.

MBT data of each patient is graphed in "jet" colormap for comparison with pre-operative MRI and pathology reports of specimen.

Results: When dimensions of lesions detected in MBT compared with MRI and pathology reports, MBT dimensions were more congruent with pathology results Median (minimum-maximum) lesion dimensions of pathology, MBT and MRI respectively are: 37 (17 -48), 42 (35.6 -48.4), 25 (14 -44)

Dimension in pathology report (mm) (in order): 35, 48, 17, 41, and 37

Dimension in MBT (mm) (in order): 35.6, 48.4, 38, 42, and 43

MRI dimensions (mm) (in order): 44, 14, 25, 31, and 25

Conclusion: MBT result are more congruent with pathology result when than MRI, but larger series are required for further analysis.

Keywords: Breast Cancer; Microwaves; Diagnosis, Breast

Bariatric Surgery

Preoperative Cardiac, Pulmonary and Digestive Comorbidities of Morbidly Obese Patients Undergoing Bariatric Surgery: Morbidity, Assessment and Management

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Background: To investigate a proper preoperative assessment and management of preoperative cardiac, pulmonary and digestive comorbidities in morbidly obese patients undergoing bariatric surgery.

Methodology: A general description of comorbidities in bariatric patients was reviewed and a clinical practice path in assessment and management of comorbidities was summarized.

Results: Morbidly obese patients frequently carried serious comorbidities in cardiovascular, pulmonary and digestive systems. The most common abnormalities included hypertension, left ventricular wall hypertrophy, ST and T wave abnormalities, obstructive sleep apnea, ventilatory dysfunction, and nonalcoholic fatty liver disease. A routine specialized preoperative evaluation could find the potential abnormality and screen the appropriate patients. Prophylactic treatments obviously reduced the morbidity of peri-operative complications.

Conclusion: Comprehensive preoperative evaluation and proper management is essential to appropriately select and prepare bariatric patients, and minimize surgical risk.

Keywords: Morbid obesity; Bariatric surgery; Evaluation

Role of MicroRNA-98 in targeting IRS-2, regulation of insulin signaling and glucose uptake in the liver after bariatric surgery

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Background: Dysregulation of microRNA expression in various tissues and body fluids has been associated with several diseases, including Type 2 Diabetes Mellitus (T2DM). In this study, we measured the difference in the expression of microRNA in liver tissue of db/+ and db/db mice. And then, we hypothesized that bariatric (gastric bypass) surgery could change expression of a certain microRNA which may contribute to insulin resistance in obesity or T2DM.

Methods: We make use of db/+ and db/db to make models of bariatric surgery, then we examine the expression of microRNA after surgery comparing sham surgery. Using Luciferase assay we confirmed that microRNA-98 which may be related to the insulin resistance directly targets IRS-2 3'UTR. MicroRNA levels were measured by real-time PCR in db/db mice. Insulin signaling was detected by immunoblotting and glucose uptake. Involvement of IRS2 was studied with microRNA mimics and inhibitor. The role of microRNA in vivo was explored with microRNA antagonist.

Results: MicroRNA-98(miR-98) is decreased after bariatric surgery. Meanwhile we demonstrated that microRNA-98 increased in the liver of db/db mice comparing with db/+ mice. Overexpression of miR-98 decreases IRS2 protein levels and activity and inhibition of miR-98 by antisense oligonucleotides

increases IRS2 protein levels and activity. MicroRNA-98 can also affect the uptake of glucose in insulin-resistance cultured hepG2 cells. In addition, inhibition of miR-98 by antagomir improve the level of blood glucose in db/db mice through mediating expression of IRS2 protein.

Conclusion: We infirmed that microRNA-98 was related to bariatric surgery and it was up-regulated in db/db mice, and played a key role in insulin resistance by inhibiting IRS-2 protein expression. These findings provide novel insights into the molecular basis of insulin resistance, and implicate bariatric surgery may change change the expression of microRNA to improve insulin resistance.

Keywords: microRNA; IRS-2; Obesity; Bariatric surgery; insulin resistance

Bariatric Surgery for Comparing Roux-en-Y Gastric Bypass with Vertical Banded Gastroplasty: A Systematic Review and Meta-analysis of Randomized Controlled Trials

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Background: There exists a controversy over the efficacy of bariatric surgery for morbid obesity by using either Roux-en-Y gastric bypass (RYGB) or vertical banded gastroplasty(VBG).

Objective: It aims to assess the efficacy of bariatric surgery on body weight loss and its adverse events through a comparison between Roux-en-Y gastric bypass and vertical banded gastroplasty.

Methods: A literature search for studies published between 1980 and 2014 has been conducted in some databases as PubMed, Ovid, Web of Science and Cochrane to collect and evaluate the data of randomized controlled-trials of LRYGB versus LVGB for morbid obesity. Eligibility criteria have been generalized from studies of randomized controlled trials with ≥ 12 months of follow-up including individuals with a body mass index (BMI) ≥ 35 and bariatric surgeries in comparison between RYGB and VBG, and reports on body weight loss and adverse events.

Results: There were 7 RCTs eligible by the inclusion criteria. The outcome analysis involved a total of 638 patients. Compared with patients who had VBG, those who had RYGB had a lower BMI (OR: 2.63; 95% CI: 1.59–3.67; $P < 0.00001$), but there was a higher incidence of short-term complications among the patients treated with RYGB (OR: 2.51; 95% CI: 1.55–4.07; $P = 0.0002$; $P = 0.0002$), and the time consumption of their operations was also higher than on those treated with VBG (OR: 57.73; 95% CI: 8.74–106.73; $P = 0.02$; $I^2 = 93\%$; $P < 0.00001$). On the contrary, among VBG patients, the reoperations (OR: 0.46; 95% CI: 0.28–0.77; $P = 0.003$; $P = 0.002$) and revisionary surgeries (OR: 0.45; 95% CI: 0.45–0.77; $P < 0.00001$) of long-term complications was significantly higher than that in the group of RYGB patients.

Conclusions: Our meta-analysis demonstrates that the bariatric surgical treatment with RYGB may be more effective than that with VBG on morbid obesity. Though the related weight loss and the reoperations of long-term complications are low in the RYGB group.

Keywords: bariatric surgery; morbid obesity; weight loss; Roux-en-Y gastric bypass; vertical banded gastroplasty

Clinical allograft islets post-transplant 3 year for type 1 diabetes mellitus with a modified Edmonton protocol: 10 cases reported

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Objective: To evaluate the effect of islet transplantation for patients with type 1 diabetes mellitus (T1DM).

Methods: 10 cases of islet transplantations were performed on 10 patients with type 1 DM. The pancreases were digested by Liberase collagenase enzyme and islets were purified using continuous gradients of Ficoll-diatrizoic acid on a refrigerated COBE 2991 centrifuge. Cultured islets were infused by minimally invasive surgical approach to the liver via portal vasculature. Insulin dose, the level of blood glucose, C-peptide and the value of HbA1c were observed.

Results: The glucocorticoid-free immunosuppressive regimen was used. During the follow-up period (36 months), 6 recipients remained insulin-independent. The dosage of insulin decreased by 60% in 4 patients. The levels of blood glucose and HbA1c were all within normal range and liver and renal functions were normal. C-peptide level was normal. No complications related to islet infusion was observed.

Conclusions: Islet transplantation is effective and safe for treating T1DM, Long-term effect needs further observation.

Keywords: Diabetes Mellitus; Islet cells; Transplantation

Establishment and improvement for rat model of type 2 diabetes mellitus treated by Roux-en-Y gastric bypass operation

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Objective: To establish a rat model of type 2 diabetes mellitus treated by Roux-en-Y gastric bypass operation.

Methods: Forty adult SD rats were randomly divided into 2 groups: model group (n=30) and normal control group (NC, n=10). Model group rats were treated by Streptozotocin (STZ) intraperitoneal injection after 4 weeks feeding of high-fat and high-sugar diet. Rat model of type 2 diabetes mellitus were established successful after detection of increased blood sugar, cholesterol, triglyceride in model group compared with that in control group. Then twenty-eight rats with type 2 diabetes mellitus were randomly divided into 3 groups: Roux-en-Y gastric bypass opera-

tion group (RYGB, n=10), Sham operation group (SO, n=10), No operation group (NO, n=8), and were performed operation 1 week later.

Results: The blood sugar, cholesterol and triglyceride were increased obviously in model group compared with that in control group, the average of blood sugar was exceed to 16.7mmol/L. Meanwhile, "more eating, more drinking, more urining and weight loss" occurred in model group, so rat model of type 2 diabetes mellitus were established successful. The blood sugar, cholesterol and triglyceride in RYGB group were decreased at the first week after operation, and nearly down to normal level at the forth week after operation. The overall survival rate in RYGB group were increased to 80% by improved operation technique and enhanced perioperative management. All rats in 4 groups were alived at 8 week post-operation.

Conclusion: This improved technique is feasible for establishment of rat model of type 2 diabetes mellitus treated by Roux-en-Y bypass operation, this model can be observed and studied for long time, and will contribute to evaluation of long term effect of operation on type 2 diabetes mellitus and give more help in mechanism research.

Keywords: Type 2 diabetes mellitus; Rou-xen-Y gastric bypass operation; Rats; Animal model;

Short-term effect and safety analysis of bariatric surgery in adolescents

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Objective: To assess the short-term effect and safety of obese adolescents undergoing bariatric surgery, and evaluate the different ways of operation.

Methods: A retrospective observational study was performed, involving 29 obese adolescents (Age < 18 yr) who consecutively underwent bariatric surgery in the First Affiliated Hospital of Nanjing Medical University from Jun. 2010 to Jul. 2014, including two cases of gastric banding, sixteen cases of gastric bypass and twelve cases of gastric sleeve. Follow-up visits were scheduled at 1, 3, 6, 9, 12, 24, 48 months post surgery, the weight changes and related complications were recorded.

Results: All surgeries were performed laparoscopically and no serious complications occurred. Sixteen patients followed for more than one year. Mean percent excess weight loss at 1, 3, 6, 9, 12, 24, 48 months post surgery was 25.8%, 41.8%, 58.4%, 65.8%, 70.1%, 63.6%, 54.3%. The effect of short-term weight loss showed no difference between gastric bypass and gastric sleeve (nine months post surgery), but gastric bypass displayed a higher incidence rate than gastric sleeve in nutrition complications ($P < 0.05$).

Conclusions: Bariatric surgery is a safe surgery for obese adolescents which result in a significant weight loss. However relevant nutrition complications may occurred, therefore it is significant to sustain a long-term follow-up visit and nutrition intervention.

Keywords: Obesity; adolescent; Bariatric surgery; Gastric bypass; Gastric sleeve; Laparoscope

The application value of C peptide in metabolic and bariatric surgery on type 2 diabetes mellitus

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Objective: To evaluate the efficacy and feasibility of C peptide applied for metabolic and bariatric surgery on patients with T2DM (type 2 diabetes mellitus).

Methods: a prospective cohort study used in this study, patients with T2DM were accepted metabolic and bariatric procedures based on clinical trials established by clinic center. With more than 2 years follow-up, patients' parameters such as FPG, 2hPG, FCp, 2hCp, HbA1c, Cr et al were recorded for evaluated pre- and postoperative in 2 years. According to the value ratio of postprandial 2 hour C peptide and fasting C peptide, patients were divided into group of "2hCp/FCp > 2" and group of "2hCp/FCp ≤ 2". Then to evaluate difference of operations' effect between two groups by statistical analysis.

Results: There were 78 cases of patients with type 2 diabetes accepted operations, including 34 cases with complete remission (43.6%), 44 cases with improvement (56.4%), respectively. Compared to pre-operation, patients' FPG, 2hPG, HbA1c, FCp were significantly decreased after surgery ($P < 0.05$); 2hFCp after surgery demonstrated a downward trend. There were 62 cases in group of "2hCp/FCp > 2", including 28 cases with complete remission and 34 cases with improvement (56.4%). There were 16 cases in group of "2hCp/FCp ≤ 2", including 6 cases with complete remission and 10 cases with improvement (56.4%).

Conclusion: bariatric and metabolic surgery has been an effective, feasible, safe method in the treatment of patients with T2DM. Therapeutic effect of bariatric and metabolic surgery on "2hCp/FCp > 2" group was better than "2hCp/FCp" group. C peptide can be used to evaluate the effect of operation, prognostic indicators of operation with advantages of simple and easy.

Laparoscopic fundoplication with sleeve gastrectomy as a Potential Treatment of Morbidly Obese Patients with GERD, First Experience and Results

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Objective: To observe the efficacy of Laparoscopic fundoplication with sleeve gastrectomy.

Methods: The clinical data of 5 morbidly obese patients with gastroesophageal reflux disease (GERD) who underwent laparoscopic fundoplication with sleeve gastrectomy from February 2014 to October 2014 in People's Hospital of Xinjiang Uyghur Autonomous Region, after underwent revised sleeve gastrectomy which reserve a small part of fundus, then underwent esophageal hiatal hernia repair and funduplications which include Nissen fundoplication, Toupet fundoplication, Dor fundoplication.

Results: All procedures were successfully performed via laparoscopy. Among the 5 patients, 2 patients have underwent with Nissen fundoplication, 2 has underwent with Toupet, 1 has

underwent with Dor, and one also underwent laparoscopic cholecystectomy. The mean operation time was 156.8 (125~190) min, mean post-hospital stay was 5.7 (5~7) d. The follow up duration was 3 - 6 months, the mean weight lost was 13.1kg, 25.7kg, 37.3kg at 1, 3 and 6 months respectively, the excess weight lost was 24.7%, 47.3%, 65.8%. After operation the symptoms of GERD were relieved in all patients. Esophageal high resolution Manometry and acid measurement and endoscopy showed that 3 patients' Erosive esophagitis were cured. Post-operative blood pressure and blood glucose level were back to normal in 3 patients who combined with impaired glucose tolerance and high blood pressure. Mild hair loss happened in 2 patients, mild anemia in 1 patient, no other complications.

Conclusion: Laparoscopic fundoplication with sleeve gastrectomy would be an acceptable option for treating morbidly obese patients combined with GERD and or hiatal hernia.

Keywords: obesity; gastroesophageal reflux disease; bariatric surgery; laparoscopic sleeve gastrectomy; fundoplication

EFFECTS OF BARIATRIC SURGERY ON CHANGE OF BROWN ADIPOCYTE TISSUE AND ENERGY METABOLISM IN OBESE MICE

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Objective: To study the effect of different bariatric surgery procedures on GH / IGF-1 axis, brown adipocyte differentiation and energy metabolism in obese mice.

Methods: Obese mice were divided into 4 groups: adjustable gastric band (AGB group, n=15), sleeve gastrectomy (SG group, n=15), Roux-en-Y gastric bypass (RYGB group, n=15) and sham-operation (SO group, n=15). On 1day pre-op and 4 weeks, 8 weeks post-op respectively, we observed weight, metabolic index, then checked the content and metabolic activity of the brown adipose tissue between the shoulder blades by micro PET / CT. Then, we measured their change of energy metabolism. Lastly, we recorded serum GH/IGF-1 level, while measuring the changes in the brown adipose cell differentiation-related genes.

Results: By post op. week 4 body weight, serum blood sugar, the serum cholesterol of the obese mice had improved in bariatric groups compared to SO group. Serum GH and IGF-1 levels were significantly higher than pre-operation, the content and metabolic activity of brown adipose tissue had increased when compared before surgery. Differentiation factors from brown adipose cell were significantly stronger than pre-operation, energy consumption increased and respiratory exchange frequency decreased when compared to pre-operation. The effect was the most obvious in RYGB group, and in the SG group which demonstrated a better result than the gastric band group. With weight regain 8 week post-operation, the parameters above deteriorated in the operation group, which was significant in the GB group, and in the RYGB group the result were better than the SG group.

Conclusions: Bariatric surgery can raise GH/IGF-1 levels, subsequently contribute to the differentiation of brown adipose cell and promote a regeneration of brown adipose tissue, improv-

ing body energy consumption. This effect was most evident in the RYGB group.

Keywords: Obesity; Brown Adipose; Bariatric Surgery; Growth Hormone; Insulin-Like Growth Factor-1

A comparative study of the effect of gastric bypass, sleeve gastrectomy and duodenal-jejunal bypass on type 2 diabetes in non-obese rats

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Introduction: Bariatric surgery for type 2 diabetes associated with obesity has significant therapeutic effects on lasting weight loss result and easing the symptoms of diabetes. Different surgical method have not been compared in non-obese patients with type 2 diabetes. We evaluated three surgical approaches in established non-obese animal models of type 2 diabetes. The therapeutic effects of the surgeries were assessed by comparing preoperative and postoperative changes in body weight and monitoring biochemical indices related to diabetes, including blood glucose, insulin and GLP-1 levels. A clamp test was also performed to evaluate insulin resistance and improvement in insulin secretion after surgery.

Methods: GK rats (non-obese rats with type 2 diabetes) underwent RYGB, SG, and DJB surgery. The rats were observed for eight weeks after surgery to evaluate postoperative weight changes. Glucose, insulin and GLP-1 levels were determined 2, 4, 6 and 8 weeks after surgery. An OGTT test and the clamp test were used to evaluate glucose tolerance and insulin resistance.

Results: RYGB, SG and DJB group rats weighed significantly less than sham group rats at 6 and 8 weeks after surgery. The fasting-blood glucose levels of RYGB, SG and DJB rats were significantly lower than preoperative levels. The area under the curve of the OGTT test was 38.9±5.9mmol · h / L for the RYGB group, 50.9±2.9mmol · h / L for the SG group was, 46.8±3.3mmol · h / L for the DJB group and 67.4±6.0mmol · h / L for the sham surgery group at 1 month after surgery. There was no difference in the levels of the SG and DJB groups. The glucose infusion rates were 18.3±2.7, 17.2±2.1 and 16.8±1.9 mg/(kg·min) in hyperinsulinemic-euglycemic clamped RYGB, DJB and SG rats, respectively, eight weeks after surgery. The rate in the sham surgery group was 6.3±0.9 mg/(kg·min). The areas under the plasma insulin curves 8 weeks after surgery in hyperglycemic clamped RYGB, DJB, SG, and sham surgery rats were 98.8±7.0mU · h / L, 84.4±6.1mU · h / L, 89.0±7.1mU · h / L and 22.6±2.6mU · h / L, respectively.

Conclusion: All of the three surgical method effectively alleviated type 2 diabetes and reduced insulin resistance in a non-obese rat model. Gastric bypass had the most significant effect.

Keywords: GK rats; gastric bypass; sleeve gastrectomy; duodenal-jejunal bypass; blood glucose; insulin; GLP-1; OGTT; clamp test

An analysis of reasons for metabolic diseases improved after laparoscopic Nissen fundoplication in 34 patients

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Objective: To summarize the reasons of improvement of the metabolic diseases after laparoscopic Nissen fundoplication.

Methods: Thirty-four patients whose diagnosis were gastroesophageal reflux disease or hiatal hernia underwent laparoscopic operations from Jun.2009 to Dec.2010, and were followed up at least 36 months. Outpatient follow-up, combination with telephone and letters were used. The follow-up included weight, symptoms (acid reflux, heartburn, dysphagia, sleep), changes in the types and doses of prescription drugs. After 1, 6, 12, 24 and 36 months of operation, the patients had gastrointestinal barium meal and endoscopy.

Results: Sixteen cases had metabolic problems in 34 patients, including 11 cases of hypertension, 6 diabetes and 3 hyperlipidemia (2 patients at the same time had hypertension and diabetes, 2 patients had hypertension and hyperlipidemia). A part of these patients' symptoms had been alleviated (oral medication reduction or even discontinuation) including 7 patients with hypertension, 2 cases with diabetes and 2 patients with hyperlipidemia.

Conclusions: The mechanism of improvement of this group during follow-up after Nissen fundoplication is still unknown. It is proposed to contain some possible reasons, for example: post-operative weight loss, gastrointestinal hormone changes, use of gastric fundus, which need further validation of the clinical and laboratory studies as well as the bulk of cases, multi-center follow-up study.

Correlative study between the effect of Roux-en-Y gastric bypass on type 2 diabetes and *Akkermansia muciniphila*

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Objective: The aim of this study was to compare Roux-en-Y gastric bypass (RYGB) therapeutic effect for the type 2 diabetes mellitus (T2DM) and the variation of *Akkermansia muciniphila*, and to compare the changes in *A. muciniphila* and gastrointestinal hormone. To investigate the mechanism of RYGB in the T2DM.

Methods: Goto-kakizaki (GK) rats subjected to RYGB surgery (GK-RYGB group), sham surgery (GK-Sham group), metformin (GK-MET group) and Wistar (WS) rats subjected to sham surgery (WS-Sham group) were investigated in this study. Fasting plasma glucose, body weight, food intake, insulin, and homeostasis model assessment of insulin resistance (HOMA-IR) were measured pre- and post-intervention.

Results: Our results revealed that RYGB improved both fasting plasma glucose levels and IR in GK rats by increasing the abundance of *A. muciniphila*.

Conclusions: The results suggested that the abundance of *A. muciniphila* post-RYGB influencing gastrointestinal hormone may be a possible mechanism underlying the improvement of T2DM following RYGB.

Early Changes of Gut Microbiota after Sleeve Gastrectomy on Non-Obese Rats

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Objective: Sleeve gastrectomy (SG) is one of the most effective treatments for obesity and its comorbidities. We analyzed the early changes of gut microbiota after SG on non-obese rats.

Materials and Methods: SG or sham surgery was performed on male Sprague-Dawley rats and fecal samples were collected before, 1 week and 3 weeks after surgery. Gut microbiota was profiled from fecal samples by high-throughput 16S rDNA sequencing.

Results: SG group rats weighed and ate significantly less than sham group rats. The community diversity index and the relative abundance of Firmicutes (*Ruminococcus*) in SG group is significantly lower than sham group 1 week after surgery, but the difference was not significant 3 weeks after surgery. Compared with the sham group, the SG group had a significantly higher relative abundance of Enterobacteriales 1 week and 3 weeks after surgery. Weighted UniFrac analysis showed the composition of distal gut microbiota was altered in both groups 1 week after surgery and back to the preoperative level 3 weeks after surgery.

Conclusion: The changes of distal gut microbiota was significant at 1st week after SG but didn't last into the 3rd week. Weight loss after SG may be not associated with gut microbiota.

Precise laparoscopic Roux-en-Y gastric bypass for obesity and metabolic diseases: no severe complications in 220 consecutive cases

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Objective: To investigate the efficacy and safety of precise laparoscopic Roux-en-Y gastric bypass (PLRYGB) in treatment of obesity and metabolic diseases.

Methods: Clinical and follow-up data of obese patients underwent PLRYGB in our department between 2011 and 2014 were analyzed retrospectively.

Results: A total of 220 obese patients were included in this study. All the PLRYGB procedures were successfully performed with no conversion to open surgery or death cases. Average operation time was (127±20.1) minutes, postoperative hospital stay was (5.1±1.3) days. No severe complications was observed. Percentage of excess weight loss in 1, 3, 6, and 12 month after operation was (27.5±7.8) %, (55.6±7.9) %, (76.2±7.8) %, (82.6±8.9) %, respectively. The improvement rate of co-morbidities such as fatty liver, hyperlipidemia, hypertension and type 2 diabetes mellitus were 88.6%, 91.6%, 74.6% and 83.5%, respectively..

Conclusions: PLRYGB modified and optimized the traditional surgical techniques which is not significantly increasing the operation time. It is safe and feasible. The postoperative weight loss effect is significant and it can effectively improve the related co-morbidities in low complication incidence.

Keywords: Gastric bypass; Precise surgery; Laparoscopy; Obesity; Metabolic diseases

Preciselaparoscopic sleeve gastrectomy results in low complication incidence for Asian obese patients: experience of 120 consecutive patients

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Objective: To investigate the efficacy and safety of precise laparoscopic sleeve gastrectomy (PLSG) in treatment of obesity and metabolic diseases.

Methods: Clinical and follow-up data of obese patients underwent PLSG in our department between 2011 and 2014 were analyzed retrospectively.

Results: A total of 120 obese patients were included in this study. All the PLSG procedures were successfully performed with no conversion to open surgery or death cases. Average operation time was (56±10.2) minutes, postoperative hospital stay was (5.0±2.2) days. No severe complications was observed. Percentage of excess weight loss in 1, 3, 6, and 12 month after operation was (26.3±8.1) %, (50.4±7.5) %, (65.1±8.1) %, (79.6±9.1) %, respectively. The improvement rate of co-morbidities such as fatty liver, hyperlipidemia, hypertension and type 2 diabetes mellitus were 76.3%, 80.2%, 68.7% and 79.6%, respectively..

Conclusions: PLSG modified and optimized the traditional surgical techniques which is not significantly increasing the operation time. It is safe and feasible. The postoperative weight loss effect is significant and it can effectively improve the related co-morbidities in low complication incidence.

Keywords: Sleeve gastrectomy; Precise surgery; Laparoscopy; Obesity; Metabolic diseases

The Effect of Sleeve Gastrectomy plus Side-to-Side Jejunioleal Anastomosis on Type 2 Diabetes Control in an Obese Rat Model

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Background: Sleeve gastrectomy plus side-to-side jejunioleal anastomosis (JI-SG), a relatively new approach in bariatric surgeries, has shown some promising result for treating obesity and metabolic comorbidities. Our aim of this study is to investigate the feasibility and safety of JI-SG in weight loss and diabetes remission compared with sleeve gastrectomy (SG) and Roux-en-Y gastric bypass (RYGB).

Methods: Forty 10-week-old male ZDF rats were randomly assigned to four groups: control, SG, JI-SG and RYGB. Body weights, food intake, levels of gut hormones like ghrelin, insulin, glucagon-like peptide-1 (GLP-1), lipid were measured.

Results: The rats in SG, JI-SG and RYGB groups showed less food intake and more weight loss 2 weeks postoperatively compared with those in control group. Among which, the rats in JI-SG group achieved more weight loss (average 242.7±11.2 g) compared with those in SG and RYGB group (401.4±15.1g in SG and 298±12g in RYGB, $P < 0.01$). All the surgery groups showed a decreased level of fasting insulin, serum glucose, lipid, and increased the level of GLP-1 post-operatively. JI-SG group had lower fasting ghrelin levels compared with RYGB group (168±19.8ng/L VS 182±16.7ng/L, $P < 0.01$), and higher fasting GLP-1 levels than SG group 12 weeks postoperatively (1.99±0.11pmol/L VS 1.71±0.12pmol/L, $P < 0.01$).

Conclusions: Sleeve gastrectomy plus side-to-side jejunioleal anastomosis induce high level of ghrelin and GLP-1 and improve glycemic control in Zucker diabetic fatty rat. Compared with SG and RYGB, this relatively new surgery appears to a simple, considerably safe, and more effective procedure for treating type 2 diabetes and obesity in this animal model.

Keywords: Sleeve gastrectomy, Jejunioleal anastomosis, Roux-en-Y gastric bypass, Type 2 Diabetes, Zucker diabetic fatty rat

Does It Mean That Everything Is Fine When The Surgery Ended Uncomplicated? Venous Thromboembolic and Bleeding Conclusions: of Applying Low Molecular Weight Heparin Following The Obesity Surgery

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Background & Aims: Inflammation, Venous stasis and hypercoagulability during and following obesity surgery jointly increase the risk of post operative venous thromboembolism (VT). The forecasted risk for clinically primary symptomatic VT without thromboprophylaxis is approximately % 5 pending in first two months following obesity surgery, with being greatest risk during the first week after surgical process. The purpose of this study was to describe the incidence of symptomatic PVT, clinically-relevant bleeding, and death in patients applying Low molecular weight heparin (INR ranged to 1.5 to 2.5) for two months after surgery.

Methods: We have detected the medical database of 312 patients who underwent obesity surgery in our clinic between the years September 2012 to September 2014 retrospectively. Patients who have an primary diagnosis of VT or Pulmonary emboly (PE) and treating anticoagulant therapy for another indication were identified. Demographic patterns, BMI values, length of stay in hospital, additional diseases, were reported for the VT and PE populations.

Results: A total of 312 patients with obesity surgery included in the analysis overall two years. There were 216 females (% 69.2) and 96 males (% 30.3) with a mean age of 37.1 years (range 24 to 66). Eight cases of symptomatic VT (% 2.5) including three pulmonary emboli (PE) (% 0, 96) were identified within 60 days after the surgery. Clinically bleeding occurred in 11 patients (% 3.5) during Low molecular weight heparin prophylaxis and there has been only one mortality within two months of obesity surgery.

Conclusions: Low molecular weight heparin prophylaxis with a target INR of 1.5 to 2.5 for four weeks after obesity Sur-

gery resulted in minimal rates of symptomatic VT and bleeding. Future studies evaluating VT prophylaxis after obesity surgery should include Low molecular weight heparin to identify the equilibrate risk of symptomatic VT and postoperative bleeding

Evaluation Of Outcomes In Laparoscopic Port Site Closure methods Which Is More Useful? Carter Thomason Closure System Or Hand Stitch Method

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SELCUK UNIVERSITY DEPARTMENT OF GENERAL SURGERY

Background & Aims: Laparoscopic Obesity Surgery (LOS) is a necessity and costeffective surgical process in order to decrease the postoperative morbidity and ensure the early return to work. Widely used ports site closure apparatus indispensable incorporate muscle and subcutaneous fat. We aimed to compare the endoclose technique(Carter Thomason Closure System, CTC) and hand stitch with the Portege by aid of farabeuf retractor (HSP) method in obese patients at our advance clinic.

Methods: Data was gathered for a total of 186 morbid obese patients over the study of 2 year from November 2012 to November 2014. These patients were choosed from experienced surgeons laparoscopic sleeve gastrectomy operations.All of the patients were compared with demographic datas, body mass index (BMI), additional analgesic doses time, morbidity and complications retrospectively.

Results: In this study we identified 186 obese patients who had performed laparoscopic sleeve gastrectomy. Sex of the all patients were 128 (%69) females, 58 (%31) males.The mean age of all patients was 41.2 years (range 28 to 63). Of these, 103 (%55) patients underwent port site closure using the Endostitch (Carter Thomason Closure System, CTC) and 83 (%45) patients underwent port site closure with the hand stitch with postoperatively, all patients have taken analgesic doses by nurses 3 times per day. Demographic datas, body mass index (BMI) were determined similarly however additional analgesic doses time and morbidity resultwere significantly different in both of the groups. Analgesic drug time in group CTC were longer than the HSP group also the morbidity of CTC group was lower than HSP group because of happening lower rate of fat necrosis and achieve lesser tension. We have not seen any mortality in patients after laparoscopic sleeve gastrectomy (LSG).

Conclusion: Laparoscopic port sites with the Endostitch suture(CTC) has a significantly feasible and less rate of morbidity than using HSP apparatus.This is an interesting use for an apparatus used for closing more controlled port sites in less controlled ones.Although no remarkable differences were seen in the post-operatively period in LSG, subjectively, the model was found to be beneficial and we would recommend it to other experienced surgeons to utilize.

Sleeve Gastrectomy and micronutrient deficiencies: our experience and new prospective.

Presentation Methods: oral

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Topic: Bariatric Surgery

Introduction: Sleeve gastrectomy (SG) is one of the bariatric procedure that is most commonly used. Despite not causing mal-absorption, deficiencies in micronutrient after SG are frequent, despite routine supplementation.

Objectives: To assess some vitamins and minerals deficiencies in patients underwent SG and to evaluate patient's adherence in following the prescribed supplementation.

Materials and Methods: Forty obese patients (25 females and 15 males) with mean Body Mass Index (BMI) of $45.4 \text{ Kg/m}^2 \pm 6.1$, mean age 45.5 ± 12.2 years were enrolled and underwent SG. Patients were assessed for nutritional status, as regards iron, zinc, vitamin D, folic acid and vitamin B12, every three months throughout 12 months. The patient adherence in following the prescribed supplementation were also assessed by using pill's count method .

Results: The following deficiencies were observed: iron in 18%, zinc in 34%, vitamin D in 32%, folic acid in 22% and vitamin B12 in 18%. Patient's adherence in following the prescribed supplementation was 33% while patient's non-adherence was 67%.

Conclusion: In this study, we showed that despite routine supplementation, deficiencies in micronutrient after SG are present. In addition, we showed that those deficiencies could be also attributed to the fact that patients do not follow regularly, or even abandon, the prescribed supplementation. Considering that patient adherence in following the prescribed supplementation is crucial to avoid micronutrients deficiencies, we are actually studying the clinical efficacy and *compliance* of micronutrient supplement drops for the treatment of vitamin and mineral deficiencies of obese patients after SG.

Surgical Training and Education

Advancing robotic surgery skills with a simple novel model for robotic training

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Background: Several issues often bothers the surgeon at the beginning for robotic surgery. The coordination with the 3 arms, the compensation of the loss of tactile, with actually consist of two parts, the visional information and the acrobatic endowrist,

when more precise and tender maneuver could be achieved, yet such familiarity should have been achieved before a real operation is performed, esp. when some key steps such as anastomosis or suturing are required intraoperatively. However, current training models fail to achieve such tasks.

Object: To explore the role of advancing the robotic surgery skilling by introducing a simple novel model for robotic training targeting complex tasks.

Methods: The training model tool was designed based on a market available silica gel pancreatic stent, the training da vinci robotic instruments are used on da vinci Si. Four surgeons of similar level laparoscopic anastomosis skills were divided into two groups with two surgeons in each, two were exposed for such training as in the training group and two were not as in control group, all of them have been credential for da vinci robotic surgery before being enrolled in this study. Both group were assessed on their performance in the gastrojejunostomy during robotic surgery. The time consuming was recorded and compared, the assessment of the anastomosis technique by a surgeon provided with the video without knowing the program was performed. General guidelines for assessing the skills were described as: 1. Depth perception 2. Force/Tissue handling. 3. Dexterity 4. Efficiency.

Results: As compared to controls, the training group showed a trend to greater improvement in ability to perform both robotic suturing on an anastomosis model and the real practice after the assessments and a statistically significantly reduce in the time consuming.

Conclusions: The anastomosis model was rated favorably for both anatomic realism and potential as a training tool for advancing the robotic surgery skills through quality improvement exercise.

Circulating tumor cell: A potential biomarker for monitoring the therapeutic effect of DC-CIK cell therapy

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Objective: Circulating tumor cell (CTC) has been proved its value in early diagnosis, monitoring recurrence and metastasis, and evaluating the chemo-sensitivity and prognosis. In this study, we investigated the effect of DC-CIK cell therapy on CTC.

Methods: 60 patients with cancer in alimentary tract received DC-CIK cell therapy were enrolled in this study (20 hepatobiliary origin, 40 gastrointestinal origin). Blood samples were collected before and after cell therapy. CTC was detected by negative enrichment and FISH.

Results: CTC can be detected in about 80% patients. The CTC number decrease in all the positive patients, even turn into negative in some patients after first time treatment. In the follow-up treatment, only 3 patients showed disease progress. The CTC number was increased in these progressed patients and stable in other progression free patients.

Conclusions: DC-CIK cell therapy can eliminate the CTC, which could potentially be a biomarker for monitoring the disease progression. But it needs to be validate by large size clinical trial.

E1A-engineered Human Umbilical cord Mesenchymal Stem Cells as carriers and amplifiers in adenovirus delivery

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Objective: Gene therapy is an attractive and novel approach for patients with hepatocellular carcinoma (HCC). Nevertheless, transgene delivery remains a challenge in clinical trials. The viral vehicles at present have two major problems: first, they often target only tumor cells adjacent to the injection site; second, they cannot be efficiently delivered to the metastatic tumor sites. In this study, we explored a new targeted system based on human umbilical cord-derived mesenchymal stem cells (HUMSCs), which were engineered by E1A to deliver adenoviral vehicles to tumor or metastatic tumor sites, then replicate and assemble into new adenoviruses which carried therapeutic genes against the model of hepatocellular carcinoma.

Methods: HUMSCs were isolated, identified, transduced by adenovirus carrying therapeutic gene IL24 driven by hTERTp, and followed by LentiR.E1A transduction. We detected this virus-loaded HUMSCs could support adenoviral replication by quantitative PCR. The migrating ability of virus-loaded HUMSCs was measured by transwell assay in vitro and by bioluminescence imaging in vivo. The tumor suppressing effect in combination with 5-FU was then evaluated in vitro as well as in vivo.

Results: The isolated HUMSCs had a typical spindle shape and resembled fibroblasts. They were positive for specific markers CD73, CD90, CD105, and had a differentiation capability for adipogenesis, osteogenesis under differentiating conditions in vitro. The virus-loaded HUMSCs could support adenoviral replication and specifically migrated to HepG2 tumor cells in vitro and in vivo, without affected by adenoviral and lentiviral co-infection. Ad-hTERTp-IL24 specifically inhibited the growth of HepG2 cells ($P < 0.01$), but not the normal cells MRC-5. This inhibitory effect was enhanced by low dose of 5-Fu (1 $\mu\text{g/ml}$ and 2 $\mu\text{g/ml}$), due the expression level of coxsackie adenovirus receptor (CAR) and integrin $\alpha\text{v}\beta 3$ on the tumor cells was significantly increased in response to low dose of 5-Fu treatment causing the higher viral uptake. In vivo, compared with control treatment groups, LentiR.E1A and Ad-hTERTp-IL24 co-loaded HUMSCs exhibited significant antitumor activity, especially in combination with low dose of 5-Fu ($P < 0.01$).

Conclusions: Our result provide a promising targeted gene therapeutic strategy dependent on the tumor tropism of HUMSCs, to improve the outcome of virotherapy for tumor patients especially with metastatic diseases.

WEST REACHES OUT TO EAST – SURGEON, IDEALIST AND HERO: HENRY NORMAN BETHUNE

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Introduction: There are few surgeons who have gained wide popular acclaim in their native country and hardly any in a foreign one. Henry Norman Bethune is honoured as a surgeon and as a hero in the most populous country in the planet, 75 years after his death.

Objectives: To rekindle the respect in those who know that this personality might represent East – West cooperation and understanding, and to introduce him to those in the West who never had the opportunity to learn about him.

Methods: The presentation traces how Bethune is remembered today in China and at home. His ancestry, early influences, his short life, private and public are outlined. His professional and political activities are explored in more detail, explaining his convictions. This is represented by genuine photographic evidence of historical importance of a number of events and different phases of Bethune's life.

Results: (Henry) Norman Bethune's selflessness dedication to his profession and his cause far outshine his 'difficult' character. His memory should encourage and foster east-west cooperation.

Conclusion: We have a lot to learn from this visionary surgeon who pioneered modern east-west understanding and whose strong personality symbolizes the present cooperation between the Chinese College of Surgeons and the European Society of Surgery.

SENSITIVITY of 18 F-FDG PET in EVALUATION of SOLITARY PULMONARY NODULES

Farise Yilmaz

Introduction: The solitary pulmonary nodule (SPN) may be an early sign of lung cancer. Due to the difficulties of radiological imaging techniques in differentiation of benign/malignant nodules, functional imaging techniques like 18 F-FDG PET are required in patients diagnosed with SPN. The aim of this study was the evaluation of the role of 18 F-FDG PET in differentiation of malignant/benign SPN by some characteristic findings in 18 F-FDG PET. Moreover, among the nodules with histopathologically diagnosed as benign, malignant or metastatic, the SUVmax and Hounsfield Units (HU) of 18 F-FDG PET imaging were also aimed to be compared to assess the role of 18 F-FDG PET in discrimination of malignant/benign SPN.

Material and Methods: Among the patients evaluated with PET-CT with the pre-diagnosis of pulmonary nodule or non-pulmonary malignancies, in Konya University Meram Medical School Nuclear Medicine Department, 241 patients (167 male, 74 female) diagnosed with pulmonary nodule were enrolled in the study. In visual evaluation of PET-CT of all patients, there was only one nodule in lung parenchyma. The diameter in cm, location as central or peripheral, regularity of borders, presence of calcification and HU and Maximum standardized uptake values (SUVmax) values with quantitative analysis of all nodules was recorded. The histopathological evaluation of nodules was 241 patients and they were also recorded.

Results: In comparison of mean SUVmax values in regards to the characteristic findings of nodules in 18 F-FDG PET, the mean SUVmax value of patients was statistically significantly higher in patients with the nodule diameter ≥ 1 cm, centrally located nodules, or nodules with irregular borders.

Conclusion: In malignant/benign differentiation of solitary pulmonary nodules with the diameter of higher than 1 cm, 18 F-FDG PET plays an essential role; however, for the nodules smaller than 1 cm in diameter, in small, single metastatic nodules and some benign nodules with high SUVmax values, 18 F-FDG PET may be unsatisfactory. However, it is clear that, in especially undetermined nodules, 18 F-FDG PET is an important complementary tool in diagnosis.

Could Preinflammatory Markers Forecast The Prognose In Patients Who Have Breast Cancer?

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Background & Aims: Breast cancer is the most common malignancy betwixt females and its incidence has increased greatly in recent years. Demographic datas, tumor size, histological properties, and rates of hormonal receptors are used for the classification of patients who have breast malignancy for prognostic purposes and for determining the feasible treatment strategy. Recent studies have shown that some inflammatory markers might be a predictive modality of morbidity and mortality in cancer populations, like as breast, colon and pancreatic malignancy. However there is a bit studies regarding these markers especially (Procalcitonin and CRP) in breast cancer patients. The aim of our study was to determine the prognostic value of Procalcitonin and CRP in breast cancer patients.

Methods: Patients who were diagnosed and underwent breast surgery in our clinic over 3 year period were identified retrospectively. Complete blood count (CBC), biochemical, Procalcitonin (PCT) n and CRP test results were obtained within 1 week before the surgery. The detection limit of the Procalcitonin test was 0, 135. Also the detection limit of the CRP test was 0, 3 g/dl. The clinical features of these cases were reviewed according to Procalcitonin and CRP levels. Patients were followed up every 2 months for the first year after the operation, then annually.

Results: We evaluated retrospectively the data of 136 patients with breast Cancer (BC) during the years between June 2012 to November 2014. The mean age was 37.4 years (range 22 to 82). Out of the proper cases, Of 42 patients (%30.8) had decreased serum Procalcitonin and 22 (%16.1) had decreased serum CRP preoperatively. No statistically major association of the preoperative Procalcitonin level was found with the clinic variables. The only statistically major association found for preoperative CRP level was an infection it has higher in patients with illness before the surgery. According to our knowledges, our study detect the relationship between inflamatur markers and prognosis in breast cancer patients. We have found a minor relationship between high PCT in breast cancer prognosis and prediction.

Conclusions: Preoperative PCT and CRP is a suitable, easily measured prognostic indicator in patients who have breast cancer, especially PCT has additional predictive property. These results explain us a role to estimate the breast Cancer progression. Therefore more studies are required

The Evaluation Of Given Drugs And Mid-Term Results In Idiopathic Granulomatous Mastitis

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Background & Aims: Idiopathic granulomatous mastitis (IGM) is a infrequent, inveterate, noncaseating and inflammatory lesion of the breast that can clinically and radiographically mimic breast carcinoma. The most common clinical presentation is an unilateral, nipple retraction and eczematous formation constantly corporate with an inflammation of the superficial skin. The etiology of IGM is still vague, it may be linked to an underlying autoimmune disorder. The aim of this study was to review the mode of clinical presentation, diagnosis, treatment management and incidence of IGM in our clinic.

Methods: 65 patients who treated because of IGM in department of surgery were studied between January 2011 and September 2014 were included in this study retrospectively. Demographic knowledges, medical reports, radiologic findings and follow-up information were obtained from database of our hospital.

Results: Between January 2013 and September 2014, Of 75 patients were cured in our clinic. The mean age was 33 (range 23 to 46). The majority of patients were multiparous, premenopausal and admitted to hospital with a mass. incisional biopsy was performed in 20 (%26) patients, local excision was performed in 55 (%74) patients. most of the patients were cured by antibiotic average 3 weeks. We divided into three groups equally which has treated only by local steroid (group1), given only systemic steroid drug (group2) to all patients. The median follow-up time was 5 months (range: 2-16months). Recurrence was observed in four patients (%5). At the end of the 20th week, patients were evaluated for the regression of lesions. During the topical steroid treatment, breast lesions and erosions have light disappeared, however patients lesions who have treated in group 2 have markedly disappeared. This suggests that steroid treatment was a better drug for IGM but difference in the treatment was the applying type of drug.

Conclusions: Further studies with a greater number of patients are needed to determine the steroid therapy dosing and given way, and to better understand the efficacy for treating IGM.

How Can We Protect Women From The Suffering All Over The World? Pathfinder Drugs In Cyclical Mastalgia

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Background & Aims: Mastalgia is a common symptom experienced by women of reproductive age. In generally, painful breasts have become one of the most frequent reasons for admitting to hospital. Women who suffered from cyclical mastalgia lasting for more than 5 days a month, which was sufficient with sexual, physical, social and work-related activities. The aim of our study is to compare the effects of evening primrose oil drug (EPOD) therapy and diethyl-ammonium gel (DAG) on mastalgia.

Methods: Of 84 patients who suffered from cyclic mastalgia were examined retrospectively from February 2014 to November 2014. Patients have not any undergo breast surgery. Patients were divided into two groups: 40 patients with taken EPOD and the remaining 44 with applying DAG. In this study the demographic characteristics of patients, visual pain scala scores were collected retrospectively.

Results: A total of 84 patients were cured by drugs in 12 months period in our clinic., The mean age was 25.7 (range 19 to 42 years) in total group. Patients typically admitted with skin sensitivity and pain. The left breast upper outer quadrant was the most frequently region (54 patients % 64) also axillary pain (24 patients % 29) was the most frequent mid axillary region and back pain reported in (8 patients %9) little patients EPOD treatment, 1.7 mg b.i.d. for 3 months, was effective in 32 (%80) patients and in 26 (%59) patients with DAG treatment. the difference was statistically significant. However, 76.9% of patients with resistant to DAG therapy had a favourable response to EPOD treatment.

Conclusion: As a consequent of these applications confirm that EPOD could be given for patients who affected with cyclical mastalgia that are likely to benefit more than DAG treatment.

What Are The Neoteric, Successful And Economic Ways In Sentinel Lymph Node Biopsy Nowadays?

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Background & Aims: Sentinel lymph node (SLN) biopsy has been conceded as a standard procedure for early degree breast malignancy. This technique can be performed using triarylmethanes, methylene blue dye or a both combination. Whereas some authors report SLN detection and precision rates with triarylmethanes higher than methylene blue dyes and others. The general agreement of injection point is periaerolar area which can detect the major and functional lymph node. This study aimed to compare the success rates, efficacy and side effects of triarylmethanes, methylene blue dye of the patients who have admitted to our clinic.

Methods: The data of this study were obtained by clinic result of all patients who were performed sentinel lymph node biopsies between May 2012 - May 2014 retrospectively. The study group consisted of 72 patients who had suffered from breast mass. Of 38 patients (Group 1, G1) underwent lymphatic mapping using triarylmethanes by periaerolar intradermic injection. Of 34 patients (Group 2, G2) underwent only periaerolar intradermic injection by methylene blue dye. We obtained the demographic datas, size of tumor, stage and complications of the whole patients.

Results: Sentinel lymph node mapping was applied in 68 of 72 patients (%94). Demographic and histopathologic characteristics were not significantly different in both groups. Agents detected in sentinel lymph nodes % 88 in G1 and %72 in G2 of the cases. Agent uptake was higher in sentinel lymph nodes gathering triarylmethanes according to methylene blue dye. There was a bit but not a major difference detected (P 0.05). Exalted count rates were obtained by using more sized colloids. local side effects were detected in one patient in the G1 and three in the G2 group (P 0.05). However no systemic complications were observed in any patients.

Conclusions: Triarylmethanes were more successfully than methylene blue dye in sentinel lymph node detection. Sentinel lymph nodes having more agent uptake leaning to accumulate Triarylmethanes oftenly. Also frozen section method in histopathological way was prosperous in detecting disease in lymph nodes. As a result of this paper we think that methylene blue has a admissible discover rate, which may be a good alternative way in SLN biopsy.

Which Rotation Could You Prefer In Surgical Intervention? Comparison of Limberg flap and Karydakias flap techniques in pilonidal sinus Disease.

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Background & Aims: Pilonidal sinus disease (PSD) still remains a controversial disease for which modern surgery has not discover a current treatment. There are many surgical method described, varying from the simple incision, solely drainage, intraflexion, curettage and spontaneous wound healing to flap method, such as Karydakias, and Limberg. We aimed to study the Pilonidal sinus disease surgical treatment of involving excision and method of reconstruction in our clinic.

Methods: We evaluated retrospectively the data of 154 patients with Pilonidal sinus disease during the years between January 2013 to December 2014. Patients in both groups were retrospectively compared with demographic datas, body mass index (BMI), surgical flap procedures, wound healing, early return to work and complications.

Results: There were 120 males (%78) and 34 females (%22) with a mean age of 23.4 years (range 16 to 47). Complaints of patients diagnosed after the onset of the mean duration of 4 (range 1 to 8) months. Surgical process were applied to all the patients in order to get a clean margin. The mean number of sinuses was 3 (range 1 to 8). Limberg flap was performed in 58 (%48) of the patients, while the remaining 62 (%52) underwent the Karydakias flap technique. The mean age and gender distribution of both groups were similar and was not found a major difference between the groups in terms of complication development. Recurrence was observed at Karydakias flap group in 4 patients (%6).

Conclusion: In treatment of pilonidal sinus disease, the Limberg flap technique, is a preferable way due to its close treatment period, lower recurrence rates and early return to work time.

Generation of endoscopes versus colonoscopy Results

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Background & Aims: Endoscopic examination is the most accurate method for pathologic lesions diagnosis within large intestine. It can reveal colorectal neoplasm at preinvasive stage in asymptomatic patient, thus allowing simultaneous treatment. In recent years the amount and quality of endoscopic examinations have systematically risen. Technique of examination and

endoscopic equipment have changed. Electronic endoscopes with wider field of view and high resolution imaging with option of electronic colorization of mucosa have appeared. Mechanical construction of the endoscope has evolved allowing easier cecal intubation. The aim of this study was to compare result of colonoscopies, performed in asymptomatic patients in the same endoscopic center at two different periods of time separated by 12-years interval.

Material and methods: Retrospective analysis enrolled 3905 result of colonoscopies that were performed in a national screening program for early colorectal cancer detection, financed by the Ministry of Health. Examinations were performed in one Endoscopic Centre in 2000–2001 and 2013. According to the screening program guidelines patients aged 40–60 were included. None of the patients did present symptoms suggesting colorectal cancer. Analysis concerned frequency of pathological lesions detection, cecal intubation rate and adenoma detection rates.

Results: Patients were divided to two different groups according to year of examination. Group I involved 1505 patients examined in 2000–2001 and group II involved 2400 patients who underwent colonoscopy in 2013. Incidence rate of pathological lesions was 18.4% in group I vs. 30.7% in group II regarding polyps, 20% vs. 24% regarding diverticula, 1% vs. 1.3% regarding hemangiomas and 8% vs. 2.2% for inflammatory lesions, respectively. Colorectal detection rate was 1.2% in both groups. Adenoma detection rate increased from 11.2% in group I to 18.12% in group II.

Conclusions: New generation endoscopes and physicians who constantly improve their examination technique led to improvement of the detection rate of all polyps, adenomas and diverticula. Colorectal cancer detection rate still remains at the same level. The incidence of inflammatory lesions was less frequently observed in group II, what undoubtedly result from more restrictive qualifications of patients for screening endoscopy.

Pilonidal Sinus Of The Glans Penis: An Unusual Case

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Background: Pilonidal sinus is usually seen on sacrococcygeal area of human body, disease's pike is 20–25 age male group. A pilonidal sinus of the penis is a rare entity, with very few reported cases It is usually seen on man who have no circumcision, on the other hand it rarely seem at corona who have circumcised. Disease clinically presents at young, dark haired and hirsutic man population. In the treatment of this disease usually excision is the real behaviour.

Methods: In our case we explain the patient that have pilonidal sinus on the penis and who was 20 years old, brunette, circumcised. patient who seen pilonidal sinus after total removal applied to medical treatment.

Results: 20-year-old male patient admitted to a urology clinic with complaints of catarrhal ulcerative wound on the ventral side of penis, which was present for 3 months. During the physical examination, there was a 3x2 cm of crusted wound with a draining sinus in the middle. The serology and hematology test result of the patient were found to be normal. Excisional biopsy and primary suture were performed. Wound cultures were collected. Biopsy result were found to be compatible with pilonidal sinus.

Culture result presented normal skin flora and Gr(+) growth. The patient was administered with ciprofloxacin and ornidazole antibiotics as medical treatment and discharged. The sutures were taken without any complications on the 7th postoperative day.

Conclusion: As a result, despite being rare in the penis, pilonidal sinus should be considered as a priority in patients presenting with complaints of wound, swelling, secretion, and the treatment of patients should be planned and performed in a short time

Teaching and Learning Surgical Skill

Who took the surgery from the Chinese residents and how to compensate them

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Objective: To explore the reasons behind the phenomena that the surgical training in China is far from being regulated and sufficient and to provide a possible solution.

Methods: The reasons were analyzed from different angles, the resident's side, the attending's side, the hospital's side and the patient's side. All the possible root were discussed and compared with the training system in the USA. The according solution was introduced.

Results: The current Chinese surgical training system is far from being sufficient to provide the resident enough exposure for surgical training, the simulation system, though still a lot to be accomplished, is an alternative choice.

Conclusions: Surgical residents should be paid more attending for their hand on training, the simulation system may better meet the basic requirements in a safe and effective way.

MODERN METHODS OF PREDICTING THE START OF THE RECURRENT HEMORRHAGE

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Study: Complex observation of 143 patients with bleeding gastro duodenal ulcer which were on treatment in the centre of gastroduodenal bleedings of city clinical emergency hospital was conducted.

Materials and research Methods: On the third day was taken biopsy of mucous of stomach and duodenum is carried out near the area of the defect (1–1.5 mm). After that immunohistochemical research is carried out to define the activity of inducible NO-synthase using Scarpelli method. The level of activity of inducible NO-synthase is defined by the amount of cells, painted in blue in the field of view of a microscope. High risk of hemorrhage relapse is determined by the presence of more than 5 cells colored in blue within the field of the view. The character of bacterial semination peritumoral area told about high risk for

relapsing hemorrhage is set in case level of microorganisms of type *Klebsiella pneumoniae* and *Streptococcus b-haemoliticus* are present in biopsy materials in the amount of over 106 – 107. On the third day of stay in the hospital the patient I prescribed repeated definition of level of stable metabolites of NO in blood serum according to the methodology mentioned above. The high risk of relapsing hemorrhage is defined using the following criteria: if the level of stable metabolites NO increases 70% and more compared with the previous – high level; low level of relapsing hemorrhage – if the level of stable metabolites NO increases not more than 35–70% compared to the previous one; absence of relapsing hemorrhage – if level of stable metabolites NO increases less than 35% compared to the previous level.

Result: The application of the present method of defining the risk for stomach-intestinal relapsing hemorrhage of ulcerous genesis can be used in conditions of almost each medical establishment, it does not require expensive and sophisticated equipment and specialized trained personnel. High precision of diagnostics, rapid result (within 3 hours) and low price are significant in its application for screening patients with stomach-intestinal hemorrhages of ulcerous genesis.

Conclusion: Application of the used techniques has allowed to lower number recurrent bleeding from 10, 5% to 4, 2%

SENSITIVITY of 18 F-FDG PET in EVALUATION of SOLITARY PULMONARY NODULES

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SELCUK UNIVERSITY DEPARTMENT OF GENERAL SURGERY

Introduction: The solitary pulmonary nodule (SPN) may be an early sign of lung cancer. Due to the difficulties of radiological imaging techniques in differentiation of benign/malignant nodules, functional imaging techniques like 18 F-FDG PET are required in patients diagnosed with SPN. The aim of this study was the evaluation of the role of 18 F-FDG PET in differentiation of malignant/benign SPN by some characteristic findings in 18 F-FDG PET. Moreover, among the nodules with histopathologically diagnosed as benign, malignant or metastatic, the SUVmax and Hounsfield Units (HU) of 18 F-FDG PET imaging were also aimed to be compared to assess the role of 18 F-FDG PET in discrimination of malignant/benign SPN.

Material and Methods: Among the patients evaluated with PET-CT with the pre-diagnosis of pulmonary nodule or non-pulmonary malignancies, in Konya University Meram Medical School Nuclear Medicine Department, 241 patients (167 male, 74 female) diagnosed with pulmonary nodule were enrolled in the study. In visual evaluation of PET-CT of all patients, there was only one nodule in lung parenchyma. The diameter in cm, location as central or peripheral, regularity of borders, presence of calcification and HU and Maximum standardized uptake values (SUVmax) values with quantitative analysis of all nodules was recorded. The histopathological evaluation of nodules was 241 patients and they were also recorded.

Results: In comparison of mean SUVmax values in regards to the characteristic findings of nodules in 18 F-FDG PET, the mean SUVmax value of patients was statistically significantly higher in patients with the nodule diameter ≥ 1 cm, centrally located nodules, or nodules with irregular borders.

Conclusion: In malignant/benign differentiation of solitary pulmonary nodules with the diameter of higher than 1 cm,

18 F-FDG PET plays an essential role however, for the nodules smaller than 1 cm in diameter, in small, single metastatic nodules and some benign nodules with high SUVmax values, 18 F-FDG PET may be unsatisfactory. However, it is clear that, in especially undetermined nodules, 18 F-FDG PET is an important complementary tool in diagnosis.

Fast track in surgical units – the role of the perioperative nursing care

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Background: Fast track is a multi-modal approach, known and used in Western Europe. In Bulgaria, its application is limited. The purpose of the Fast track is a fast recovery of patients after surgery, reduction of the incidence and severity of postoperative complications, reduce the financial cost of surgery. The team carrying out this approach participate surgeon, anesthesiologist, nurse and therapist.

Aim of study: Aim of this study was to clarify the role of the nurse and the parameters of perioperative nursing care in fast track.

Methods: The authors analyze nursing care - preoperative and postoperative in various operations in the clinic endoscopic and general surgery, First MHAT, Sofia, Bulgaria. Preoperative role of the nurse consists in training and motivation of the patient. All its organs and systems must be brought into optimal condition for fast postoperative recovery. Postoperative role of the nurse focuses on the following activities: fast and early upright, quickly and early feeding and recovery of flatulence, fighting the pain, struggle and prevention of postoperative infectious complications, prevention of thromboembolic complications from, social adaptation in some populations and species operations. Criteria for quality of life after surgery were evaluated using Nottingham Health Profile and EuroQol - scoring systems.

Results: Using a protocol for fast track achieve shortening of postoperative hospital stay and decrease the frequency and severity of postoperative complications.

Conclusion: Fast track system is called the second revolution in surgery, after the introduction of laparoscopic operations. It allows reducing the complications, hospital stay and postoperative achieves high quality of life.

Tele-endoscopy by Internet

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Background & Aims: The quality of endoscopic examination depends on the quality of endoscopic equipment, experience of the endoscopist and preparation of the patient. Contemporarily electronic endoscopes make feasible to transfer image directly to external device which is subsequently linked to computer network and can be transferred further. Dynamic image viewed in real time is more accurately interpreted by a physician than a static one. The possibility of simultaneous voice contact makes teleconsultation sterling. The aim of this study was to present our own experience regarding endoscopic teleconsultations.

Materials and methods: Analysis enrolled examinations performed in endoscopic centres located in Lesser Poland district and in Denmark. Consultations took place in real time, consulting physicians had more than 10 years of experience in endoscopic procedures and over 10000 colonoscopies and therapeutic procedures performed. There were 84 teleconsultations via standard internet connection 10MB/s. Endoscopic Centres were equipped with Olympus 180 and 190 series linked to captured card. Each card had its own IP address, and the image was accessible through Internet login from anywhere. Consulting physicians used computers connected to Internet for tracing the image synchronously and giving advice.

Results: Teleconsultations were undertaken in 0.67% of all endoscopic procedures. Teleconsultations concerned difficulties in endoscopic image interpretation in 17 cases and decisions regarding further treatment in 67 cases. The consulting physician solved all problems concerning proper endoscopic image interpretation. In 57 cases the elective procedure was rejected. The elective treatment was continued in remaining cases. 3 patients had a complication of polypectomy that was endoscopically treated.

Conclusions: The opinion of independent consulting physician in difficult clinical cases regarding endoscopic procedures helps to understand the endoscopic image in real time and implicates a decrease in complications after endoscopic procedures.

Examination and Certification of Surgeon

Detection of 42 non-Recurrent Laryngeal Nerves with Intraoperative Neuromonitoring

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Purposes: 42 cases of non-recurrent laryngeal nerves (NRLN) were detected by IONM. We analyzed the anatomical and neurophysiological characteristics of all NRLN cases.

Methods: All patients were applied with IONM. With a standardized IONM procedure, all NRLN were detected at the stage of V1 stimulation before lobe dissection. All cases were photographed and EMG signals were recorded.

Results: All NRLNs were found at the right side, with 22 cases of type I (47.6%) and 20 of type IIA (52.4%). The total incidence of NRLN is 0.38%. All NRLNs were detected by a positive EMG response proximally but negative response distally of the vagus. The median latency of V1 EMG waveform is 2.25ms compared to 3.78ms of control group. Only 8 cases (19%) were found to have an anatomic variation of arch aortic preoperatively with CT examination. All NRLNs were totally dissected, fully exposed and successfully protected by IONM. No vocal cord palsy were found in postoperative laryngoscope.

Conclusion: NRLN can be detected by IONM before lobe dissection easily, a positive EMG response at the proximal vagus but negative response at distal vagus, or a significant shortened EMG latency of V1 signal both indicates an NRLN. Compared to finding an arch aortic variation via preoperative CT scan, IONM is more sensitive. Nerve injury of NRLN cases can be easily avoided by IONM.

Others

Prevalence, diagnosis and misdetection rate of intra-abdominal hypertension in critically ill adult patients: a single-center cross-sectional study

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Objective: To investigate the prevalence, diagnosis and misdetection rate of intra-abdominal hypertension (IAH) and intra-vesical pressure (IVP) in a mixed-population intensive care unit (ICU), and to explore the knowledge of ICU clinical staff of the guidelines published by the World Society of Abdominal Compartment Syndrome (WSACS) in 2013.

Methods: A one-day cross-sectional study based on the WSACS 2013 guidelines was conducted in the general ICU of Daping Hospital. The epidemiologic data and risk factors (RFs) at 24h after admission to ICU, 24h before the survey, and 24h during the survey were recorded. IVP measurements were conducted by investigators every 4h. IVP result of the same patients measured by ICU work staff and investigators were compared to evaluate the diagnosis rate. A questionnaire was used to investigate the extent of the knowledge of the guidelines.

Results: Thirty-two patients were included. The prevalence of IAH during the survey was 15.63%. The diagnosis rate of IAH was 20.00%. During each period all patients had more than one RF, which met the IVP measurement recommendation, but the misdetection rates were 90.63%, 96.88%, and 96.88%, respectively. Fourteen doctors and 5 nurses were surveyed. The average scores of the doctors and nurses were 27.14 ± 20.16 (0-60) and 16.00 ± 8.94 (0-20), respectively. None had studied the WSACS 2013 guidelines thoroughly.

Conclusion: Insufficient knowledge of the guidelines may be the main cause of the low IAH diagnosis rate and the high IVP misdetection rate. Future training should focus on disseminating and carefully following the WSACS guidelines.

Keywords: Intra-abdominal pressure; intra-abdominal hypertension; abdominal compartment syndrome; questionnaire; intensive care unit

Sister Mary Joseph's nodules secondary to intraperitoneal cancer: A report of 17 cases and mini literature review

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Purpose: To observe the clinico-pathological of patients with umbilical metastasis associated with intra-abdominal malignancy (Sister Mary Joseph Nodule, SMJN), and the outcomes in these patient underwent surgery.

Methods: A consecutive series of 17 patients with SMJN at Sun Yat-sen University from January 1980 to January 2011 were retrospectively analyzed. Ten of seventeen patients received surgery (surgery group), seven patients received conservative treatment (conservative group). The clinical features of patients and the effect of operation on patient survival were investigated. The difference between groups and subgroups were calculated by Kaplan-Meier method.

Results: All 17 cases of SMJN were histopathologically diagnosed, and the results showed that metastatic lesions were derived from epithelial ovarian carcinoma (six cases), gastric adenocarcinoma (six cases), colon adenocarcinoma (two cases), endometrial carcinoma (one case), gallbladder carcinoma (one case) and undifferentiated adenocarcinoma (one case, without the identified primary foci). The median survival time was 13.5 months and the survival rate at six months, one year and two years were 60%, 20% and 10%, respectively in the group who underwent palliative surgery plus chemoradiotherapy. Whereas, the median survival time was decreased to 8.25 months and the survival rate at six months was 85.7% in those treated non-operatively, with no patient surviving more than one year in this group. Statistical analysis showed that the prognosis in palliative operation group is better than that in non-operation group ($P=0.0047$).

Conclusions: SMJN is a hallmark of advanced intra-abdominal malignancies and poor prognosis. Whenever possible, optimal debulking surgery plus chemoradiotherapy are necessary to prolong patients survival.

Keyword: Intra-abdominal malignancies, Umbilical nodule, Metastasis, Sister Mary Joseph Nodule (SMJN)

The research to abdominal surgical patients on postoperative pain of various therapeutic catheter: a prospective evaluation

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Objective: To investigate the surgical patients on postoperative pain of various therapeutic catheter.

Methods: a prospective study design, meet in this study of the criteria of patients; record the general data, nutritional risk screening; surgical treatment need to record the Catheter, nasogastric tube, abdominal drainage, bile duct drainage pipe, the drainage tube, central venous catheter and the peripherally inserted central catheter, using a visual analog scale method, recording in patients with catheterization after 24, 48 and 72 hours readings, pain degree evaluation of different catheter for patients caused by.

Results: In 157 patients, 70 males, 87 females; age 60.5 ± 12.5 years of age, (23.8 ± 3.2) kg/m² body mass index; total nutrition risk rate 42%; according to visual analogue scale readings, this group of patients with subjective feelings of pain degree is as follows: the nasogastric tube (4.91 ± 1.65), wound drainage

tube (3.56 ± 0.86), Catheter (3.04 ± 0.86) central venous catheter, (2.55 ± 0.89), peritoneal cavity drainage tube (2.38 ± 0.96), bile duct drainage tube (1.90 ± 0.72) and peripherally inserted central catheter (1.76 ± 0.79); this group of patients that tube to the hospital this time pain accounted for 44.9%.

Conclusion: Thenasogastric tube, the drainage tube and Catheter can increase the pain of patients, if it does not affect the treatment conditions, the less time to removal of the catheter, the better for the patients.

Keywords: Surgical operation; Nasogastric tube; Catheter; Pain degree

Baseline of serum procalcitonin following major abdominal surgery

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Background: Infectious complication is a severe complication after major abdominal surgery. Procalcitonin (PCT), widely used in intensive care units has already shown its usefulness for detection of infection. However, with the trauma and stress, its value in the postoperative period of major abdominal surgery is not well proven. The objective of this study was to determine the approximate range of PCT in patients without complication after major abdominal surgery and to evaluate PCT as a parameter for detection of infectious complications.

Patients and Methods: Between January 2011 and July 2013, a total of 432 patients undergoing major abdominal surgery were included in the study. Routine blood samples, for determining PCT level, neutrophil ratio, white blood cell count and temperature were obtained on postoperative days (POD) 1, 3, 7. Predictive values for each of the markers were examined.

Results: Multivariate linear regression analysis showed that complication affects PCT level on POD1, 3, 7. Patients with infectious complication exhibited significantly higher PCT levels (on POD 1, 3, 7), neutrophil ratio and temperature (on POD 3 and 7) than did those without complication. According to receiver operating characteristic analysis, PCT showed the highest AUC on POD1, 3, 7 (AUC=0.991 and 0.938, 0.964 respectively), which was much higher than the other parameters. In the patients without complication, the PCT level declined 33% and 35% from POD1 to POD3 and from POD3 to POD7 respectively. When determining the baseline of PCT level of patients after major abdominal surgery, we excluded those undergoing emergency surgery, with preoperative suspected infection or postoperative complication. The baseline on POD 1, 3, 7 was 1.25ng/ml, 0.98ng/ml, 0.58ng/ml respectively. With an AUC of 0.938, making the PCT ratio between POD3 and POD1 more useful for predicting infectious complication after major abdominal surgery. The best cutoff value was calculated at 1.83. Ratios greater than 1.83 suggested underlying infectious complication. The PCT ratio between POD7 and POD3 was not sufficient to differentiate patients with infectious complication from those not.

Conclusion: The baseline of serum PCT level on POD 1, 3 and 7 is 1.25ng/ml, 0.98ng/ml, 0.58ng/ml respectively. PCT level and its ratio could serve as a diagnostic tool for the early identification of infectious complication after major abdominal surgery, which

are much better than the traditional clinical parameter and may be of great importance to improve clinical decision making.

Effect of stable perfusion temperature of hyperthermic intraperitoneal chemotherapy on bowel recovery in cancer patients with palliative surgery

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Objective: The peritoneal carcinomatosis commonly occurs in end stage of various digestive malignances. Combined cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) have been widely accepted as effective palliative treatments for patients in end stage malignances. This study was designed to investigate whether a stable perfusion temperature could enhance bowel recovery after palliative surgery.

Methods: A consecutive series of 59 patients underwent CRS and HIPEC between January 2012 and July 2013 were retrospectively reviewed. All patients were artificially divided into two groups according to the stability of perfusion temperature: study group with stable perfusion temperature and control group with unstable temperature. After three cycles of HIPEC treatments, flatus time, enteral nutrition initiation time, defecation recovery time and postoperative pain (VAS score) were utilized to compare bowel function recovery between the two groups.

Results: In all, 33 of 59 (55.9%) patients underwent relatively stable hyperthermic perfusion treatments. Compared with those who had unstable perfusion temperature, the average flatus time (2.3 ± 1.2 vs 3.9 ± 2.2 days, $P=0.002$) and time of enteral nutrition initiation (4.3 ± 1.5 vs 6.7 ± 2.3 days, $P<0.001$) were significantly decreased in the study group, as well as the defecation recovery time (5.2 ± 2.1 vs 7.1 ± 2.9 days, $P=0.004$). Besides, the average VAS score was markedly decreased (4.5 ± 2.3 vs 6.3 ± 1.3 , $P<0.001$).

Conclusions: A stable perfusion temperature during the HIPEC therapy can promote bowel function recovery, reduce postoperative pain, and benefit the initiation of subsequent enteral nutrition therapy.

Keywords: gastrointestinal tumor; peritoneal dissemination; HIPEC; bowel function; stable perfusion temperature

MicroRNA-24 target PTEN and induce cisplatin resistance in human tongue squamous cell carcinoma

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Running Title: MicroRNA-24 target PTEN

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Background: miR-24 is one of the most significantly up-regulated miRNAs in tongue squamous cell carcinoma (TSCC). PTEN, one target gene of miR-24, plays an important role in the cell survival and cisplatin resistance of cancers. However, it remains unclear what role does function and mechanism of miR-24 and PTEN play in TSCC.

Methodology/Principal Findings: In this study, miR-24 expression was tested in 79 cases of paired TSCC and normal tissues and 8 TSCC cell lines by real-time PCR and the relationships between miR-24 expression and clinicopathological parameters were analyzed. Further, we demonstrated that deregulation of miR-24 was found to associate with high grade and late stage tumor. In addition, miR-24 induces cell survival and cisplatin resistance through targeting 3'-UTR region of the PTEN, which leads to downregulation of PTEN protein and activation of Akt pro-survival pathway.

Conclusions: Significance in conclusion, our result demonstrated that deregulation of miR-24 is a recurrent event in human tongue squamous cell carcinoma and associate with tumor progression and that miR-24 induces cell survival and cisplatin resistance primarily through targeting PTEN/Akt pathway. Thus, miR-24 could be important targets for intervention of this malignancy.

Keywords: MicroRNA-24, cisplatin resistance, PTEN, tongue squamous carcinoma

HIGH SYSTOLIC PRESSURE HAVE NEGATIVE INFLUENCE TO TRUE LUMEN EXPANSION AFTER TEVAR FOR AORTIC DISSECTION PATIENT BY INCREASING THE FALSE-TRUE LUMEN PRESSURE DIFFERENCE

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Objective: This study mainly focus finding the relationship between high blood pressure and true lumen expansion (TLE) after TEVAR for aortic dissection.

Methods: and Material: Our hypothesis is high blood pressure before TEVAR may have negative influence to TLE after TEVAR. The study is divided into two parts: first we established a computational model to calculate hemodynamic parameters, then we retrospectively analyzed our patients' follow up data to find the long-term effect.

Results: The model showed higher systolic pressure and bigger pressure gap between false and true lumen (PGBL) is statistical relevant ($R^2=0.999$). Clinical data showed there is positive correlation between systolic pressure and TLE after TEVAR at 49mm level below aortic arch ($R=0.631$, $P=0.01$). The TLE differences were statistically significant when divided by systolic pressure at 130mmHg ($P=0.005$).

Conclusions: High systolic blood pressure will lead to increased PGBL, then decrease TLE after TEVAR. So we suggest that keeping systolic pressure below 130mmHg is better for TLE after TEVAR.

Evaluation of serum homocysteine concentration in patients with adult moyamoya disease before and after encephalo-duro-arterio-synangiosis

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Objectives: This study was intended to investigate the clinical significance of serum homocysteine(HCY) concentration in patients with adult moyamoya disease before and after semi-encephalo-duro-arterio-synangiosis. The correlation between HCY and pathogenic mechanisms of moyamoya disease was discussed.

Methods: For this study, we selected 250 cases of patients with moyamoya disease, who were admitted to the Department of Neurosurgery at Hospital 307 between Jan 2009 to Jan 2013. All these patients had undergone semi-encephalo-duro-arterio-synangiosis surgery. According to the MRA images, the moyamoya disease was divided into 6 phase. Phase I, II, III are known as early stages while phase IV, V, VI are late stages. The serum HCY levels of the 250 patients in each stage of moyamoya disease and those of 250 people in normal control group were determined. Laboratory data was analyzed by statistical methods.

Results: 201 patients were ischemic stroke, accounting for 81.40%(201/250) of the 250 patients with moyamoya disease. 45 patients developed cerebral hemorrhage, accounting for 18.00%(45/250). 4 patients were hybrid, accounting for 1.60%(4/250). The pre-operative and post-operative serum HCY levels in moyamoya disease group were significantly higher than those in normal control group ($P<0.001$). There was no significant difference between pre-operative and post-operating serum HCY levels ($P=0.95$, $P>0.05$) or between the late stage group and early stage group in serum HCY levels ($P=0.79$, $P>0.05$). There were 89 patients with high pre-operative levels of HCY, accounting for 35.60%. No cerebral hemorrhage occurred in 32 patients with starting symptoms for cerebral hemorrhage. Among the 166 patients with starting symptoms for ischemic stroke, 145 patients recovered and 21 patients did not improve. There were 87 patients with high post-operative levels of HCY, accounting for 34.80%.

Conclusions: High HCY levels may be related with moyamoya disease. Surgery can not change levels of HCY. HCY test is needed to monitor the diagnosis and treatment effect of patients with moyamoya disease.

Keywords: Moyamoya Disease, Encephalo-Duro-Arterio-Synangiosis; Homocysteine;

Gut microbiome in organ and cell transplantation

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Purposes: We aim to review and discuss the alteration of gut microbiome after organ and cell transplantation, as well as the relationship between complications after organ and cell transplantation and gut microbiome dysbiosis. The role of intervention method including administration of antibiotic or probiotics in complications after transplantation are also discussed.

Methods: Studies exploring the role of gut microbiome in organ and cell transplantation and published in English are searched, read in detail, trying to get insightful and helpful conclusions.

Results: Animal and clinical studies have revealed that the population and diversity of gut microbiome in patients after transplantation such as liver transplantation, small intestine transplantation, hematopoietic stem cell transplantation and kidney transplantation, altered and had a tendency restoring to normal status. However, when complications such as infection, rejection and graft versus host disease (GVHD) occurred, the population and diversity of gut microbiome presented a significant dysbiosis mainly with a decrease of commensal bacteria and an increase of pathogenic bacteria. The distinct gut microbial profiling could be a potential diagnostic biomarker of complications such as acute rejection after transplantation. Taking probiotics and prebiotics could effectively regulate the gut microbiome and reduce the incidence of complications after transplantation. However, the role of intestinal decontamination in organ or cell transplantation is controversial. There are still few researches on the mechanism between gut microbial dysbiosis and complications and more studies are urgently to be performed.

Conclusions: The distinct gut microbial profiling could be a potential diagnostic biomarker of complications after transplantation. Gut microbiome have the potential of being a novel therapeutic target to restrict, improve and even reverse complications after liver transplantation. Studies should not only be performed in-depth, but also should be extended to other types of organ and cell transplantation, and then the development of transplantation has the potential of a new breakthrough.

THE SURGICAL TREND OF BREAST CANCER TREATMENT IN CHINA: A 15-YEAR SINGLE-CENTER RETROSPECTIVE STUDY

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Objective: To investigate the surgical trend for breast cancer treatment in China in the past 15 years.

Methods: Data of unilateral early breast cancer patients who underwent surgeries in our institute from Jan 1999 to Dec 2013 were retrospectively reviewed. Patients' baseline information, pathology characteristics, and surgical treatment modalities were included into analysis. Cochran Armitage trend test was used to estimate the changing trend of various surgical treatment options. Chi-square test and t test were used to estimate the differences between subgroups.

Results: A total of 18677 breast cancer patients were enrolled into the study. The mean age of patients at diagnosis was 51.44±11.39 years old. Among all patients, 37.0% were staged as 0-I, 37.5% as stage II, 15.7% as stage III and 9.7% cases could not be staged. A significant changing trend among surgical options was observed ($P < 0.001$). The proportion of radical mastectomy has decreased tremendously. Modified radical mastectomy experienced a trend of increase then decrease, which correlated with the increasing trend of sentinel lymph node biopsy (SLNB), so that a great number of axillary lymph node dissection surgeries were avoided. Breast-conserving surgery (BCS) increased from 8% in 1999 to 17% in 2007 and remained constant over the past few years. Compared with mastectomy, BCS was related with younger age, earlier pT/pN stage and ER-positive, PR-positive, HER2-negative disease ($P < 0.001$).

Conclusions: Mastectomy remained the major surgical strategy for breast cancer treatment. The relative low percentage of BCS was related to various factors. Modified radical mastectomy was gradually replaced by simple mastectomy and SLNB.

CLINICAL STUDY OF MINIMALLY MAXILLARY SINUS FLOOR AUGMENTATION

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Objective: To evaluate the clinical outcomes of the minimally invasive sinus floor elevation technique that improve the traditional surgery, which disadvantages were difficulty operation, huge trauma and postoperative reaction.

Methods: 35 patients (63 implant sites) with edentulous posterior maxilla non-pneumatized sinus were included in this study. The residual bone height (RBH) was from 2mm to 5mm. These patients underwent minimally modified maxillary sinus lift, the follow-up of 6–24 months. Operators drilled out 2 mm diameter sulciform bone window by a small round bur distance of maxillary sinus floor 3mm, flushing the alveolar ridge, instead of 7–11mm traditional bone window. Implants were placed simultaneously or delayed. Radiographs and clinical were taken at the same day, 1 week, 1 month, 3month, 6month, and every 6 months examination after final restoration.

Results: Six months later, the mean grafted heights of the minimally invasive external sinus floor were 4.75mm(4.08–9.89mm). In 63 implant sites, none were found with their membrane perforations. The cumulated survival rate was 100%.

Conclusion: Compared with the traditional surgery, the advantages of minimally invasive ones improvement included the following: ① little trauma; ② less leakage of bone substitute; ③ simple manipulation and short operation time; ④ less intraoperative complications and postoperative pain; ⑤ speedy recovery.

Keywords: Minimally Maxillary Sinus Floor Augmentation Implant Placement

Prognostic significance of ZEB1 expression in cancer-associated fibroblasts in breast cancer

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Purpose: Cancer associated fibroblasts(CAF) actively participates in tumor growth and metastasis. Zinc finger E-box binding homebox 1(ZEB1) plays an important role in epithelial-to-mesenchymal transition(EMT), invasion and metastasis, whose expression in breast cancer fibroblast has not been investigated. Our study aimed to elucidate the expression of ZEB1 and its prognostic value in breast cancer.

Methods: Patient follow-up data were extracted from database. Serial sliced tissueslides were immunostained for ZEB1, Vimentin, pan-CK. ZEB1 expression in cancer-associated fibroblasts was graded separately and correlated with clinicopathologic parameters and survival indicators.

Results: A total of 200 cases of breast cancer specimens were included in this study. ZEB1 expression in cancer-associated fibroblasts was noted, and there was no expression of ZEB1 in cancer cells. High expression of ZEB1 in cancer-associated fibroblasts portended shorter overall survival, and was correlated with distant metastasis ($P=0.015$, $P=0.037$). ZEB1 expression was positively associated with Vimentin expression ($P=0.024$). ZEB1 expression in the cancer associated fibroblasts was an independent indicator of survival ($P=0.045$, HR=0.219, 95% CI: 0.051–0.902).

Conclusions: Our data demonstrates that ZEB1 expression in cancer-associated fibroblasts is a strong prognostic factor in breast cancer. This observation suggests that ZEB1 expression in cancer associated fibroblasts may offer better predication of prognosis and serves as a potential therapeutic target.

The role of gut microbiome in the initiation and progression of cancer

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Purposes: we aim to review and discuss the relationship between gut microbiome and cancer initiation and progression.

Methods: the domestic and foreign studies about the relationship between gut microbiome and cancer initiation and progression are searched and read, trying to obtain insightful conclusions.

Results: the latest metagenomic sequencing technology has revealed that there are more than 1000 microbial species in the human gut. They are not only important to keep human healthy, but also closely related to the initiation and progression of some disorders. Recent years, more and more studies focus on the relationship between gut microbiome and cancer and there may be several mechanisms supporting it. Nearly all of human body cells harbor TLRs. Gut microbiome and its products, especially LPS, can combine with TLRs such as TLR-4, leading to the activation of nuclear factor κ B (NF- κ B), which resulting in the expression of the inflammatory cytokines such as tumour necrosis factor- α , interleukin (IL) -1, IL-6 and IL-8. Consequently, the survival advantages of precancerous or cancer cells will be enhanced. Gut microbiome can also lead to the initiation and progression of cancers such as colorectal cancer (CRC) through the biosynthesis of genotoxins interfering with the cell cycle regulation or directly damaging DNA, the production of toxic metabolites, and the activation of dietary heterocyclic amines to pro-carcinogenic compounds. So far, studies researching the association between gut microbiome and cancer mainly focus on CRC and hepatocellular carcinoma (HCC). Recently, animal experiment found that using of antibiotics to reduce the level of endotoxin or removing TLR-4 of hepatic cells could effectively slow down the growth of HCC. Researches on other cancers such as breast cancer, esophageal adenocarcinoma and prostate cancer are still very limited.

Conclusions: current studies have shown that gut microbiome are closely associated with the initiation and progression of certain types of cancers, mainly on CRC and HCC. The relationship is urgently needed to be studied in depth and breadth. Making clear the mechanisms how gut microbiome contribute to occurrence and development of cancer has the potential of providing a novel direction for cancer diagnosis, prevention and treatment.

A Multicenter Investigation on Nutritional Risk and Nutrition Therapy in Chinese Teaching Hospitals with Nutritional Risk Screening 2002

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Objective: The purpose of this study is to investigate nutritional status, the prevalence of nutritional risk, and implementation of nutrition therapy among patients in Chinese teaching hospitals.

Methods: Patients admitting to four Chinese teaching hospitals from April to December 2008 were enrolled. Patients were divided surgical wards (Departments of GI Surgery, hepatic surgery, Breast & thyroid surgery and Thoracic Surgery) and internal medicine wards (Departments of Gastroenterology, Pulmonology, Neurology and Nephrology). The Nutritional Risk Screening (NRS) 2002 tool was used for nutritional risk screening. Prevalence of malnutrition, nutritional risk and implementation rate of nutritional therapy were compared between patients in surgical wards and those in internal medicine wards.

Results: A total of 1278 patients were in the final analysis. Among them, 551 patients were in surgical wards (the surgical group) and 727 patients were in internal medicine wards (the internal group). There were no significantly differences in prevalence of malnutrition between surgical and internal groups (15.06% vs. 16.23%, $P > 0.05$). Compared to the internal group, the prevalence of nutritional risk was significantly lower in surgical group (27.22% vs. 39.48%, $P = 0.0001$). The percentage of nutrition therapy in those who are at nutritional risk was higher in surgical group (56.67% vs 34.15%, $P < 0.0001$). The percentage of nutrition therapy in those who are not at nutritional risk was lower in surgical group (13.97% vs 22.27%, $P < 0.01$).

Conclusion: Nutritional risk and inappropriate nutritional therapy are more common among patients in internal medicine wards than those in surgical wards. The NRS-2002 is a worthwhile nutritional risk screening tool for hospitalized patients.

Keywords: Nutritional risk; NRS-2002; Nutrition therapy; Hospitalized patient

Diagnosing aggressive angiomyxoma: A diagnostic model to preoperatively differentiate aggressive angiomyxoma from angiomyofibroblastoma

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Background: Aggressive angiomyxoma (AAM) is a distinctive, locally infiltrative, often recurrent mesenchymal neoplasm that typically develops in the pelvic and perineal region in women. Preoperative diagnosis of AAM is very important for developing rational surgical strategies. However, AAM and angiomyofibroblastoma (AMF) are difficult to distinguish preoperatively.

Methods: We reviewed 113 cases of AAM and AMF in case reports published in international databases. Objective clinical characteristics such as sex, age, duration of disease, surgery history, tumor location, greatest diameter of the tumor, and tumor margin definition were analyzed. We built a clinical diagnosis

model for preoperatively diagnosing AAM and used 17 cases from PKUPH (PeKing University People's Hospital) for model validation.

Results: Tumor size, margin definition, and tumor location were significantly predictive for AAM. We used these factors to build a clinical diagnosis model for diagnosing AAM. The sensitivity and specificity were 61% and 96%, respectively. When we validated the diagnosis model with the 17 PKUPH cases, its sensitivity and specificity for diagnosing AAM were 90% (9/10) and 71% (5/7), respectively.

Conclusion: We built a diagnosis model that distinguishes AAM from AMF with acceptable sensitivity and specificity. Furthermore, we proposed a standardized process for preoperative AAM diagnosis, which may guide rational surgical strategies.

DNA microarray for the detection and identification of clinically important bacterial samples from positive blood cultures

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Keywords: bacteremia; bloodstream infection; blood culture; diagnosis; microarray
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There are no potential conflicts of interest

Background: Bloodstream infections such as bacteremia are prevalent worldwide and are potentially life-threatening. DNA microarray-based assays have been developed, allowing for the simultaneous detection of multiple targets by using low sample volumes with greater accuracy and reduced assay times than currently used methods. Rapid identification of sepsis-causing bacteria could enable early initiation of species-specific antimicrobial therapy, leading to improved clinical outcomes.

Methods: We developed a prototype DNA microarray-based assay for the detection of 8 bacterial genera (16 species), which were selected based on our previous epidemiologic study in a tertiary care teaching hospital in Beijing, China. The array design consisted of 68 species-specific 20-mer DNA probes, which were amplified from reference strains. Evaluation of 92 positive blood culture samples from patients with clinically suspected sepsis were investigated for bacterial samples by using this DNA microarray. Operators of the test assay were not aware of culture results.

Results: Comparison of our results with conventional methods, the assay had a clinical sensitivity of 81.8–100% and a specificity of 100%. In our analysis of turnaround time for the 92 blood samples the median time difference was 28.9 h (including culture time), some results were available during the same working days.

Conclusion: This novel DNA microarray assay was highly sensitive, specific, and faster than culture-based method. This assay could be useful for applications in pathogen detection for clinical sepsis.

Madelung's Disease: A Retrospective Study of 7 Cases

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The purposes of the study: Madelung's disease is a kind of rare lipodystrophy disease characterized by benign, non-encapsulated accumulations of fat in a symmetrical manner. Approximately 200 to 300 cases have been reported worldwide. We did a retrospective analysis of six patients who underwent surgical treatment and one patient who underwent watchful waiting due to refusal of surgery, aim to evaluate surgical curative effects and prognosis. We also did a preliminary estimate of the relationship between alcohol and Madelung's disease.

The methods: According to preoperative examinations, which include type-B ultrasonic, CT examination, routine blood test, and the biochemistry complete set, surgery was carried out. Data included patient's age, sex, body weight, height, past history and social history has been gathered before the surgery. Serum chemistry was examined in 5 patients at preoperation and post-operation 1d, 3d. Outpatient follow-up has been done one month after hospital discharge.

Results: Mean alcohol intake among the six patients studied exceeded 500 mL daily. Two patients discontinued their alcohol usage after treatment. The lesions were most frequently found at the nuchal region, followed by the submental area, dorsal and deltoid areas, upper segment of arms, and abdomen. All excisions were successfully performed without complication. Pathology from all specimen samples reported nonencapsulated fat. No recurrence has been seen in the six surgically treated patients so far.

Conclusions: For improving local deformity and dysfunction, surgery is still the most effective treatment method at present. Patients need to cut out drinking and it's necessary to strengthen follow-up.

Percutaneous nephrolithotomy assisted by a ultrasonography-computerised tomography fusion navigation system: a preliminary ex-vitro phantom study

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Purpose: To investigate the feasibility and validity of the novel real-time ultrasonography (US) -computerized tomography (CT) imaging fusion navigation system for the percutaneous nephrolithotomy (PCNL).

Materials and Methods: The fusion navigation system consisted of a computer, an ultrasound scanner and an electromagnetic tracking (EMT) device allowing spatial localization of US image and insertion needle. An agar gel phantom with 5 tips simulating the target renal calyx was designed for this PCNL experiment *in vitro*. US images and pre-procedural CT images of the phantom were fused by the external markers registration methods. The relevant images of US and CT were displayed side by side on the screen, as well as the fusion images. Objective assessment was obtained by PCNL tests *in vitro* with or without the US-CT fusion navigation system. The overall success rates and the mean puncture time were assessed.

Results: The fusion navigation of US and CT images were achieved after external fiducial markers registration. Four urologic trainees were recruited to assess the navigation system. The success rate for US-CT fusion navigated VS traditional US guided puncture was 100% vs. 98% ($p > 0.05$), and the mean puncture time was 18s vs. 46s ($P < 0.05$).

Conclusion: Our fusion navigation system based on EMT decreased the procedural time remarkably and also had a high success rate. The system was feasible and valid for PCNL in a preliminary experimental study. Further *in vivo* and clinical studies are warranted to validate its efficacy.

Keywords: image fusion; percutaneous nephrolithotomy; real-time navigation

Preparation of volumetric skeletal muscle whole organ acellular matrix to regenerate contractile, vascularized, innervated muscle in rodent and canine model

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Introduction: Biologic scaffolds prepared from the extracellular matrix (ECM) of acellular mammalian tissues have been

confirmed the capability of stimulating restoration of significant muscle mass in injured sites. As the ECM of every tissue has a unique composition and structure that likely has direct effects on the host response, we hypothesize that skeletal muscle whole organ acellular matrix (SMWOACM), provides distinct advantages in muscle regeneration.

Methods: Prepare volumetric porcine SMWOACM by perfusion decellularization and the resulting matrix was characterized the structure, composition, in vitro bioactivity, and in vivo remodeling in rodent partial thickness abdominal wall defect model, compared to nonhomologous ECM. After heparin pretreatment, myogenic cells systemically seeded or non-seeded SMWOACMs were implanted for canine rectus defect repair with the vascular bed inside SMWOACM connected to host circulation.

Results: SMWOACM presented thorough decellularization while preserving the native architecture including hierarchical and complex three-dimensional organization of parallel arrayed basal lamina with tendinous connection surrounded by capillary network. SMWOACM contained growth factors, glycosaminoglycans, and basement membrane structural proteins. Myogenic cells proliferated, differentiated and arrayed well in SMWOACM *in vitro*. SMWOACM implanted area was shown better constructive remodeling response associated with scaffold degradation and myogenesis than nonhomologous ECM in rodent model. As to canine model, blood flow was maintained up to 48 hours followed by coagulation in SMWOACM, however the animals survived well without signs of infection and were still under follow-up.

Conclusion: SMWOACM facilitates constructive and functional remodeling in injured tissues and it is a promising scaffold for volumetric muscle defect repair.

Keywords: Skeletal muscle regeneration; Extracellular matrix; Whole organ acellular matrix; Vascularization; Innervation

Profiles of miRNAs in GISTs revealed by high throughput quantitative RT-PCR microarray

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Aim: To identify the microRNA (miRNA) expression profile of gastrointestinal stromal tumor (GIST) tissues that could serve as a novel diagnostic biomarker for GIST detection.

Methods: We performed a quantitative RT-qPCR assay to analyze the expression of 1888 miRNAs from a sample set that included 54 GIST tissue samples.

Results: We found that dysregulation of several miRNAs may be related to the malignance of GISTs. Six of these miRNAs, hsa-let-7c, miR-218, miR-488#, miR-4683, miR-34c-5p and miR-4773, were selected as the final list of biomarkers to separate the malignant GISTs (M group) from the benign GISTs (B group). In addition, MiR-29b-2#, hsa-let-7c, miR-891b, miR-218, miR-204, miR-204-3p, miR-628-5p, miR-744, miR-29c#, miR-625 and miR-196a were used to distinguish between the borderline (BO group) and M groups. There were 11 common miRNAs selected to separate the benign and borderline (BB) group from the M group, including hsa-let-7c, miR-218, miR-628-5p, miR-204-3p, miR-204, miR-891b, miR-488#, miR-145, miR-891a, miR-34c-5p and miR-196a.

CONCLUSION: The identified miRNAs appear to be novel biomarkers to distinguish malignant from benign GISTs, which may contribute to an understanding of the mechanisms of GIST

tumorigenesis and development, and to further elucidate the characteristics of GIST subtypes.

The effects of different fatty emulsions on the immune functions of human neutrophils

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Objective: To investigate the effects of three fat emulsions [Intralipid (LCT), Kalu (LCT/MCT), ClinOleic (LCT/MUFA)] composed by different fatty acids on human neutrophil immune functions *in vitro*.

Methods: Peripheral venous blood was collected from healthy volunteers. The polymorphonuclear neutrophils (PMN) were isolated by the Density Gradient Centrifugation, and placed in culture medium. Three types of fat emulsions were then added respectively. Each set up control group and four concentrations (0.01%, 0.1%, 1%, and 10%). All of above were cultured together *in vitro*. Detect respectively the phagocytosis of PMN by Yeast phagocytosis test, the chemotaxis by Agarose plate test, and the production of oxygen free radicals by nitrobluetetrazolium (NBT) reduction test.

Results: (1) As the concentration increased, the LCT group and the LCT/MCT group both reduced PMN's phagocytosis. But in the LCT/MUFA group, the extent of reduction was less than that of the first two groups, the difference was significant ($P < 0.05$). (2) The values of NBT reduction of PMN were significantly decreased in each of the three groups. The decrease in the values of NBT reduction had negative correlation with the concentrations of fat emulsions, which appeared in a dose-dependent way ($b = -1.28$, $P < 0.01$). (3) As the concentration increased, the chemotaxis of LCT group and LCT/MCT group decreased significantly, while in the LCT/MUFA group it was not significant ($P < 0.05$).

Conclusions: *In vitro* conditions, the fat emulsions composed of different fatty acids could inhibit the immune functions of PMN. The higher the concentration of fat emulsion was, the more obvious the inhibition was observed. Compared with the LCT/MUFA group, the LCT group and the LCT/MCT group showed more pronounced inhibition on human neutrophil immune functions.

Keywords: fatty acid emulsion; neutrophil; immune function

Visualization of the Omental Bursa and its Spatial Relationships to Left Subphrenic Extraperitoneal Spaces by the Second Chinese Visible Human Model

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Purpose: In order to overcome the obstacle that detailed spatial relationships of the omental bursa to its related spaces cannot be displayed clearly by thick-slice sectional anatomical imaging and computed tomography, we designed a new approach to three-dimensional visualization.

Methods: By Amira® software, we employed thin-slice cross-sectional images of the upper abdomen retrieved from second Chinese Visible Human datasets to display the spatial relationships of the omental bursa to its related spaces, especially to the left subphrenic extraperitoneal spaces. Moreover, these spatial relationships were presented on three-dimensional sections reconstructed from second Chinese Visible Human images and computed tomography images.

Results: Of importance, the left extraperitoneal space is located among the superior, inferior and splenic recesses. The appearance of the foramen bursae omenti majoris is the only pathway communicating between the superior and inferior recesses of the omental bursa, and also is the anatomic landmark between the superior and inferior recesses. The splenic recess is surrounded laterally by the splenic bare area, the left retroperitoneal space from anterior to posterior.

Conclusion: As one of the subphrenic spaces, the omental bursa with its related spaces was imaged three-dimensionally using a visualization technique. Familiarity with the spatial relationships of the omental bursa to its related spaces, especially to left subphrenic extraperitoneal spaces, will be beneficial to determining the CT severity index score, as well as for locating the lesions in the left upper quadrant on CT or magnetic resonance images.

Keywords: visualization, omental bursa, left extraperitoneal space, splenic bare area, Visible Human Project

Clinical experience of robot-assisted resection of primary retroperitoneal tumor

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Aims: Aims Robotic surgery was invented to overcome the demerits of laparoscopic surgery. However, the role of robotic surgery in retroperitoneal tumors has rarely been reported. This article is aim to show the safety, flexibility and advantage of Robot-assisted resection of primary retroperitoneal tumor. Patients and materialsSeven patients with retroperitoneal tumors, who underwent robotic surgeries from 2011-2014 with the same surgeons, were analyzed in this study, we analyze the

perioperative data such as operation time, blood loss, conversion rate, time of oral intake, post-operation hospital stay.

Results: All robotic operations were completed in all patients with no conversion. The mean tumor size was 5.36 ± 1.31 cm (range 3.5 to 7.5), the mean operation time was 146.00 ± 121.57 min (range 60 to 360), the mean blood loss was 100.71 ± 85.75 ml (range 20 to 200), and the morbidity and mortality was both 0. The mean time of oral intake was 2.57 ± 1.13 d (1 to 4). The mean hospital stay was 5.29 ± 3.04 d (2 to 10). We did a follow-up from 6 to 40 months with on recurrence.

Conclusion: Conclusion Robot-assisted resection of retroperitoneal tumors is flexible and safety for retroperitoneal tumors if we do detailed preoperative evaluation. It overcomes some demerits of traditional laparoscopic technique and provides us a newer and better choice for minimally invasive procedures but its role needs more experience to verify.

Keywords: Retroperitoneal neoplasms; Minimally invasive technique; da Vinci surgery system

Combined treatment of carfilzomib and z-VAD-fmk inhibits skeletal proteolysis and apoptosis and ameliorates cancer cachexia Running head: CFZ and z-VAD-fmk together treat cachexia

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Background: To evaluate the therapeutic benefit of treatments with carfilzomib (CFZ) and z-VAD-fmk in a mouse model of cancer-induced cachexia.

Methods: The model of cancer-associated cachexia was generated by injecting murine C26 adenocarcinoma cells into BA1B/C mice. CFZ and z-VAD-fmk were administered into individually or in combination at 5 and 12 days after inoculation. Changes in body weight, gastrocnemius muscle mass, tumor burden, spontaneous activity, survival, and metabolic profiles were noted. Also evaluated were the circulatory levels of renin and angiotensin II, and levels of apoptotic, proteolytic, and renin-angiotensin system-associated markers and transcription factor 2 (ATF2) in gastrocnemius muscle.

Results: The CFZ and z-VAD-fmk treatments were associated with less muscle wasting, reduced tumor burden, modulated metabolism, higher levels of glucose, albumin, and total proteins, and lower levels of triglyceride fatty acids, more spontaneous physical activity, and longer survival in C26-inoculated mice compared with PBS-treated cachectic mice. CFZ and z-VAD-fmk treatments resulted in higher levels of caspase-3 and Bax and lower level of Bcl-xL in gastrocnemius muscles and altered the level of proteins in the renin-angiotensin system. The combined treatment administered 5 days after C26 inoculation was more effective than other regimens.

Conclusion: Combined treatment with CFZ and z-VAD-fmk early in the development of cachexia was associated with signs of less proteolysis and apoptosis and less severe cachexia in a mouse model of cancer-induced cachexia.

Keywords: carfilzomib; z-VAD-fmk; pATF2; proteolysis, apoptosis; renin-angiotensin system; ubiquitin-proteasome system; caspase.

Malignant phyllode tumor: rare but diverse

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Objective: Phyllodes tumor of the breast (PTB) is rare, while 25–30% of which are malignant. PTB comprised of both stromal and epithelial elements similar to fibroadenomas. The relationship of PTB and fibroadenomas is still on debate. Our study investigates the possible association between PTB and fibroadenomas.

Methods: We present a very rare case of the malignant phyllode tumor coexistent with fibroadenoma under microscope, the fibroadenoma transition exist locality.

Results: Phyllodes tumor of the breast may present diversely, make the diagnosis difficult, Mastectomy is recommended for malignant phyllode tumor.

Conclusion: Malignant phyllodes tumor progressed from fibroadenoma may have better prognosis.

Keywords: malignant phyllode tumor, fibroadenoma, breast.

Application of Improved Experimental Techniques of Caudal Intravenous Injection in Micro-CT Iohexol Contrast Enhancement

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Objective: To explore the effect of improved injection equipments on successful caudal intravenous injection with iohexol in contrast enhancement Micro-CT.

Methods: 100 mice, were randomly divided into 5 groups with 20 in each group. The five groups are: 2.5# Aspart needle; 4.5# syringe needle; Infuser with 7# needle; Infuser with 5# needle; Infuser with 4.5# needle. A total of 100 mice were anesthetized by small animal anesthesia machine and vital signs monitored allowing for simultaneous cardiac and respiratory gating, and then using different devices (five groups) by tail intravenous injection of contrast agent. To evaluate the advantages and disadvantages of five equipments and record the success rate of puncture. Using Micro-CT for small animal scanning and recording image acquisition rate and mortality of mice after the end of the scan.

Results: The success rate of caudal intravenous injection and the image acquisition rate and the death rate of mice was significantly different among five groups ($P < 0.05$). Comparison of the above five groups, the fifth improved experimental techniques of caudal intravenous injection in this study is accurate and efficient and can result in a significant reduction in deaths and make it easier for researcher to control the contrast agent injection rate and dose.

Conclusion: Application of improved puncture technique combined with micro injection pump, can greatly increase the success rate when apply to the Micro-CT iohexol contrast enhancement.

Keywords: mouse; caudal intravenous injection; Micro-CT; iohexol

Expression and significance of regulatory T cells and Th17 cells in the spleen in idiopathic thrombocytopenic purpura (ITP)

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Objective: To investigate the expression of Regulatory T cells and Th17 cells in the spleen in idiopathic thrombocytopenic purpura (ITP) and their significance.

Methods: 43 ITP patients performed splenectomy in Fujian Medical University Union Hospital during 2008–2012 were enrolled by the diagnostic criteria for ITP. The control group consisted of 10 patients who performed splenectomy because of splenic impairment. The case group was further divided into effective group and ineffective group according to the effect after operation. The quantity of regulatory T cells and Th17 cells in the spleen from patients and controls were examined with Immunohistochemistry (IHC). All data were analyzed by SPSS17.0.

Results: The quantity of regulatory T cells in the spleen of ITP patients was significantly lower than the normal controls ($P < 0.01$), but there was no statistical differences between effective group and ineffective group ($P > 0.05$). The quantity of Th17 cells in the spleen of ITP patients was markedly higher than that of the normal controls ($P < 0.01$), while there was no statistical differences between effective group and ineffective group ($P > 0.05$). Treg/Th17 of ITP patients was significantly lower than the normal controls ($P < 0.01$).

Conclusions: The reduction of regulatory T cells and the increase of Th17 cells do exist in the spleen of ITP patients and lead to a loss of balance of Treg/Th17, that may play an important role in the pathogenesis and development of ITP. The degrees of regulatory T cells and Th17 cells in the spleen between effective group and ineffective group are no statistical differences.

Keywords: regulatory T cells; Th17 cells; idiopathic thrombocytopenic purpura; Immunohistochemistry

Effect of As₂O₃ on cell apoptosis and telomerase activity in Tca8113 cells

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Objective: To investigate the effect of As₂O₃ on telomerase activity and apoptosis in tongue squamous cell carcinoma cell line Tca8113 and its mechanism.

Methods: The growth inhibition rates of Tca8113 by various concentrations of As₂O₃ were detected by MTT method. Cell apoptosis was detected by FCM labeled with Annexin V-FITC/PI. A qualitative and quantitative analysis of telomerase activity was performed by TRAP (telomeric repeats amplification protocol) -enzyme-linked PCR-immunosorbent assay.

Results: The results showed that As₂O₃ could inhibit the growth of Tca8113 effectively and apoptotic rate of Tca8113 cells was obviously increased in a dose and time-dependent manner. 79.4% cells treated with 4 μmol/L As₂O₃ were inhibited on 72 hour

point, the apoptosis rate reached on $21.17 \pm 0.91\%$ at that time. Moreover telomerase activity from the treated groups dropped obviously, which was statistically significant compared with that from the untreated groups ($P < 0.05$); the activity level decreased with increasing duration of As_2O_3 .

Conclusions: Inducing Tca8113 cells apoptosis by As_2O_3 inhibited the telomerase activity. The apoptosis of Tca8113 cell induced by As_2O_3 may be regulated by telomerase.

Keywords: telomerase apoptosis As_2O_3 human tongue cancer cell line

Diagnosis and treatment of Retroperitoneal Paraganaglioma (26 Cases Report)

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Objective: Discuss the diagnosis and treatment of retroperitoneal paraganglioma.

Methods: 26 cases of retroperitoneal paraganglioma are collected and reported with clinical experience and literature review.

Results: 26 patients were undergoing operation of tumor excision, the postoperative pathology showed retroperitoneal paraganglioma.

Conclusion: Retroperitoneal paraganglioma is rare. The preoperative diagnosis is difficult to its nonspecific clinical manifestations, and the rate of misdiagnosis is high. Surgical resection might be the most effective treatment for retroperitoneal paraganglioma. Sufficient preoperative preparation and perioperative management might be the key point of successful surgical treatment.

Keywords: retroperitoneal tumor; paraganglioma; diagnosis

Glycolysis in various cancer

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Background: Elevated glycolytic status is important in cancer initiation, progression, chemotherapy resistance and recurrence. However, there is convincing evidence that glycolytic status associated with worse outcome of cancers. Little is known about the association of the glycolytic status and prognosis of various cancers.

Patients and Methods: We evaluated the association between glycolytic status and prognosis of cancers through a meta-analytic approach. We searched relevant studies carried out in all major electronic databases from inception to December 2013.

Results: We included 41 articles comprising 6680 cancer patients. Highly elevated glycolytic status was associated with shorter overall survival of colorectal cancer (HR=3.90, 95%CI=1.080-4.030, $P=0.000$; I²=0.0, $P=0.422$), cancer of gallbladder or bile duct (HR=2.127, 95%CI=1.644-2.752, $P=0.000$; I²=0.00, $P=0.901$), esophageal cancer (HR=1.651,

95%CI=1.051-2.590, $P=0.030$; I²=0.00, $P=0.386$), and hepatocellular carcinoma (HR=1.747, 95%CI=1.178-2.590, $P=0.006$; I²=0.00, $P=0.585$). No association was found for lung cancer, oral cancer, breast cancer.

Conclusions: Elevated glycolytic status was associated with worse outcome of cancer of colorectal cancer, cancer of gallbladder or bile duct, esophageal cancer and hepatocellular carcinoma.

The significance of serum autoimmune marker in the pathogenesis of moyamoya disease

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Objective: To study the significance of serum autoimmune disease marker in the pathogenesis of moyamoya disease.

Methods: Retrospective evaluation of the autoimmune antibodies records of 660 patients with moyamoya disease of our hospital from 2010 to 2012. These patients (326 male and 334 female patients) 0-69 years of age who were diagnosed as moyamoya disease. The autoimmune antibodies were detected by the Euroline of EUROIMMUN AG. 15 kinds of antibody of data, including autoantibodies against Cell Nuclei (ANA), Autoantibodies against Double-Stranded DNA (dsDNA), Autoantibodies against CCP and SA, Autoantibodies against Mitochondria (AMA) Profile M2 were analyzed.

Results: There were 660 cases with moyamoya disease, of which men had 326 cases of patients total 49.39%; Female patients with 334 cases, 50.61%. Of 660 Patients with moyamoya disease, 184 (28%) were positive for autoimmune antibodies, while 152 (83%) contained one antibodies was positive. 32 (17%) of these patients contained two or more than two antibody were positive. The positive rate of anti-M2, anti-HI, anti-Nuc, anti-PCNA, anti-nRNP, anti-PM-sd, anti-RIB, anti-Scl-70, anti-RO-52, anti-JO-1, anti-SSB, anti-SSA, anti-SM, anti-CB, anti-dsDNA were 6.52%, 7.07%, 5.43%, 9.24%, 2.17%, 4.35%, 5.98%, 4.35%, 10.87%, 4.35%, 5.98%, 14.67%, 4.35%, 1.63% and 13.04%.

Conclusions: This study suggests that immunological factors might play an important role in the pathogenesis of moyamoya disease.

Keywords: moyamoya disease, Antinuclear antibody spectrum, autoimmune diseases

Retroperitoneal extraskelatal ewing sarcoma/primitive neuroectodermal tumor

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Background: Ewing sarcoma/primitive neuroectodermal tumor (ES/PNET) is a family of highly malignant tumors composed of small round cells that occurs predominantly in bone and soft tissues of children and young adults. Less frequently, ES/PNET has been reported in some extraskelatal locations primarily involving paravertebral locations, and along the genitourinary tract (kidneys, urinary bladder, and vagina). Retroperitoneal extraskelatal ES/PNET is exceedingly rare, with <10 cases reported in the English literature.

Methods: We present a case of retroperitoneal extraskelatal ES/PNET. A 40-year-old woman presented with a 6-month history of intermittent right flank pain was admitted to hospital. A contrast-enhanced computed tomography of the abdomen revealed a 10-cm retroperitoneal mass that occupied the right hepatorenal recess. The patient eventually underwent retroperitoneal tumor resection.

Results: Microscopic examination, immunohistochemical staining and fluorescence in situ hybridization confirmed the diagnosis of ES/PNET. The patient's recovery was uneventful, and then she received a cycle of systemic chemotherapy including pirarubicin, cyclophosphamide and etoposide.

Conclusion: The overall prognosis of extraskelatal ES/PNET is poor. Multimodal therapy, combining adjuvant chemotherapy with local control treatment (surgery and radiation therapy), should be used to improve the prognosis.

MRI-Based Pathological Morphology Of The Posterior Complex Cryptoglandular Fistulous Abscess: The Significance Of The Deep Posterior Intersphincteric Space And The Deep Postanal Space

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Background: The pathological morphology of the posterior complex perianal fistulous abscess has been described in variety. The deep posterior intersphincteric space and the deep postanal space are two confused anatomic components. A detailed understanding of the pathologic anatomy research based on pelvic MRI investigation is still missing.

Objective: This MRI-based study was designed to identify a more accurate extension course of the posterior complex fistulous abscess and determine the significance of the deep posterior intersphincteric space and the deep postanal space.

Methods: A retrospective review of perianal fistulous abscess patients from October 2012 to December 2014 was performed. The posterior abscess or fistula was re-evaluated through MRI imaging and information derived from operative note, the characteristic of the primary fistula and extensions was obtained. The deep posterior intersphincteric space (DPIS) and the deep postanal space (DPAS) were evaluated specially using a four-score scale. Fisher's exact test, Wilcoxon test and Spearman correlation were then performed. A series associated morphologic schematic model was established.

Results: 513 cryptoglandular posterior fistulous abscesses or fistulas were re-evaluated. 173 of them were complex (33.7%), out of which 148 complex transsphincteric fistulous abscesses

(28.8%) including high transsphincteric and synchronous transsphincteric types, 69 different kinds of horseshoe extensions (13.5%), 30 supralelevator extensions (5.8%) were identified respectively. The morphological features are described in detail. 167 of 513 primary ducts had spread upward the deep posterior intersphincteric space, resulting in an inflammatory granulomatous fistula or an abscess. The secondary lesion situated in this space had a higher probability to be at risk for developing complex fistulous abscess than the non-infected group (82.0% vs. 10.4%, Fisher's exact test: $P < 0.01$). The lesion had a specific tendency to develop into synchronous fistulas, transverse sphincter complex in a high level, form horseshoe abscess or supralelevator extension (Fisher's exact test: $P < 0.01$ respectively). The severity in the deep posterior space had no correlation with the height of transsphincteric plane ($r = 0.121$, $P = 0.121$). The same is true between the supralelevator group and non-supralelevator group (W test, $P = 0.146$). But it is different significantly between the horseshoe extension group and the non-horseshoe extension group. A remarkable abscess is commonly seen in the midline of the horseshoe branch. Only 23 posterior primary fistulas proceeded to the deep postanal space and 5 of 29 ischioanal horseshoe extensions were related to the abscess in this special space. 2 of 23 deep postanal space abscesses had traversed anococcygeal raphe into the presacral space but not the retrorectal space.

Conclusion: The deep posterior intersphincteric space plays an important role in the pathological morphology of the complex posterior fistulous abscess. In reality the deep postanal space abscess is far less present than that we imagine. But it is still significant if the DPAS sepsis develops. The MRI is valuable for surgery planning.

Prognostic role of cancer-associated fibroblast in cancer: a systematic meta-analysis

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Running title: Cancer-associated fibroblast in cancer

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Role of authors: †S Liu and D He contributed equally to this work.

Purpose: Cancer-associated fibroblasts (CAFs) widely spread in tumor lesion. Its role in prognosis for cancer patients remains controversial.

Experimental design: Pubmed, Embase and Web of knowledge were searched up to Nov 30th, 2013. HR of CAFs on prognosis and lymph node metastasis were calculated with random-effects mode and heterogeneity among studies were tested using P and I2 statistics.

Results: A total of 30 studies (n=5256 patients) were included in this meta analysis to evaluate role of CAFs on patient survival. CAFs expression caused poor survival for cancer patients (RR=1.87, 95% CI: 1.43-2.44), especially for patients with digestive tract cancers (RR=2.12, 95% CI: 1.63-2.76) and patients with lung cancer (RR=2.05, 95% CI: 1.35-3.10). CAFs expression were significantly associated with lymph node metastasis (RR=1.41, 95% CI: 1.04-1.92), especially for digestive tract cancers (RR=1.73, 95% CI: 1.19-2.51). However, there is no significant effect of CAFs on DFS for cancer patients.

Conclusions: CAFs may predict poor prognosis for cancer patients based on our overall survival analysis. More researches should be performed to address this question since no correlation was found between CAFs and disease free survival.

Keywords: CAF; prognosis; cancer; lymph node

The prediction of T- and B-combined epitope and tertiary structure of the ferritin of *Echinococcus granulosus*

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Purpose of this study was to predict the T- and B- combined epitope and to analyze the secondary structure of Eg. Ferritin by using online software.

Method: was making prediction of T- and B- combined epitope by using IEDB, SYFPEITHI and LEPS software, looking for common area of T and B cells.

Results: of this study showed that Eg. Ferritin has potential antigen epitope: B- antigen epitope with higher value were 8-16 54-61 70-75 80-90 103-109 117-124 167-173 amino acid sequences and T- antigen epitope with higher sequences were 85-93 105-113 133-141 157-165 amino acid sequences. Moreover, combined epitope region 105-109 amino acid sequence was also found in this study.

Conclusion: By using bioinformatic method we confirmed that existence of Eg. Ferritin on four different T- antigen epitopes and seven B- antigen epitopes respectively, and a T-B- combined epitope area. It has a significant meaning to the further study on antigenicity of Eg. Ferritin and research and development of high efficient epitope vaccine.

Keywords: Eg. Ferritin, antigen epitope, bioinformatics

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The recombinant BCG-EgG1Y162 vaccine against the *Echinococcus granulosus* infection in BALB/c mice

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Objective: Hydatid disease is a zoonotic parasitic disease that is distributed widely around the world. Surgery is the main form of treatment for hydatid disease. However, risk of disease recurrence is very high. Currently there are no human vaccines against echinococcosis.

Method: An effective human vaccine against echinococcosis is needed urgently. In this study we constructed rBCG-EgG1Y162 vaccine, and then detected the level of IgG and IgE, analyzed the subtype of IgG by ELISA after vaccinated rBCG-EgG1Y162 vaccine for BABLC/6 mice.

Result: The result confirmed rBCG-EgG1Y162 vaccine can induce strong and specific cellular and humoral immune responses in vivo. Meantime, rBCG-EgG1Y162 vaccine not only promote splenocytes proliferation but also active T cell in vitro. What's more, the rBCG-EgG1Y162 vaccine can arouse immune protection against Eg effectively in vivo.

Conclusion: So it could be a new vaccine candidate for reducing the risk of human infected by *Echinococcus granulosus*.

Keywords: *Echinococcus granulosus*; EgG1Y162;vaccine

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Use of genome-wide association studies for cancer research and drug repositioning

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Objective: We aimed to infer biological insights and high-light candidate genes of interest within GWAS risk loci.

Method: We used an in silico pipeline based on functional annotation, quantitative trait loci mapping of cis-acting gene, PubMed text-mining, protein-protein interaction studies, genetic overlaps with cancer somatic mutations and knockout mouse phenotypes, and functional enrichment analysis to prioritize the candidate genes at the colorectal cancer risk loci.

Result: Based on this analysis, we observed that these genes were the targets of approved therapies for colorectal cancer, and suggested that drugs approved for other indications may be repurposed for the treatment of colorectal cancer.

Conclusion: This study highlights that use of publicly available data is cost effective solution to derive biological insights, and provides empirical evidence that the molecular basis of colorectal cancer can provide important leads for the discovery of new drugs.

Keywords: GWAS

Modified Extended Morrow Procedure on Patients with Hypertrophic Obstructive Cardiomyopathy, Prognosis and Postoperative Complications

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Objective: To summarize the postoperative complications and investigate the main factors for prognosis of modified extended Morrow procedure on patients with hypertrophic obstructive cardiomyopathy (HOCM).

Methods: We retrospectively summarized 150 consecutive HOCM patients who underwent surgical treatment by one surgeon in our hospital from June 2012 to December 2014. There were 94 (63%) male and 56 (37%) female, aged 10-67 years with mean (43.3±11.2) years, weight 26-105 kg with mean (67.5±12.5) kg. The left ventricular outflow tract gradient (LVOTPG) were 50-270 with mean (85.3±44.5) mmHg (1mmHg=0.133kPa) and all of them received modified extended Morrow procedure. Concomitant surgical procedures were performed if other cardiac diseases required surgical interventions. Echocardiography, electrocardiogram and chest radiography was performed on all patients preoperatively and postoperatively to assess adequacy of resection, left ventricular outflow tract gradients and mitral valve function.

Results: No operative deaths occurred. 78 cases (52%) with simple modified expanded Morrow procedure, and in the meanwhile, 72 cases (48%) combined with other surgery, including 23 cases of coronary artery bypass grafting, 16 cases of mitral valve plasty, 8 cases of mitral valve replacement, 10 cases of tricuspid valve plasty, 2 cases of aortic valve replacement, 3 cases of modified Maze procedure, 3 cases of unblock of right ventricular outflow tract, 2 cases of subaortic membrane resection, 1 cases of ventricular aneurysm resection. Mechanical ventilation time were 86396 (23.2±4.6) hrs. The postoperative intensive care unit (ICU) stay were 1-27 (2.3±3.2) days and the postoperative hospital stay were 5-35 (10.1±4.6) days. Postoperative complications included arrhythmia (110 cases), pleural effusion (25 cases), secondary intubation (1 case), tracheotomy (1 case), hemofiltration (1 case), intra-aortic balloon pump (1 case), back into ICU (3 cases). Postoperative left atrial diameter, left ventricular outflow tract peak pressure, interventricular septal thickness and left ventricular ejection fraction decreased significantly compared with those before operation. There was no mitral valve regurgita-

tion, or only mild mitral valve regurgitation. No systolic anterior motion (SAM) was found. The main factors of ICU delayed were age (≥55 years), sex (female), CPB time (≥120 min), AOC time (≥90 min), arrhythmia and right ventricular dysfunction. The quality of life improved significantly. NYHA classification decreased than that before the operation (class I and class II). During follow-up, no myectomy related complication, reintervention or death was observed.

Conclusions: The modified expand Morrow surgery is a good way to treatment HOCM patient, with high near-term and long-term survival rate. Complications and mortality were not increased in the cases combined with other surgery. The main factors of prognoses were elderly, long operative time, postoperative arrhythmias and right ventricular dysfunction. Take effective measures to prevent and correct the arrhythmia and improve right ventricular function is significance in perioperative.

Keywords: Hypertrophic obstructive cardiomyopathy; Septal myectomy; Extended Morrow procedure; Complications

Causes Analysis And Preventive Nursing of PICC-related Mechanical Phlebitis

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The purposes of the study: Its peripheral vein puncture point, safe insertion procedure and high rate of success have made the peripherally inserted central catheter (PICC) a particularly suitable medical device for cancer patients who require long-term intravenous chemotherapy. PICC can help avoid the pain of repeat punctures as well as reduce incidence of cytotoxic drug extravasation-induced phlebitis and tissue necrosis. With PICC, patient activity is not limited, which improves quality of life. Mechanical phlebitis is one of the most common postoperative complications of PICC. It can lead to patients' unplanned extubation if tube is not handled in time, not only increase the pain of the patients, but not be conducive to treatment and nursing work, also influence the treatment effect. To study the causes and features of mechanical phlebitis caused by peripherally inserted central venous catheter (PICC) placement. Provide theoretical basis for the prevention of PICC-related mechanical phlebitis.

The Methods: 77 patients were recruited to participate in a randomised, controlled trial in Qingdao, China. Demographic and Background: data, data related to PICC placement, complications after PICC placement, the patients' degree of comfort (determined via a questionnaire), and patients' costs for PICC maintenance were collected to compare the effects of the two methods. T-tests and chi-square tests were used to analyse the data; $P < 0.05$ was accepted as statistically significant. 77 cases of patients' nursing situation were analyzed retrospectively, to discuss the causes of mechanical phlebitis and the nursing measures.

Results: In 77 cases, there are 8 cases turned out to be mechanical phlebitis. The occurrence rate is 10.4%. They occurred between 5 to 16 days and 6 cases occurred within 7 days. Among them, there are 5 cases of I degree phlebitis, 2 cases of II degree phlebitis, and 1 case of III degree phlebitis. The factors causing mechanical phlebitis are placement method placement position and nurses' experience.

Conclusions: PICC-related mechanical phlebitis belongs to aseptic inflammation, which is due to the effect of friction, the impact of the catheter to the vessel wall, vascular spasm and vascular intima damage, irritability vein wall of vein inflammation. The cause of mechanical phlebitis is related to the selection of puncture, puncture technique, the patient's emotional, it also can be affected by appropriate catheter choice. Using upper elbow as the puncture position, through B-mode ultrasound technology, with strict operating procedures and early prevention can reduce complications of PICC. 7 days after operation is the peak period, early detection and early treatment is of great importance.

Novel therapy for abdominal cocoon: Arranging nasointestinal obstruction tube during surgery

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Background: Abdominal cocoon (AC) is a rare disease with a poorly elucidated pathophysiology, characterized by the constitution of a thick fibrosis membrane that wraps the total or partial bowel in a cocoon-like fashion. Our purpose was to investigate an advanced therapy for AC.

Methods: The clinical manifestations, surgical intervention, and follow-up results of 21 patients who were diagnosed as AC from May 2009 to May 2014 were retrospectively reviewed. 21 cases were divided into two groups: the group arranging nasointestinal obstruction tube during operation (NIT, 9 cases) and the group only using nasogastric tube (NGT, 12 cases).

Results: The 21 patients (17 male, 4 female) had a median age of 51 years (range 21–72 years). Compared with NGT group, NIT group had significantly more draining juice ($P < 0.001$). Most important, NIT group had a lower incidence of postoperative adhesive obstruction than NGT group during 6 months of follow-up ($P = 0.0349$).

Conclusion: Arranging nasointestinal obstruction tube during operation for abdominal cocoon to prevent recurrent small bowel obstruction is safe and effective, when used on appropriately selected patients. Its effectiveness should be more widely recognized.

Keywords: abdominal cocoon; nasointestinal obstruction tube; surgery therapy

Early detection and treatment of acute mesenteric ischemia for 56 cases in single center

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Objective: The purpose of this article was to investigate the diagnosis and therapy of acute mesenteric ischemia (AMI).

Methods: We retrospectively reviewed the medical records of 56 patients who were diagnosed as AMI from January 2004 to December 2014 in the Second Affiliated Hospital of Dalian Medical University.

Results: 83% patients had manifestation of abdominal pain, bloating, nausea, vomiting and bloody stools, while 56.5% patients showed peritonitis. Laboratory investigations indicated a separate 78.3% and 73.9% elevation in WBC and neutrophil count rate, with 66.7% appearance ratio of D-dimer masculine. The positive diagnosis of Doppler ultrasound was 37.5%, compared with 48.1% by computer tomography. Most importantly,

the positive diagnosis of computed tomography angiography (CTA) and digital subtraction angiography (DSA) examination were respectively 96% and 100%.

Conclusions: Lacking of typical clinical features, AMI was hardly diagnosed and had high mortality. The key issue to reduce mortality was early diagnosis via CTA or DSA.

Keywords: Acute mesenteric ischemia; early diagnose; CTA; DSA

Spontaneous Diaphragmatic Rupture: Case Report and Literature Review

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Background: Spontaneous diaphragmatic rupture (SDR) is considered one of the rarest surgical emergencies. The frequency of SDR is less than 1% of all diaphragm injuries.

Methods: We describe a case of a 30-year old female, presenting left diaphragm hernia after delivery without any trauma history. Moreover we present a brief English review regarding the etiology, epidemiology and treatment of SDR by searching PubMed, Web of Science and Elsevier ScienceDirect database.

Results: Only 42 cases of SDR were reported from 1956–2013. The etiology of SDR was complicated and cough is the most common etiology following by physical excise and delivery. The management of SDR is surgery. The main surgical approaches include thoracotomy and laparotomy approach, repaired with suture or mesh repair.

Conclusion: Spontaneous diaphragm rupture was extremely rare. The etiology was complicated and surgery was the main management.

Surgical Care in Human Organ Donation Operation

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Objective: According summarized the cooperation of Human organ donation surgery, to provide the reference for extensive development of the operation.

Methods: 23 cases of human organ donors, age from 1 to 69, the average age of 38.43, clinical diagnosis of cardiac death, all had voluntary donated their organs after death or been agreed by their immediate relatives.

Results: In 23 cases, the average operating time was 93 min, the progress of the operating went successfully and got a good effect.

Conclusion: In recent years, with the fast developing of Donation after Cardiac Death (DCD), high technical requirements, strict check and registration before operation, control the warm ischemia time during operation, improve the humanities concerns and manage the cost are the key of operation coordination.

Keyword: organ donation operation nursing

The Tendency To Digital Medicine And Computer Aided Operation Equipment

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AIM: The recently ten years, with the rapid development, traditional treatment pattern of surgical diseases has been changed by digital medicine. Currently, with the basic theory of digital medicine being consummated step by step, the discipline system of digital medicine is becoming distinct, intelligent and visual and high-techs, such as microelectronics, will permeate medical detection, diagnose, therapy and so on. The future development tendency to digital medicine mainly reflects in parts of humanized hospital organization, intelligentized digital medical treatment technology and minimally invasive digital medicine detection technology. Computer aided operation has been to be important part of digital medicine, which makes accurate surgical operation possible and surgical leap-forward development has been proved by it.

Methods: The standardization and popularization of medical displayer supporting with the computer-assisted surgical system can help doctors analyze and diagnose more precisely, which is also driving the development of Tele-medicine and Community Healthcare.

Results: The further improvements of embedded digital chip make great effects on the equipment performance upgrading and its portability. Clinically, Higemi (Hisense Gemini 3D Medical Imaging Reconstruction and Computer Assisted Surgery System), which has been co-operated by Medical school hospital of Qingdao University and Hisense, has not been applied to more than one program for planning programming of preoperative surgery simulation and intraoperative guidance of pediatric large liver tumors, but to preoperative accurate estimation for living donor liver transplantation.

Conclusion: Future medical core and tendency will be widely prospective with the research of digital technology, medical discussion of new theory and knowledge and medical improvement of new skills and technologies..

Keywords: Digital medicine; Computer aided operation equipment; Development tendency

The clinical value of blood oxygen functional breast imaging system in patients with locally advanced breast cancer of induction chemotherapy

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Objective: Blood oxygen functional breast imaging system for induction chemotherapy in locally advanced breast cancer clinical application and effect evaluation of clinical applications.

Methods: A retrospective analysis of 50 cases of induction chemotherapy in patients with locally advanced breast cancer from January 2012 to May 2014, comparing blood values and oxygen values were changed before and after before and after chemotherapy.

Results: BOLD functional breast imaging system prompted changes in blood oxygen values before and after chemotherapy and the values were significantly different.

Conclusion: After induction chemotherapy in locally advanced breast cancer significantly reduced breast blood values, oxygen values increased, providing a evaluation basis for future breast oxygen functional imaging system of induction chemotherapy for locally advanced breast cancer.

Keywords: locally advanced breast cancer; Blood oxygen functional imaging techniques; induction chemotherapy;

The Clinical Research of Fluorouracil Implants Rupture of Liver Cancer Prevention of Postoperative Abdominal Planting Transfer

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Objective: On patients with primary spontaneous rupture of liver cancer radical hepatic resection in use fluorouracil implants on the efficacy and safety of prevention of postoperative abdominal planting transfer.

Methods: Select our hospital from January 2011 to November 2012 in henan province tumor hospital between hepatology 55 cases of primary liver cancer patients with spontaneous rupture bleeding radical hepatic resection, randomly divided into experimental group (intraoperative placement of fluorouracil preventive agent) 28 cases and the control group (intraoperative not placed fluorouracil implants) 27 cases, comparing the patient's postoperative abdominal planting transfer rate; The comparison of measurement data using t test; The comparison of count data by χ^2 test.

Results: Two groups of clinical pathological features, complications and liver function is no statistical difference. The experimental group and control group 1 year after celiac planting transfer rate are 17.9% and 51.9% respectively ($P=0.013$).

Conclusion: Placement of fluorouracil preventive agent had no obvious effect on liver cancer rupture postoperative recovery, safe and feasible, and can obviously decrease the rate of abdominal planting metastasis, improve overall survival.

Keywords: Hepatocellular carcinoma; Spontaneous rupture; Radical prostatectomy; Fluorouracil implants; Celiac planting

SYMMETRICAL PERIPHERAL GANGRENE, CASE REPORT

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We describe a case of a 60 years old male who was admitted in ICU for syncope attack and deranged level of consciousness, hypotension, and inadequate respiration. He developed symmetrical peripheral gangrene (SPG) which might be related to multifactorial causes combination as septicemia, DIC, dopamine use. Real cause, real pathology and effective treatment is still not identified well.

Keywords: MULTIFACTORIAL, SYMMETRICAL PERIPHERAL GANGRENE (SPG)

Diagnosing aggressive angiomyxoma: A diagnostic model to preoperatively differentiate aggressive angiomyxoma from angiofibroma

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Background: Aggressive angiomyxoma (AAM) is a distinctive, locally infiltrative, often recurrent mesenchymal neoplasm that typically develops in the pelvic and perineal region in women. Preoperative diagnosis of AAM is very important for developing rational surgical strategies. However, AAM and angiofibroma (AMF) are difficult to distinguish preoperatively.

Methods: We reviewed 113 cases of AAM and AMF in case reports published in international databases. Objective clinical characteristics such as sex, age, duration of disease, surgery history, tumor location, greatest diameter of the tumor, and tumor margin definition were analyzed. We built a clinical diagnosis model for preoperatively diagnosing AAM and used 17 cases from PKUPH (PeKing University People's Hospital) for model validation.

Results: Tumor size, margin definition, and tumor location were significantly predictive for AAM. We used these factors to build a clinical diagnosis model for diagnosing AAM. The sensitivity and specificity were 61% and 96%, respectively. When we validated the diagnosis model with the 17 PKUPH cases, its sensitivity and specificity for diagnosing AAM were 90% (9/10) and 71% (5/7), respectively.

Conclusion: We built a diagnosis model that distinguishes AAM from AMF with acceptable sensitivity and specificity. Furthermore, we proposed a standardized process for preoperative AAM diagnosis, which may guide rational surgical strategies.

Relation between Neurohumoral Feedback to Surgical - Anaesthetic Aggression and Vegetative Nervous System Type

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Topchubashev

Background: - was to study neurohumoral changes occurring during combined intubation epidural anesthesia applied in large scale surgical operations on abdominal cavity organs and to define the dependence of hormonal state dynamics on vegetative nervous system type.

Methods: The scientific research was conducted on 69 patients who underwent large scale surgical operations due to different serious abdominal pathologies in years 2007–2014. The followings were used for the purpose of defining VNS type: electroencephalography, single functional tests. Cerdo Vegetative Index and Hildebrandt coefficient. The patients were divided into three groups depending on vegetative nervous system type: I - normotonics- 17 patients (24, 7%), II - sympathotonics- 25 patients (36, 2%), and III - vagotonics- 27 patients (39, 1%). Blood adrenocorticotropic hormone and cortisol concentration were studied in 3 stages.

Results: The comparative analysis displayed that the number of stressor hormones in every three groups increased statistically certain in aggressive stage of surgical operation and later, that is within the III stage approached the initial level. The level of stressor hormones remained statistically certain increased as compared with initial indexes only in sympathotonics in comparison with normotonics and vagotonics in the III stage. This is explained by higher level of sympathomimetic state in sympathotonics in comparison with the other groups. Conclusion. The result of conducted researches identified that being an important component of CIEA the epidural block prevents from dosage increase of narcotic analgesics and anesthetics for the adequacy of general anesthesia and hereby their negative effects appearing more vividly.

SECOND BRANCHIAL CLEFT CYST- A RARE PRESENTATION

Dr. D. Karthikeyan, Dr. B. Velladuraichi

Branchial cleft cysts typically present as unilateral, solitary, non pulsatile swelling along the anterior border of sternocleidomastoid muscle. Usually the swelling arising from the vessels are pulsatile and adherent with the vessels have transmitted pulsation. But branchial cyst presenting as a pulsatile swelling is very rare. We present a case of Branchial cyst with transmitted pulsation at the lateral side of the neck. Excision was done. The post operative period was uneventful.

Keywords: Branchial cyst, Pulsatile swelling.

Introduction: A Branchial cyst is thought to develop because of failure of fusion of the embryonic second or third branchial arches. It occurs anterior to the upper or middle third of the sternocleidomastoid muscle. It affects both sexes equally, usually in young adults in their 20s. It is smooth firm swelling that is ovoid in shape and non pulsatile. We present a case of pulsatile branchial cyst at the lateral side of the neck. The case report and discussion are presented here.

Case report:

A 24 year old young female presented to us with 6x5cm swelling at the lateral aspect of neck for the past one year. Except a vague discomfort she was asymptomatic. On physical examination it is a soft, pulsatile swelling with no trans illumination. Computed Tomogram showed cystic swelling anterior to the carotid bifurcation, Internal Carotid artery and External carotid artery.

Complete excision was done under general anaesthesia. The cyst wall was found to be adherent with the peri carotid tissues which explains its pulsatile nature. The post op recovery was good. Mucoïd material was found inside the cyst. The pathology confirmed that it was a branchial cyst.

Discussion:

The branchial apparatus develops during the second and sixth weeks of fetal life. The second arch extends down the neck (as the platysma) to overlap the second, third and fourth branchial clefts. The second, third and fourth branchial clefts merge to form the sinus of His, which will normally become involuted. When a branchial cleft is not properly involuted, a branchial cleft cyst forms. The second branchial cleft cyst is found along the anterior surface of the sternocleidomastoid muscle, lateral to the carotid space and posterior to the submandibular gland at the level of the hyoid bone.

Usually present as a solitary, non pulsatile swelling along the anterior border of sternocleidomastoid. In our case since the cyst was adherent with the peri carotid tissues, it was pulsatile. Complete surgical excision is the treatment of choice.

Conclusion:

The differential diagnosis of a branchial cleft cyst should be kept in mind in the case of a

Pulsatile swelling. The swelling should be excised completely to avoid recurrences. Careful attention should be paid to closely related vital structures like main vessels of neck, hypoglossal nerve and recurrent laryngeal nerve to avoid complications.

Protective effects of hyperbaric oxygen and iloprost on ischemia/reperfusion-induced lung injury in a rabbit model

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Background: The role of multiorgan damage in the mortality caused by ischemic limb injury is still not clarified. The objective of this study was to examine the potential protective effects of hyperbaric oxygen (HBO) and iloprost (IL) therapy on lung damage induced by limb ischemia/reperfusion injury in a rabbit model, using both biochemical and histopathological aspects.

Methods: Forty New Zealand white rabbits were randomly allocated into one of five study groups: HBO group (single session of HBO treatment); IL group (25 ng/kg/min infusion of IL); HBO + IL group (both HBO and IL); Control group (0.9% saline only); and a sham group. Acute hind limb ischemia-reperfusion was established by clamping the abdominal aorta for 1 h. HBO treatment and IL infusion were administered during 60 min of ischemia and 60 min of reperfusion period. Blood pH, partial pressure of oxygen, partial pressure of carbon dioxide and levels of bicarbonate, sodium, potassium, creatine kinase, lactate dehydrogenase, and tumor necrosis factor alpha were determined at the end of the reperfusion period. Malondialdehyde was measured in the plasma and lung as an indicator of free radicals. After

sacrifice, left lungs were removed and histopathological examination determined the degree of lung injury.

Results: In the control group, blood partial pressure of oxygen and bicarbonate levels were significantly lower and creatine kinase, lactate dehydrogenase, malondialdehyde and tumor necrosis factor- α levels were significantly higher than those of the HBO group, IL group, HBO + IL group and sham group. Similarly, the malondialdehyde levels in the lung tissue and plasma levels were significantly lower in the treatment groups compared with the control group. The extent of lung injury according to the histological findings was significantly higher in the control group.

Conclusions: These results suggest that both HBO and IL therapies and their combination might be effectively used in the prevention of lung injury after ischemia/reperfusion injury of the lower extremities.

The Effects of Melatonin and N-Acetylcysteine on the Mcfarlane Flap Model in Rats

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Background: Flaps are often used to treat large and complex defects, but limitations associated with flap surgery have led surgeons to research new methods to enhance flap viability, including the use of antioxidant agents.

Objectives: The aim of this experimental study is to show and compare the effects of melatonin and N-acetylcysteine (NAC) on flap survival and also to examine the different impact when used together.

Materials and Methods: This study assessed two antioxidant agents, melatonin and N-acetylcysteine (NAC), on flap viability and compared their effects in 9X3 cm Mcfarlane flaps in four groups of Wistar albino rats (n=10/group). After flap elevation, saline was intraperitoneally administered to the first group. The second group received 10 mg/kg melatonin, the third group received 40mg/kg NAC, and the fourth group received both melatonin and NAC. At the end of 1 week the experiment was terminated and pictures were taken for topographic studies, transillumination study was done to see the vascularization of flaps and biopsies were taken for the histopathologic studies.

Results: At the end of 1 week of treatment, we found that flap viability was significantly greater in the antioxidant-treated groups compared to the control group; however, there were no significant differences among any of the groups that received antioxidants.

Conclusions: Melatonin and NAC, which are important antioxidants, can be used clinically to increase flap viability and prevent distal necrosis.

Investigation of the direct hepatic effects of intramuscular interleukin-8 injection in experimental rabbit model

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Aim: To investigate the effects of intramuscular IL-8 injection on hepatic tissues in an animal model in-vivo histopathologically.

Methods: Twelve New Zealand white rabbits were used for this randomized, controlled, single-blinded interventional study. For six days, one gluteus maximus muscle was injected daily with 1 mcg/kg of IL-8 in six rabbits (Group A). The remaining 6 rabbits (to determine to normal porto-hepatic morphology of the rabbit genus) were in the sham group (Group B). At the end of the 7th day, all rabbits were sacrificed and livers were meticulously harvested. Microscopically, regional tissues were scored according to portal inflammation, focal necrosis, piecemeal necrosis and total impact.

Results: Total impact score, portal inflammation, focal necrosis, and piecemeal necrosis were the histopathologic changes present in a higher incidence in the IL-8 group compared with the control group. The differences were significant when the groups were compared according to total impact score, portal inflammation, focal necrosis, and piecemeal necrosis according to Pearson's correlation ($P < 0.05$). The most significant differences were detected at the total impact scores ($P = 0.002$) and the portal inflammation scores ($P = 0.008$).

Conclusion: Our results showed that IL-8 may damage hepatocytes. This can be the determined target for new therapeutic strategies. Further trials should be designed to obtain definitive results.

COMPARISON OF THE EFFICIENCY OF CENTELLA ASIATICA USAGE WITH THE CONVENTIONAL TREATMENT IN THE SECONDARY WOUND HEALING AFTER PILONIDAL SINUS SURGERY

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Background & Aims: Causes like long healing periods, workforce loss and cost increase by patients with pilonidal sinus

left to secondary healing after excision and marsupialisation led researchers to develop wound care products to accelerate wound healing. For this purpose, we aimed to compare the efficiency of Centella asiatica usage with the conventional treatment by patients with pilonidal sinus left to secondary healing.

Material and Methods: 73 patients in total left to secondary healing after excision and marsupialisation because of pilonidal sinus disease were included in the study. Whereas in the I. group (n=35) the wound was cleaned daily with povidon iodine and physiological saline solution and dressed with gauze, in the II. group (n=38) the wound site was dressed by using steril Centella asiatica 3 times a week.

Findings: No statistically meaningful difference was determined between the groups regarding age, body mass index and the initial volume of wound sites. In the I. Group, the total healing duration of the wound is longer than II. Group and is found as 7, 07 (3-12) and 6, 3 (4-12) weeks respectively.

Conclusion: In pilonidal sinus cases without midline closure, use of Centella asiatica accelerates the wound healing significantly and also enables the patient to return to normal life earlier, thus it provides a considerable advantage.

STAPLED VERSUS CONVENTIONAL SURGERY FOR HEMORRHOIDS

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Background: Circular stapled hemorrhoidopexy (SH) was first described by Longo in 1998 as alternative to conventional excisional hemorrhoidectomy. Various reports suggest for SH to be less painful and that it is associated with quicker recovery, a better patient acceptance and a higher compliance with day-case procedures potentially making it more economical:

Aim: To compare the use of circular stapling devices and conventional excisional techniques in patients with symptomatic hemorrhoids.

Methods: Between 2010-2014 400 stapled hemorrhoidopexy (SH) were performed in Aversi clinic. Standard excisional hemorrhoidectomy (EH) - in 710 patients. In the EH group, 462 patients met the same criteria defined for SH group. Mean age for SH group was higher than in the EH. The two groups were compared (frequency of use analgesics; incontinency, stricture formation, postoperative recovery; rehabilitation period, recurrence rate; cost effectiveness)

Results: Significant trends ($P < 0.001$) in favor of SH were seen in pain, pruritus ani, incontinency, stricture formation, postoperative recovery; rehabilitation period, recurrence rate; cost effectiveness. Recurrence rate in SH group was significantly higher than in the EH.

Conclusions: Stapled hemorrhoidopexy is associated with less painfulness; quicker recovery, shorter rehabilitation period, better values of cost effectiveness. stapled hemorrhoidopexy is a method choice in old aged patients. A higher long-term risk of hemorrhoid recurrence and the symptom of prolapse appears after Stapled hemorrhoidopexy. Patients should be informed of these risks when being offered the stapled hemorrhoidopexy

EFFECT OF STANDARD NORMOTHERMIA PROTOCOL ON SURGICAL SITE INFECTIONS: PRELIMINARY RESULTS OF A RANDOMIZED CONTROLLED TRIAL

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Background: Inadvertent hypothermia is a common effect of anesthesia and surgery which increases rates of perioperative adverse cardiovascular events, hematologic disturbances and infectious complications. Aim of this study is to investigate the efficiency of a standard normothermia protocol and effects on postoperative surgical site infection (SSI) rate.

Methods: Between June 2013 and December 2014 elective, clean-contaminated, open major abdominal operations (hepatobiliary, upper gastrointestinal or colorectal; under general anesthesia, longer than 30 minutes) were included in the study. Exclusion criteria were emergent surgery, local/locoregional procedures, laparoscopic operations, minor abdominal operations (e.g. hernia repair, colostomy closure), malign hyperthermia, signs of active infection or fever, immunosuppression, severe malnutrition, kidney/liver failure and antibiotic use within the previous 1 week. Patients were randomized into 2 groups. In normothermia group perioperative management and warming was performed according to a standard normothermia protocol. Routine patient warming method regardless of a standard protocol was performed in control group. Except for normothermia protocol perioperative care considering ERAS protocols, medications and warming method were the same in both groups. Hypothermia was defined as body temperature (BT) lower than 36°C. Body temperature was monitored with infrared tympanic thermometer perioperatively and esophageal probe intraoperatively. Demographic characteristics, hospital stay, ASA, ASEPSIS and NNIS scores as well as BT in preoperative waiting room (T1), BT at 1st hour after intubation (T2), BT after extubation (T3) and BT in postoperative recovery room (T4) were recorded. Primary outcome was comparison of SSI rates between groups.

Results: Of 73 patients 59 (22 in normothermia, 37 in control groups) were included in the analysis. Mean operative time was 203 (80–665) min, mean operation room temperature was 21.9 (17–26) °C. Groups were similar regarding demographic and surgical characteristics, operative time, wound classification; ASA, NNIS and SENIC scores. Mean T1, T2, T3 and T4 were 35.6±0.6, 35.9±0.6, 36±0.8 and 36.3±0.4, respectively. In normothermia group mean T2 ($P=0.018$) and T3 ($P=0.015$) were significantly higher than control group. Overall SSI rate was 18.6% ($n=11$). In normothermia group SSI rate was less (13.6%, $n=3$) than control group (27.5%, $n=8$) but the difference was not statistically significant ($P=0.512$).

Conclusion: Preliminary result of this study promote the benefits of a standard normothermia protocol in terms of maintaining normothermia and preventing SSI.

Eosinophilia and Ig E increase are not obligatory by eosinophilic gastrointestinal diseases

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Purpose: Eosinophilic gastrointestinal diseases (EGD) with the absence of any other disease which might cause eosinophilia in the gastrointestinal system (like parasitic infection, drug reaction, inflammatory intestinal disease) is characterized by eosinophilic infiltration and inflammation. EGD divides into subgroups like eosinophilic esophagitis (EE), eosinophilic gastroenteritis (EGE) and eosinophilic colitis (EC). All patients will not necessarily exhibit a serum Ig E increase and peripheral eosinophilia. Final diagnosis is established by biopsy. Our patients diagnosed as having EGD are evaluated in this presentation.

Methods: Our patients who were diagnosed with EGD in the years 2010–2014 were evaluated retrospectively.

Results: The average age of our 4 evaluated patients at the time of the diagnosis was 41. They all had sensitivity to dairy products. All patients had various digestive system symptoms. The duration of the complaints was varying between 1–10 years. In all patients serum total Ig E level was normal. Three of our patients had no peripheral eosinophilia. Colonoscopy, gastroscopy and endoscopic biopsy examinations were applied to all patients. One of them was diagnosed as EE, 2 of them as EC, 1 of them as eosinophilic rectitis. The patients were treated by providing food elimination and short-term steroid treatment.

Conclusions: Since EGE symptoms are not specific to the disease, they may be confused with other digestive system diseases. Peripheral eosinophilia and Ig E increase in the blood may not be present. Final diagnosis is established by the histopathological evaluation of many biopsies taken from digestive tract and by eliminating secondary factors.

INFRARED DIFFERENTIATION OF CERVICAL RIB SYNDROME AND HYPERABDUCTION SYNDROME

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Objective: To identify the differential change in the intensity of infrared radiation (IIRR) at presence of cervical rib syndrome (CRS) and hyperabduction syndrome (HAS).

Materials and Methods: All segments of upper extremities of 133 patients were examined on the thermal imager “Raduqa-4” of Russian production. Quantitative and qualitative analysis of the obtained data was conducted.

Results: Shoulder belt and shoulder hypothermia was found in 22% of patients with CRS while this change has not been identified in patients with HAS. In the forearm hypothermia was detected in 15 patients (16, 8%) with CRS and in 17 patients (38, 6%) with HAS. “Thermo amputation” of hands and “glove”

symptom were detected in 11 (2, 5%) and in 7 (15, 9%) of patients respectively with HAS.

Quantitative analysis showed that the depth of hypothermia in shoulder girdle and shoulder of patients with CRS was $-0,8\pm 0,3^{\circ}\text{C}$. In patients with HAS these changes have not been identified. On the forearm segments hypothermia was $-1,8\pm 0,5^{\circ}\text{C}$ at CRS and $-1,4\pm 0,5^{\circ}\text{C}$ at HAS. At presence of CRS in the areas of hands and fingers hypothermia was $-2,0\pm 0,5^{\circ}\text{C}$ and $-3,1\pm 0,6^{\circ}\text{C}$, but at presence of HAS $-2,3\pm 0,6^{\circ}\text{C}$ and $-2,9\pm 0,6^{\circ}\text{C}$, respectively.

These Results: can be used for differential diagnosis at CRS and HAS.

Conclusions: CRS and HAS are characterized by a decrease in IRR of the upper extremities. At the presence of HAS thermoasymmetry of shoulder belt and shoulder is not detected unlike in CRS. The most profound hypothermia of distal segments up to "glove" symptom and "thermo amputation" revealed at the presence of HAS.

Cytoreductive surgery and HIPEC – 15 years experience

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Cytoreductive surgery (CRS) with hyperthermic intraperitoneal peroperative chemotherapy (HIPEC) is currently a standard procedure for peritoneal surface malignancies of various origin. For slowly progressive, indolent, malignancies – pseudomyxoma peritonei and epithelial peritoneal mesothelioma - CRS+HIPEC became a frontline treatment with a curative potential maintaining a long-term survival. In other malignancies – ovarian cancer, colorectal cancer, primary peritoneal carcinoma – CRS+HIPEC brings clear therapeutic benefit despite its effect is not curative.

The availability of the procedure remains limited in CZ. For the last 15 years there has been only 1 active center covering 10 million population. The therapeutic benefit for particular diagnoses has been compared.

There were 279 procedures in 225 patients in a period 1999 – 2014. The patient group included peritoneal pseudomyxoma (PMP) (62), ovarian cancer (46), peritoneal mesothelioma (36), colorectal cancer (CRCA) (34), primary peritoneal cancer (10) and others. The surgery included maximal cytoreduction, omentectomy and parietal peritonectomy as could be achieved. Open coliseum hyperthermic peritoneal chemotherapy followed using standardized regimens with mitomycin (PMP, CRCA), carboplatinum (ovarian, primary peritoneal cancer) or mitomycin C + doxorubicin combination (mesothelioma). The dosage based on an estimated absorbed dose that does not exceed a standard dose in systemic treatment. Early postoperative intraperitoneal chemotherapy (EPIC) followed for PMP and CRCA using 5 day 5-fluorouracil.

Lethality of the procedures were 2.15% (6 pts), morbidity 23%. A median post-treatment survival illustrates the potential of the procedure. It has not been reached for PMP. It is 60 months for peritoneal mesothelioma, 26 months for CRCA and 22 months for ovarian cancer. The toxicity is mild, gr. III-IV toxicity is rare, 1 treatment related death was registered (haematologic toxicity). Completeness of cytoreduction (CCR 0–3) is a significant prognostic factor as expected. A routine procedure has been developed within 15 years providing treatment results comparable to those referred in earlier clinical trials. The results have been

maintained using chemotherapy in lower than maximal referred for HIPEC. The procedure remained safe not compromising the postoperative period. These results support CRS+HIPEC to stay a frontline standard procedure least for PMP and peritoneal mesothelioma as well as a supplemental standard procedure for CRCA, ovarian cancer and others. The capacity of 1 center is not enough for 10 million population.

A variety of gene polymorphisms associated with idiopathic granulomatous mastitis

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Background: Idiopathic granulomatous mastitis (IGM) is a rare and chronic inflammatory disorder. Etiology of IGM remains unclarified. IGM mimics breast cancer regarding its clinical and radiological features. Although, IGM is generally considered as a benign disease, recent findings postulated that IGM may associate with and even be a precursor to breast cancer.

Methods: In this study, we aimed to highlight that known genetic disorders that are associated with breast cancer may involve in the etiology of IGM.

Results: Patient was female and 37 years old. She had a family history of breast cancer in aunt. The number of gravidity was 6 whilst parity was 4. Patient who was suffering from erythema, pain and swelling in the right breast applied our clinic on 5. months of pregnancy. Solid, hypoechoic mass lesions that were suspicious for malignity was determined by breast sonography. An increase in the level of serum leukocytes, C-reactive protein, sedimentation, prolactin, fibrinogen, CA 125 and CA 15–3 was determined in patient. Several polymorphisms in genes including methylenetetrahydrofolate reductase (MTHFR) C677 T, β -fibrinogen-455 G/A, plasminogen activator inhibitor (PAI) -1 5G/5G, angiotensin-converting enzyme (ACE) I/D, apolipoprotein (APO) -E E3/E3 were detected by genetic analysis. IGM was diagnosed by tru-cut biopsy that helped for the differential diagnosis of IGM with breast cancer.

Conclusion: Genetic polymorphisms may involve in the development of IGM as it was seen in our case. An association was also reported between breast cancer and mutations in MTHFR-C 677T, PAI-1, ACE, Apo-E genes. Other findings suggested that chronic IGM may eventually result in breast cancer. A number of gene polymorphisms may initially cause to IGM and then the development of breast cancer. Further studies should be conducted to better clarify this plausible association.

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