SEVENTEENTH SIR PETER FREYER MEMORIAL LECTURE and SURGICAL SYMPOSIUM
September 18th & 19th, 1992

SESSION I

1

24 HOUR pHMETRY: CONTRIBUTION OF POST-PRANDIAL REFLUX

D. O'Gradaigh, P. J. Byrne, P. Gillen, P. Lawlor, T. N. Walsh, T. P. J. Hennessy.
University Department of Surgery, St. James's Hospital, Dublin.

Complications of Gastrooesophageal reflux disease (GORD) are associated with supine or combined reflux. Upright reflux has been reported to be of less severity, but some reports have suggested a correlation between oesophagitis and post-prandial reflux (PPR).

200 patients with reflux symptoms were analysed to establish the relative frequencies of upright, supine and combined reflux. Further analysis was then carried out to establish the contribution of PPR. PPR was defined as % pH < 4 during periods of 60 minutes after eating.

Results: 144 patients had abnormal pH profile, significant upright reflux being detected in 111 (77.1%). This was combined with significant supine reflux in 74 (66.6%) of the above. 37 (25.7%) of the total abnormal population had upright reflux alone and 33 (22.9%) had supine reflux only. In the pure upright refluxers (group A) PPR was < pH 4.0 for a mean of 17.1% of the total post-prandial time, and accounted for 30.2% of the total reflux time. In combined refluxers (group B) the mean duration of PPR was 27.6% of the post prandial time and accounted for 23.4% of total reflux. Supine refluxers (group C) PPR duration was 5.2% which represented 13% of total reflux in this group.

	Total %	PPR %	Restored to Normal
Group A (n=37)	9.5 (7.5)	17.1(16.3)	51.0***
Group B (n = 74)	22.5 (16.6)	27.6 (21.1)	8.1%
Group C (n = 33)	10.9 (8.3)	5.2 (4.2)	0%

Mean % (±SD) *** p < 0.001, Chi-square test.

Elimination of PPR by subtracting PPR time from total reflux time restored 19 (51%) of group A and 6 (8.1%) of group B patients to within normal range.

It is concluded that PPR is a significant factor in upright reflux which has implications for treatment.

2

HOW GOOD IS OPEN COMMON BILE DUCT EXPLORATION?

S. T. O'Sullivan, G. C. O'Sullivan, W. O. Kirwan.
Surgery, Regional Hospital & Mercy Hospital, Cork.

With the introduction of endoscopic sphincterotomy and laparoscopic cholecystectomy, treatment of choledocholithiasis has become controversial.

A retrospective study of 320 explorations of the common bile duct, performed over a 12 year period revealed that rigid choledochoscopy was performed in 308 patients. During this period 1681 cholecystectomies were performed, an exploration rate of 19%. Choledochoscopy was performed following common bile duct exploration in an effort to identify residual common bile duct calculi. In 58 cases residual common bile duct calculi were demonstrated at choledochoscopy and in 54 of these cases calculi were successfully extracted. The negative exploration rate in the series was 19%. Post-operative T-tube

cholangiography at ten days revealed retained calculi in 7 patients (2.2%), of which 4 were identified prior to closure, an unexpected retained calculus rate of 1%.

Drainage procedures were performed in 29 patients in this series. Two cases of unsuspected neoplasm were discovered at choledochoscopy. There were 6 deaths in the series (1.9%). No death was directly attributable to choledochoscopy. One injury to the common bile duct was recorded in the series. We conclude that rigid choledochoscopy is a safe procedure which, when employed routinely in exploration of the common bile duct, reduced the incidence of retained calculi. We offer these results as a baseline against which other techniques of common bile duct calculus management may be compared.

3

WHICH ACID BLOCKER? A RANDOMISED TRIAL OF CIMETIDINE AND OMEPRAZOLE ON GASTRIC pH

H. Li, M. T. P. Caldwell, T. N. Walsh, P. J. Byrne, T. P. J. Hennessy.

Department of Surgery, St. James's Hospital, Dublin 8.

It has become standard practice to prescribe H-2 antagonists or proton pump inhibitors in upper GI bleeding but the choice is often arbitrary.

A study was carried out to compare the effect of omeprazole with cimetidine on gastric acidity in 19 patients with Barrett's oesophagus. Each patient underwent endoscopy and biopsy, and 24-hour gastric pH monitoring at pre-entry. Patients were randomised to receive 20mg omeprazole (n = 10) or 1,200 mg cimetidine daily (n = 9). Investigations were repeated after six months treatment.

Results:

	Median Gastric pH	% time gastric pH > 4.0
Control	1.5	15.6 (5.0)
Omeprazole	6.2***	45.0 (9.1)***
Control	1.5	18.4 (10.0)
Cimetidine	1.9 (ns)	24.5 (6.4) (ns)

Wilcoxon signed-rank test. *** P < 0.001, ns: not significant

A significant reduction was seen during treatment for all pH variables in the omeprazole group. No significant change in gastric pH was detected despite the large doses of cimetidine employed in this study.

It is suggested that omeprazole is superior to cimetidine in raising gastric pH and this may have significant implications in the management of upper GI bleeding.

4

POOR SURVIVAL AFTER SURGERY FOR SMALL BOWEL CARCINOMA

S. Hone, S. E. A. Attwood, I. P. Kelly, T. P. Corrigan.
The Mater Misericordiae Hospital, Dublin.

Small bowel carcinoma is rare, accounting for only 0.36% of all intestinal malignancies. We reviewed the outcome of management of small bowel carcinoma (excluding periampullary carcinoma of the duodenum) over a seven year period in our institution. Seven patients were identified with adenocarcinoma of the small intestine and are shown in the table.

	Sex	Age	Primary site	Survival (months)	Alive
1	f	31	duodenal	18	yes
2	f	67	duodenal	74	no
3	m	72	duodenal	10	yes
4	f	76	jejunum	5	no
5	f	26	jejunum	9	no
6	f	62	jejunum	24	yes
7	f	71	ileum	3	yes

One patient had Peutz-Jeghers syndrome but there were no other co-incidental small bowel disorders or coeliac disease. The tumours were advanced when first diagnosed and the poor survival at 5 years (one patient) reflects the palliative nature of surgical intervention. Improvements in survival of patients with small bowel carcinoma are unlikely without earlier diagnosis.

5. ACCURACY OF 24 HOUR PH MONITORING: IS MORE THAN ONE RECORD NECESSARY?

E. Mulligan, M. J. Kerin, N. N. Williams, K. J. Cronin, M. El Sadar, P. Dervan, J. M. Fitzpatrick, T. F. Gorey.
Surgical Professorial Unit, Mater Misericordiae Hospital and University College, Dublin.

Twenty four hour ambulatory pH monitoring of the distal oesophagus is generally accepted as the gold standard in detecting the presence of oesophageal reflux disease. However, it has recently been suggested that 1 probe alone may not accurately diagnose reflux and that probe position is critical. The aim of this study was to determine the effect of probe position on the recording of reflux and to evaluate inter-probe error by synchronous recordings at different levels. We have prospectively evaluated 15 patients who had upper GI endoscopy. All had 3 pH probes (monocrystal Mod 91-0011, Synectics, diameter 2.1mm) placed at 4 cm intervals in the lower oesophagus by the transnasal route. An A-P chest x-ray confirmed probe position. Synchronous 24 hour pH records for all patients were obtained using portable digitrapper devices (Synectics). Correlation co-efficient and student's t test were used to compare the following for each probe position: total reflux episodes, number > 5 minutes, longest reflux episode, total % exposure and % in upright and supine positions and a composite reflux score. Eleven of the 15 patients were found to have reflux disease based on the criteria of Johnson and De Meester. These were all detected on both distal probes but only were diagnosed on the most proximal probe. The correlation ($r = 0.93$) between recordings at the two distal probe positions was high. While manometric placement of the probe is ideal, we have shown that a single reading in the distal 7 cm of oesophagus detects reflux and that a single probe recording may be a useful screening in an outpatient setting.

6. CONGENITAL HYPERTROPHIC PYLORIC STENOSIS - A 22 YEAR EXPERIENCE

M. Maher, D. Hehir, A. Horgan, R. Stuart, J. A. O'Donnell, W. O. Kirwan, M. P. Brady.

Department of Surgery, Regional Hospital, Cork.

Congenital hypertrophic pyloric stenosis is a common problem in young infants. Since 1911, Ramstedt's pyloromyotomy

has been the treatment of choice for this condition. We report a 22 year experience of Ramstedt's pyloromyotomy performed in a general surgical unit.

Two hundred and sixty two infants underwent Ramstedt's pyloromyotomy in St. Finbarr's Hospital and Cork Regional Hospital over a 22 year period. Of these 229 (87.4%), were reviewed retrospectively. The male:female ratio was 3.6:1 and the media age at operation was 6 weeks (range 2-26). In only 8.3% was there a positive family history. The tumour was palpable in 92.6% and the diagnosis was made in the remainder by barium meal. There was one false positive barium study.

The medium pre-operative hospital stay was 3 days (range 0-26), with 74% operated on within 5 days of admission and 88.6% within 10 days. A relatively high proportion of infants were hypochloeraemic on admission. 32.3% had a plasma chloride < 90 mmol/L. there was only one postoperative mortality (0.4%) this was in the first half of the study period. Mucosal penetration occurred in 14.8% and all were recognised at initial operation. Repeat pyloromyotomy was necessary in 1.3% of cases. The incidences of wound infection was 10.9% and wound dehiscence occurred in 2.6% of cases. The median postoperative hospital stay was 10 days (range 3-60), 37% were discharged within 5 days of operation.

We conclude that Ramstedt's pyloromyotomy for congenital hypertrophic pyloric stenosis can be performed with morbidity and minimal mortality in the general hospital.

7. RAMSTEDT'S PYLOROMYOTOMY - A SPECIALIST PROCEDURE?

J. M. O'Donoghue, J. R. Flynn, J. Doyle, M. Gallagher, K. Connolly.

Portiuncula Hospital, Ballinasloe, Co. Galway.

It has been suggested that all infants presenting with infantile hypertrophic pyloric stenosis (IHPS) should be treated by surgeons with a special interest in paediatric surgery(1). We have examined our experience of 120 consecutive operations for IHPS. The diagnosis was made with a test feed in 72% of cases, by palpation without a test feed in 13% and by barium meal in 15%. One patient was found not to have IHPS at surgery. Two patients required reoperation, 1 of which required a third procedure. The overall intraoperative complication rate was 9.2% and included 3 hepatic injuries and 8 mucosal perforations. The overall postoperative wound infection rate was also 9.2%. Prior to changes in surgical techniques in 1985 the rate was 15%. After 1985 it decreased significantly to 4% ($p < 0.05$). The commonest post-operative complication was vomiting. There were no deaths or wound dehiscences in this series. During a 10 year period from 1981 to 1990, the incidence of IHPS increased significantly from 0.87/1,000 live births, peaking in 1989 at 6.8/1,000 live births ($p < 0.05$).

These results compare favourably with the literature and we conclude that it is unnecessary to refer infants with uncomplicated IHPS to units with a special interest in Paediatric Surgery. The rising incidence of IHPS has been previously reported, the reasons for which remain unclear.

Reference

1. Zidan, B., Wyatt, J., Makensie, A., Brereton, R. J. Recent results of treatment of infantile hypertrophic stenosis. Arch Dis. Child. 1988, 63: 1060-1064.

8. ACUTE GASTRIC SURGERY IN A DISTRICT SURGICAL UNIT

M. Barry, M. G Davies, M. West, E. O'Broin, J. A. Connolly, D. Long*, M. F. Shine, F. Lennon.
Departments of Surgery and Medicine*, International Missionary Training Hospital, Our Lady of Lourdes, Drogheda, Co. Louth.

Despite the changes in management and the advances in therapeutics, surgeons are still required to treat the complications of peptic ulceration. A retrospective review of all open surgical interventions for bleeding and perforated peptic ulcers between January 1983 and December 1990 was carried out. There were no exclusion criteria.

Open gastric surgery accounts for 3% of all inpatient surgical procedures and 13% of all the major operations. There were 299 adult and 99 paediatric procedures performed in the 8 year period. Acute gastric procedures accounted for 31% of major gastric surgery in this district unit. 59 perforated ulcers and 34 bleeding ulcers required surgery. 39% of the patients were over 70 years.

The perioperative mortality was 15% (5% for those under 70 years). Overall morbidity was 71% and the procedure-related morbidity rate was 19.45. Acute gastric surgery has a very high inpatient morbidity and is associated with a significant mortality particularly in elderly patients.

9. T-TUBE SPLINTAGE IS UNNECESSARY FOR DIRECT DUCT TO DUCT BILIARY ANASTOMOSIS FOLLOWING LIVER TRANSPLANTATION

K. J. Dawson, J. R. Novell, A. K. Burroughs, K. Rolles.
Hepatobiliary and Liver Transplantation Group, The Royal Free Hospital School of Medicine, London, UK.

Different techniques of biliary anastomosis were assessed in 100 consecutive liver transplants, performed by one surgeon. In 91 patients a direct end-to-end anastomosis was fashioned between donor and recipient common bile ducts. The first 16 anastomoses were splinted with a T tube (DD + T); no T tube was employed in the remaining 75 patients (D-D). In two patients early in the series a biliary conduit was fashioned from the gall bladder, and in seven patients biliary drainage was via a Roux-en-Y jejunal loop primarily.

There were no biliary leaks from the two conduits or from the 7 jejunal loops. Three of 16 patients (19%) with D-D + T anastomoses sustained leakage, requiring Roux loop conversion in two and removal of the T tube in one. Eight of 75 (11%) unsplinted anastomoses leaked, necessitating Roux loop conversion in 7 and percutaneous drainage in the remaining patient. Biliary leakage was invariably due to donor duct necrosis. Four strictures occurred following D-D anastomosis. All were successfully managed by endoscopic or percutaneous dilation.

There were no significant difference for either leak rate or stricture formation between splinted and unsplinted anastomoses. The groups were well matched for age, sex and indications for transplantation. It is concluded that T tube splintage confers no advantage in direct duct-to-duct anastomosis following liver transplantation.

10. MESORECTAL EXCISION IN RECTAL CANCER; THE IMPORTANCE OF ACCURATE HISTOLOGICAL STAGING

W. P. Joyce, J. Dolan*, J. Hyland.
Depts. of Surgery and Pathology*, St Vincent's Hospital, Dublin 4.

Local recurrence of rectal cancer following surgical resection is usually incurable. It is generally agreed that total mesorectal excision (i.e. the visceral mesentery of the rectum) is necessary for all middle, low and some high rectal cancers. Despite adequate "curative" mesorectal excision local recurrence still occurs and can be as high as 10-15%. By careful histological analysis of the mesorectum a potential "at risk" group from local recurrence may therefore be identified.

Seven male and 6 female patients aged 42-84 years (mean 68.8 years) underwent "curative" excision of the mesorectum for rectal cancer. The mesorectum as well as the mesocolon was meticulously studied for local tumour invasion, isolated mesorectal tumour deposits and nodal status. Three patients were Dukes A, 4 were Dukes B and 6 were Dukes C. Direct mesorectal fat invasion by tumour was identified in 7 patients. A mean of 4 mesocolic nodes per patient (range 0-16) were detected all free of tumour. A mean of 18 mesorectal nodes per patient (range 2-68) were detected of which 6 patients had positive nodes with a mean of 4 nodes per patient (range 1-8). Four "at risk" patients (31%), (2 Dukes B patients and 2 Dukes C patients) were found to have isolated mesorectal tumour deposits proximal to (n = 9 deposits), adjacent to (n = 5 deposits) and distal (n = deposits) to the tumour.

These data would suggest that inadequate histological analysis of the mesorectum may understage many patients with rectal cancer and in addition will not isolate an "at risk" group from local recurrence where outcome may be improved by adjuvant radio-chemotherapy.

11. PCNA IN COLORECTAL CANCER: A VALUABLE ADJUNCT TO DUKES STAGING

E. Mulligan, M. J. Kerin, N. N. Williams, K. J. Cronin, P. Dervan*, J. M. Fitzpatrick, T. F. Gorey.
Departments of Surgery and Pathology*, Mater Misericordiae Hospital/University College Dublin.

Dukes staging system remains the gold-standard as a prognostic indicator in colorectal carcinoma. Monoclonal antibodies have recently been generated to PCNA/cyclin a 36kd S-phase associated nuclear protein. As cell kinetic information is an important adjunct to histologically based tumour classification, the aim of this study was to assess the use of this new technique in predicting outcome in colorectal carcinoma. 108 patients with colorectal carcinoma operated on in 1984/1986 were followed up for at least 5 years. Paraffin embedded blocks of each tumour were retrieved and after standard deparaffinisation were immunostained with an Avidin-Biotin vector kit by the monoclonal antibody PC10. PCNA levels were counted at high power and percentage positivity calculated by an independent pathologist. Outcome in terms of disease free interval and survival was then assessed.

Five Year Survival				
Dukes Stage	< 10%	10-50%	>50%	
A 3 (n=3)	1 (n=1)	1 (n=1)	1 (n=1)	
B 33 (n=57)	10 (n=12)*	18 (n=31)	5 (n=14)	
C 10 (n=30)	5 (n=11)	2 (n=10)	3 (n=8)	
D 0 (n=18)	0 (n=5)	0 (n=8)	0 (n=5)	

* P < 0.05 chi-squared

The 5 years survival was as expected from Dukes Stage (A 100%, B 58%, C 33%, D, %). PCNA levels predicted a subgroup of patients within each stage who had an improved prognosis. This has implication for adjunctive therapy.

12.

SURGICAL OPTIONS IN THE MANAGEMENT OF CROHN'S COLITIS

W. P. Joyce, O. Traynor, J. Hyland.

Department of Surgery, St Vincent's Hospital, Dublin 4.

The surgical management of large bowel Crohn's disease is still controversial. It is universally accepted that surgical cure is not possible, however, surgical strategies are largely determined by conservative versus radical surgery. We present a consecutive series of 26 patients who underwent a variety of surgical procedures for symptomatic large bowel Crohn's disease in which an aggressive surgical approach was adopted.

From January 1983 - January 1992 twenty six patients were surgically treated for Crohn's colitis in our unit. All data was collected prospectively and age at initial surgery ranged from 20 - 85 years (mean 52 years) and there were 8 males and 18 female patients. Age at initial diagnosis was 43.6 years (range 20 - 77 years). A variety of operations were performed depending on the clinical setting. A total of 40 operations were performed on 26 patients. Indications for surgery included deteriorating clinical condition (n = 21) or sepsis (n = 5). One patient died postoperatively from multi-organ failure following an emergency colectomy for fulminant colitis. Two patients developed post-operative renal failure which recovered and 1 patient developed a DVT and another a non-fatal PE. Follow-up data was available on all patients. Relapse rate was high and independent of age at initial diagnosis or surgical procedure performed. Sub-total or total colectomy with or without a restorative procedure seemed to have a better medium term prognosis in terms of recurrence.

These data suggest that an aggressive surgical approach is justified in patients with Crohn's colitis. A combined team approach and early surgical referral would seem responsible for the overall good results reported in this series.

13.

DO C-KI-RAS, C-ERB B2 AND P53 PLAY A ROLE IN THE PROGNOSIS OF DUKE'S B COLORECTAL CARCINOMA?

N. N. Williams, M. Bennett, O. Tighe, H. Mulcahy, D.

O'Donoghue, D. Bouchier-Hayes, D. T. Croke.

Depts. of Biochemistry and Gastroenterology & Liver Unit, Royal College of Surgeons in Ireland/St. Vincent's Hospital, Dublin.

Survival of patients with early CRC is by no means assured, with some 35% of patients with Duke's B CRC having a recurrence of a disease within five years of surgery. The aim of this retrospective study of Duke's B CRC was to determine the

frequency of a number of genetic changes thought to be characteristic of CRC progression, and to correlate these data with patient survival in order to assess their prognostic relevance. The study population consisted of 60 patients with Duke's B CRC divided into two groups based upon known outcome. Group 1 30 patients dying of their disease within 3 years of surgery and Group 2 30 patients known to be alive and well at least 5 years after surgery. Archival tumour specimens underwent polymerase chain reaction to detect the occurrence of c-Ki-ras point mutation on chromosome 12, cerb B2 amplification on chromosome 17 and loss of heterozygosity at the p53 locus on chromosome 17. Statistical differences in proportions between groups were detected by the Chi squared test. Forty four per cent of cases exhibited point mutation of codon 12 of the c-Ki-ras oncogene; 42% in group 1 and 46% in group 2 (p = ns). Amplification of the c erb B2 oncogene was not detected to any significant extent in either group. Fifty three per cent of patients in group 1 were found not to exhibit loss of heterozygosity compared to 47% of group variables within Duke's B CRC. It is possible, however, that in conjunction with other genetic changes, these may form the basis of a multivariate prognostic system for the assessment of colorectal tumours.

CRC - Colorectal carcinoma

PCR - Polymerase chain reaction

14.

THE LONG TERM RESULTS OF LARGE DOSE SINGLE SESSION PHENOL INJECTION SCLEROTHERAPY FOR HAEMORRHOIDS

J. R. Novell, G. Santos, G. Khoury, M. C. Winslet, A. A. M. Lewis.

University Department of Surgery, Royal Free Hospital and School of Medicine, London, NW3, UK.

The effect of single session large dose (3 x 5 ml) phenol sclerotherapy was assessed in 189 patients (male = 106, female = 83, median age 51: 20-85 years) with symptomatic haemorrhoids (bleeding = 100%, discomfort = 30%, pruritus = 16.5%, prolapse = 18%). Forty two (22.2%) patients required repeat treatment. At four years follow-up, 52 patients (27.5%) were asymptomatic, 25 (13.7%) improved, 35 (18.5%) unchanged and 59 (31.2%) worse. Sixteen patients (8.5%) required surgery. Results were not influenced by previous sclerotherapy. Of 119 patients (63.4%) not cured, 50% had minimal, 41.7% moderate and 12.5% severe symptoms. Sclerotherapy was associated with a reduced incidence of bleeding on the paper (83.6 v 39.9%, p < 0.05). The presence of prolapse was associated with residual symptoms and treatment failure.

Large dose phenol sclerotherapy is a simple, safe, palliative treatment for symptomatic haemorrhoids, but one third of patients have persistent severe symptoms. Repeat treatment offers little benefit and only alternative treatment will result in long term cure.

15.

STANDARDIZATION OF ANTERIOR RESECTION

E. Beausang, K. Mealy, L. Joyce, J. Hyland

Department of Surgery, St Vincent's Hospital, Dublin 4.

Anastomotic dehiscence remains a serious and often fatal complication following anterior resection (AR). Anastomotic

leakage appears to be particularly associated with low anastomoses, however, the term "low" has never been clearly defined. Furthermore, variation in reported outcome following AR may be due to difficulty in interpretation of the level of anastomosis between different series. The aim of this study was to prospectively audit tumour height preoperatively and per-operatively following mobilization of the rectum and comparing these figures to the level of the peritoneal reflection, final anastomotic height and degree of tumour clearance to define objective criteria for reporting on the height of rectal tumours.

Twenty two consecutive patients were studied, 13 males and 9 females with a mean age of 67.6. Tumour and anastomotic heights were measured either digitally or with the colonoscope and the results expressed in cm from the anal verge. Results are expressed as mean + sem. the peritoneal reflection was significantly higher in males (10.2 ± 0.9 vs 8.2 ± 1.4 cm, $p < 0.0001$). Pre-op tumour heights were significantly different from the height of tumour following mobilization and final anastomotic heights (7.6 ± 0.51 vs 12.8 ± 0.54 , $p < 0.0001$ and vs 5.7 ± 0.51 , $p < 0.0039$ respectively). There was no correlation between level of tumour and sex, Dukes classification or length of distal clearance. We conclude from these results that as tumour and anastomotic heights may differ at anterior resection both figures should be reported to allow adequate comparisons between series.

16. PRE-OPERATIVE STAGING OF RECTAL CANCER USING MAGNETIC RESONANCE IMAGING. A HISTOPATHOLOGICAL STUDY

W. P. Joyce, M. McNicholls*, D. McErlean*, J. Hyland.
Depts. of Surgery and Radiology*, St. Vincent's Hospital, Dublin 4.

Rectal cancer is a common gastro-intestinal malignancy and long term outcome depends largely on the stage of the disease at the time of clinical presentation. Wide acceptance of the use of preoperative radio-chemotherapy in an attempt to downstage the disease is limited by the inability to accurately stage the tumour before surgery. We report our experience using pre-operative magnetic resonance imaging (MR) in 13 consecutive patients who underwent "curative" surgery for rectal cancer and have compared these radiological data with the histopathological findings.

Seven male and 6 female patients aged 42 - 84 (mean 68.8 years) underwent surgery for rectal cancer. Twelve patients underwent anterior resection of the rectum while 1 patient underwent and abdomino-perineal resection for a 2 cm rectal cancer. The resected mesorectum was meticulously studied for local tumour invasion, isolated mesorectal tumour deposits and nodal status. Three patients were Dukes A, 4 were Dukes B and 6 were Dukes C grade. The MR findings were correct in 6 of 7 patients (86%) in detecting direct mesorectal fat invasion by tumour. Isolated mesorectal tumour deposits were identified in 4 patients and MR was correct in detecting 3 (75%) of these. MR correctly identified pathological lymph nodes (i.e. > 1 cm) in all 6 cases, however, it overestimated pathological lymph node status in 1 patient.

These data would suggest that MR staging of rectal cancer is accurate in determining local tumour invasion, mesorectal tumour deposits and nodal status and is a modality that should be considered in patients undergoing surgery for rectal cancer.

17. SURGERY FOR CROHN'S DISEASE IN GALWAY

M. A. Stokes, K. Barry, R. Sullivan*, J. Byrne,
J. Callaghan*, T. O'Gorman*, and H. F. Given
Depts. of Surgery, Gastroenterology* & Pathology*,
University College Hospital, Galway.

Crohn's disease has an incidence in Ireland of 2.3 per 100,000, which is higher in urban than in rural areas. This study is based on our experience with a predominantly rural population in the West of Ireland.

In the last 12 years, 72 operations have been performed on 41 patients for Crohn's disease in this hospital. Only 11 patients lived in the city. There were 18 males and 23 females with a mean ($\pm$ SD) age at presentation of 32.6 ($\pm$ 17.8) years. They had been symptomatic for 9 months before presentation and 3 years before surgery. 28 had ileocolic disease, 3 small intestinal, 2 pan-enteric and 8 colonic. Pain (in 76%), diarrhoea (56%) and weight loss (66%) were the main symptoms. Diarrhoea occurred in all with colonic disease, but in only 43% with ileocolic disease. Three had a positive family history. The patients were ill with a Crohn's Disease Activity Index of 233 ($\pm$ 104), platelets of 452 ($\pm$ 153) and an albumin of 31.9 ($\pm$ 6.5).

Twenty eight patients had a right hemicolectomy for ileocolic disease; 12 patients had colonic resection and nine small intestinal resections. There were no deaths. 22 patients had a total of 26 complications after surgery, eight necessitating further surgery. The mean post-operative stay was 15 days, being lowest in those with ileocolic disease. Nineteen patients have required only one operation, with a mean follow-up of 5.3 years. These patients also had significantly less complications ($p < 0.05$).

In conclusion, half of the patients requiring surgery for Crohn's disease have had only one operation and have done very well. The other half require many operations and have a substantial morbidity.

18. ASSESSMENT OF TECHNIQUES IN THE TREATMENT OF RECTAL PROLAPSE

M. S. Dudeney, M. P. Redmond, J. M. Deasy.
Department of Colorectal Surgery, Beaumont Hospital,
Beaumont, Dublin 9.

Surgical intervention for rectal prolapse is well established, but there is no consensus on the operation of choice. Between 1981 and 1992, 40 patients underwent Well's trans-abdominal rectopexy for complete rectal prolapse. The mean age was 60 ± 4 years, and the male : female ratio was 1:10. The mean duration of symptoms was 60 ± 18 months. Of the 38 per cent of patients who presented with faecal incontinence, 85 per cent showed improvement in control, and 50 per cent regained control fully. Predisposing factors in this series included chronic constipation (65%), multiparity (69%), surgery for genital prolapse (37%). Post operative constipation occurred in 21 per cent of patients. There was no incidence of recurrence of prolapse, infection in prosthesis if used, or impotence. Subjective patient assessment found that 92 per cent of patients felt their condition was improved as a result of surgery. We conclude that this type of rectopexy is an effective form of treatment of full thickness rectal prolapse.

19.
**PERITONEAL ASPIRATION CYTOLOGY IN ACUTE
APPENDICITIS**

V. K. Young, M. T. P. Caldwell, R. G. K. Watson.
Department of Surgery, Waterford Regional Hospital,
Waterford, Ireland.

Acute appendicitis remains a difficult diagnosis especially in young children and females of reproductive age. Negative appendicectomy rates of up to 50% have been reported in these groups. The aim of this study was to evaluate the accuracy of peritoneal aspiration cytology (PAC) in predicting the diagnosis of acute appendicitis.

Fifty-one patients, in whom a clinical diagnosis of acute appendicitis has been made, underwent PAC prior to appendicectomy. There were 36 positive results, 11 negative results and aspiration failed in 4 cases. The result of the PAC did not influence the clinical decision to operate.

Thirty-five of the 36 patients with a positive PAC had histologically proven acute appendicitis - the other one had salpingitis. Seven of the eleven patients with a negative result had normal appendices. Of the other 4, 2 were true false negatives and 2 were incorrectly stained. The sensitivity of PAC for acute appendicitis was found to be 85%. The positive predictive value was 97%. The specificity was 70% and the negative predictive value was 47%.

PAC is a useful aid to the diagnosis of acute appendicitis. It has potential for use in management decisions, however, a negative result does not exclude appendicitis.

20.
**ILEO-COLIC CROHN'S DISEASE: SURGERY IS SAFE
AND EFFECTIVE**

W. P. Joyce, O. Traynor, J. Hyland.
Department of Surgery, St. Vincent's Hospital, Dublin 4.

Crohn's disease of the ileo-colic region remains the most common site of gastro-intestinal involvement. The aim of this study was to review our experience in the surgical management of ileo-colic disease.

From January 1983 - January 1992 ninety patients were surgically treated for Crohn's disease in our unit. All data was collected prospectively and 38 patients (42%) were found to have ileo-colic disease only. Mean age at initial surgery was 32.8 years (range 18 - 57) and mean age at initial diagnosis was 26 years (range 14 - 47 years). There were 26 female and 12 male patients. A positive family history for Crohn's disease occurred in 5 patients (13%). Four patients (10%) had peri-anal disease while 11 patients (29%) had associated fistulous disease. Indications for surgery included deteriorating clinical condition, sepsis or intestinal obstruction. A total of 54 operations were performed on 38 patients. The commonest operation performed was a modified right hemicolectomy. Only 8 patients (21%) developed recurrent disease requiring further surgery at a mean follow-up period of 27 years (range 3 months - 27 years). No peri-operative death occurred while 3 significant post-operative complications were encountered. One patient developed a DVT, one patient a wound dehiscence and one patient an anastomotic leak which was treated conservatively.

Ileo-colic disease represents 42% of surgically treated Crohn's disease at our unit. The majority of patients have a good medium term prognosis and can be managed safely by a right hemicolectomy.

Session II

21.
**INTENSIVE CARE IN AN IRISH DISTRICT GENERAL
HOSPITAL - A 3 YEAR REVIEW**

M. Barry, M. G. Davies, J. A. Connolly, G. O'Kane*, K. Murphy*, C. McDowell*, M. F. Shine, F. Lennon.
Departments of Surgery and Anaesthesia*, International
Missionary Training Hospital, Our Lady of Lourdes,
Drogheda, Co. Louth.

The International Missionary Training Hospital is a 340-bed acute general hospital with maternity and paediatric units. It serves a population of 120,000 people within the North Eastern Health Board Area and has approximately 14,000 admissions each year. This report retrospectively reviews the activity of a 3-bedded Intensive Therapy Unit (ITU) over the 3 year period July 1987 - June 1990. 805 patients (1.9% of hospital admissions) with an average age of 55 ± 22 years (mean $\pm$ SD, range 14 ± 94 years) were admitted from the general wards and the remainder from the accident unit.

59% of the admissions were immediate post-operative cases. 82% of patients had APACHE scores less than 20. There was a wide diversity of medical and surgical diagnoses requiring treatment. 219 cases required one or more systems to be supported and 586 (73%) were admitted as high dependency cases. For those requiring ventilation, the average ventilation time was 3.2 days (range 0.5 ± 23 days). The average length of stay within the unit was 2.3 days (range 1-23 days). 86% of the patients were discharged to the wards, 11% died and 3% were transferred to external specialist care facilities.

22.
**THE USE OF MONOFILAMENT POLYGLYCONATE
(MAXON) IN TENDON REPAIR**

K. Khan, S. K. Al-Ghazal, J. McCann.
Dept. of Plastic, Reconstructive & Hand Surgery, University
College Hospital, Galway.

Different suture materials have been used and evaluated in the past for their tensile strength, easy knotting, minimal excitation of tissue response and gapping. Also the results of primary repair of tendons have been analysed by several authors using different suture materials and techniques.

A retrospective study of 88 patients with 103 tendon repairs was performed. These consecutive cases included both flexor (52%) and extensor tendons (44%). 4% of the cases were miscellaneous i.e., both flexor and extensor tendons in the same patient and one case had a tendon graft.

All repairs were carried out with monofilament polyglyconate (3/0 or 4/0) using modified Kessler's technique with running circumferential suture of 6/0 Maxon.

All the patients were covered with a five day course of Augmentin. P.O.P. slabs were used for splintage (front slab x 6 wks. for extensor tendons, back slab x 4 wks. for flexor tendons).

34 (48%) of the patients had associated bony, nerve or joint injuries.

39 (57%) achieved excellent results with full range of movements.

20 (29%) had incomplete recovery, 11 of whom had acceptable range of movements and were back to work.

9 (13%) had poor results (3 major nerve injury, 3 developed infection and subsequent contracture, 2 had joint injuries and one case of rupture who removed his splint early and did not attend).

9 (13%) did not attend follow up O.P.D.

23. TEACHING OF TRIAGE OF THE MULTIPLE INJURY PATIENT

S. T. O'Sullivan, R. C. Stuart, M. O'Connor, D. Hehir, M. P. Brady.

Department of Surgery, Cork Regional Hospital, Cork.

Studies into the management of the multiply injured patient immediately after arrival into hospital reveal a high proportion of potentially avoidable deaths. The commonest error in management relate to failure to recognise and treat problems with the airway, breathing and circulation in the correct sequence. The aim of this study is to investigate the influence of a series of trauma lectures on the ability of medical and paramedical staff to prioritise trauma patients based on the ABC's of resuscitation. Two one hour trauma lectures each with emphasis on the ABCs were presented on each of three consecutive Saturdays. Before the course began 117 people completed a questionnaire in which 16 injured patients were to be listed in order of treatment priority. Forty of these attended part of all of the series. After the lecture series 113 people completed a second similar questionnaire.

Despite a presumed awareness of the ABC approach to the management of the multiply injured patients only 26.1% of respondents correctly identified the first three patients with airway, breathing and circulatory problems. The attenders of the trauma course did significantly better than those who did not attend, 38.4% correct vs. 16.8% correct: $P < 0.05$. However, the results with the second questionnaire were not significantly altered by the series of lectures, 35% correct before vs. 40.7 after the course.

We conclude that the people likely to attend trauma lectures are already more proficient than those who choose to ignore such teaching. Future courses should be compulsory.

24. CEMENTLESS INTERLOCKED NAILING OF PATHOLOGICAL LONG BONE LESIONS - IMPROVED OPERATIVE MANAGEMENT

J. McCabe, J. O'Byrne, D. O'Farrell, M. Walsh.

The aim of our study was to evaluate the efficacy of locked intramedullary nailing without Methylmethacrylate support in pathological long bone destruction. In the past decade, due to improved management of metastatic tumour and metabolic disorders, the frequency of long bone lesions requiring operative intervention has increased in conjunction with patient survival. The principles of management for such lesions are still developing and new operative techniques are evolving. Thus far, it is evident that rigid fixation of the involved bone allows early mobilization, reduced morbidity and prolongs patient survival.

Over a three year period, 40 long bone destructive lesions in 31 patients required internal fixation in our unit. Five patients had more than one bone requiring surgery. The long bones involved were the femur in 35 cases and the humerus in 5 cases. All patients were symptomatic and 18 of the procedures were

performed prior to fracture occurrence. Intramedullary tixation was achieved by a variety of cross-locking devices including Russel-Taylor (27), Seidel (5), Gross-Kempf (3) and Zickel (5) intramedullary nails. Pain relief was achieved in all cases. Approximately ninety per cent of the patient group was ambulatory after surgery. No intraoperative deaths occurred but two patients died within one month of surgery due to myocardial infarction.

Our experience would suggest that cementless interlocking nail fixation by allowing adequate load sharing is a safe and effective technique in management of pathological bone destruction.

References:

1. Yazaway, Y., Frassica, F. J., Chao, E. Y. Metastatic Bone Disease: A study of the surgical treatment of pathological humeral and femoral fractures. *Clin. Orthop.* 251. 1990; 213-219.
2. Weikert, D. R., Schwartz, H. S. Intramedullary nailing for impending pathological subtrochanteric fractures. *J.B.J.S. (Br.)* 1991; 73B: 668-670.

25. EARLY EXPERIENCE WITH LEG LENGTHENING BY CALLOTASIS AND CHONDRODIASIS

M. Maher, J. O'Beirne, S. O'Flanagan, A. McGuinness.
Department of Orthopaedics, Cork Regional Hospital.

Since 1905, orthopaedic surgeons have employed various methods to achieve limb lengthening. Limb lengthening offers the patient with short stature or leg length discrepancy improved quality of life. We report our experience of limb lengthening performed by callotasis and chondrodiastasis.

Over a four year period, 20 segments in 16 patients were treated by lengthening by callotasis or chondrodiastasis. The indications were leg discrepancy in 13 patients and short stature in three.

Patients with leg length discrepancy were all treated by femoral lengthening: The mean length gained was 4.4 cm (range 2.5 - 6.5 cm). For patients with short stature, the mean femoral length gain was 10 cm (9.0 - 10.5 cm), and the mean tibial length gain was 8.0 cm (6.5 - 9.0 cm).

The commonest complication was pin tract infection, but this settled in all cases, with antibiotic treatment. Most other complications were also successfully dealt with and did not compromise the outcome of treatment.

At the time of review, 13 of the 16 patients said they were very happy with the result: 2 patients were reserving judgement until completion of treatment, and only one thought the treatment had been of no benefit.

Our initial experience, in particular with callotasis, has been that it is a highly satisfactory method of limb lengthening, has an acceptable complication rate, and involves minimal hospitalization as compared with older techniques.

26. A NEW UNCONSTRAINED ELBOW ARTHROPLASTY

O. Brady, W. Quinlan.

Department of Orthopaedics, St. Mary's Orthopaedic Hospital, Dublin.

The guildford elbow is a new unconstrained elbow arthroplasty. From 1985 to 1991, this arthroplasty was used in 24 patients with rheumatoid arthritis. The patients were reviewed at 28 months (4 - 59 months). Good to excellent results were obtained in 95%

regarding pain relief and functional improvement. Complications were few with only one case of clinical loosening and three of radiological loosening. Ulnar nerve hypoaesthesia was common but did not jeopardise the final result in any patient.

27.

IMPROVED ASSESSMENT OF SEVERE ANKLE LIGAMENT INJURIES USING M.R.I. - COMPARATIVE ANALYSIS WITH PLAIN RADIOGRAPHY AND SCINTIGRAPHY

J. P. McCabe, D. O'Farrell, B. Curtin, M. Stephens, J. Stack.
Department of Orthopaedics, Mater Misericordiae Hospital, Eccles Street, Dublin.

Lateral ligament tears of the ankle are among the commonest injuries in sport. Accurate diagnosis is therefore critical for correct management and rapid rehabilitation. We prospectively assessed a new diagnostic protocol in fifty four patients with unstable lateral ligament injuries and positive stress radiographs. This patient subgroup was referred for Technetium - 99 isotope scans as a screening procedure for occult osteochondral fractures in the ankle joint. These individuals whose scintigraphy suggested a fracture then had magnetic resonance imaging to delineate the precise site and extent of the fracture. Twenty one patients had deltoid ligament injury in association with lateral ligament tears. Three patients had osteochondral fractures of the posterior and medial articular surfaces and the distal tip of the tibia. Four of the MRI scans revealed joint effusions which would otherwise have remained undetected. The incidence of occult osteochondral fractures in association with ligamentous ankle injury is 5.5% in this series. We recommend isotope scanning as an initial screening procedure for such fractures in patients with positive stress radiographs. We further suggest M.R. imaging for patients with positive isotope scans so these fractures can be confirmed and accurately assessed. Additional information is obtained in such cases but - MR imaging is only indicated where plain radiographs and a bone scan suggest an occult osteochondral fracture.

28.

BODY AND ENDORECTAL SURFACE COIL MRI IN THE STAGING OF PROSTATE CARCINOMA

P. McCarthy, M. Schnall, H. Pollack.

Depts. of Radiology, University College Hospital, Galway and Hospital of the University of Pennsylvania, Philadelphia.

The recent development of endorectal surface (ERSC) technology has allowed us to image the prostate gland and periprostatic tissues with a resolution and a clarity never before achieved with the use of standard body coil MRI. Prostate carcinoma lends itself very well to ERSC technology because of the fact that 70% of all carcinomas arise in the peripheral zone. A pilot study on 34 patients being considered for radical prostate surgery using SRSC was performed. All were examined on a GE Signa 1.5 Tesla magnet, with axial T1- and T2-weighted images. 29/34 patients were correctly assigned to Stage B or C disease, the key factor in determining whether such patients are suitable for such surgery. Of those who were understaged all had evidence of microcapsula invasion at surgery.

This study is compared to the results of a previous study by the authors using body coil imaging alone. The use of multicore

arrays in this disease and the future use of intravesical coils to enhance visualisation of the anterior gland (in which 50% of carcinomas occur) is stressed.

29.

THE INTERMITTENT NATURE OF HAEMATURIA IN PATIENTS ATTENDING FOR INVESTIGATION

T. H. Lynch, B. Waymont, J. A. Dunn, M. A. Hughes.
D. M. A. Wallace.

Department of Urology, Queen Elizabeth Hospital, Birmingham, U.K.

Haematuria is often intermittent. If it subsides spontaneously the patient and doctor may be lulled into a false sense of security until another episode occurs. As haematuria is an important warning signal of potential underlying pathology, it should be investigated even after one episode.

Our study group of 395 patients were all referred to our open access haematuria clinic. 54% of patients had macroscopic haematuria, 30% had symptomatic microscopic haematuria and 16% had asymptomatic haematuria detected on routine screening.

Fifty two per cent of patients referred with macroscopic haematuria had no evidence of haematuria on microscopic examination when seen in the clinic. Of these patients 71 had significant urological pathology with 11 (10%) having a malignancy. Significant pathology was found in 33 patients who were referred with symptomatic microscopic examination in the clinic. Three (4%) of these patients had a malignancy. In the asymptomatic group with no evidence of persistence of haematuria we found significant pathology in 9 patients with two of these having transitional cell carcinoma of the bladder. Overall 7% of those found not to have haematuria when seen in the clinic were found to have a malignancy.

We feel that repeating the urinalysis to determine a high risk group is misleading. Our results clearly indicate that the finding of haematuria even on one urine specimen warrants full urological assessment.

30.

LAPAROSCOPIC LIGATION OF TESTICULAR VEINS

T. H. Lynch, T. E. D. McDermott, R. Grainger.

Departments of Urology, St. James's Hospital and The Meath Hospital, Dublin.

Varicoceles may be associated with male factor infertility and have an incidence of 15% in the adult male population. Varicocelectomy in the treatment of male factor infertility is well established, however, there are difference of opinion as to the optimal method of varicocele ablation. The inguinal and high retroperitoneal approaches are the most commonly accepted methods.

We have performed laparoscopic ligation of the spermatic veins with preservation of the spermatic artery in 15 patients. Standard techniques were used to create a pneumoperitoneum. The 10mm portals were established, one subumbilically and the other, mid way between this and the pubis symphysis. A third 5 mm trocar was inserted medial to the anterior superior iliac spine. The spermatic vessels were identified and exposed at the internal ring through a posterolateral peritoneal incision. The artery was easily identified by its pulsations and thus avoided.

The veins were ligated with an endclip and divided. The mean operating time was 50 minutes.

Of 15 procedures performed to date, scrotal emphysema has been the only intraoperative complication. No post-operative complications have been encountered. All patients were discharged on the first post-operative day and returned to normal activity within a few days. Colour flow doppler studies pre and post operatively showed that venous reflux disappeared in all but one patient in whom it was significantly reduced. This patient's scrotal discomfort had however disappeared.

Laparoscopic varicocelectomy is an effective and minimally invasive means of treating males with varicoceles who complain of sub-fertility or testicular discomfort.

31. CAN SERIAL PSA MEASUREMENTS CONFIDENTLY PREDICT SKELETAL METASTASES IN PROSTATE CANCER?

J. M. O'Donoghue, E. Rogers, M. Corcoran, H. Bredin,
H. Grimes*

Departments of Urology and Biochemistry*, University
College Hospital, Galway.

Traditional radiological methods for mass screening skeletal metastases in prostate cancer are not cost effective. We aimed to evaluate serum PSA as a cost effective marker of bony secondaries in patients with prostate cancer. 129 patients were followed up for 3 years. PSA and PAP levels were measured at 3 monthly intervals and isotope bone scans were performed on an annual basis. The means PSA level at presentation did not reflect the local stage of the disease. However in those patients who presented with metastatic disease PSA levels were significantly elevated ($p < 0.05$). The final number with metastatic disease was 66, 63 of whom had elevations in their PSA at the time of a positive bone scan. The sensitivity of PSA was significantly more sensitive than PAP as a marker in both the diagnosis of prostate cancer and in the detection of metastases ($p < 0.05$). Although not a cancer specific marker, PSA is nevertheless a good predictor of progressive disease. The current widespread use of isotope scintigraphy could therefore be limited to selected patients only, resulting in an increase in the positive scan yield and a sizable financial saving.

32. A SIMPLE TEST FOR DIAGNOSIS OF VENOUS LEAKAGE IN ERECTILE DYSFUNCTION

D. Lanigan, C. Roobottom, P. A. Dubbins, R. G. Choa.
Derriford Hospital, Plymouth, England.

Up to 30% of cases of organic erectile dysfunction may have venous leakage as a sole or significant contributory aetiological factor. We studied 14 patients referred with impotence. Angle-corrected duplex doppler signals were obtained from cavernosal arteries after application of a penoscrotal tourniquet and injection of papaverine and again after removal of the tourniquet.

11 patients had a mean drop in pulsatility index of 238.5 (suggesting increased venous outflow from the organ), while 3 had a mean drop of only 6.6. These results correlated closely with the clinical deterioration in the quality of their erections after removal of the tourniquet: the first group had a marked deterioration, while there was no great change in the second. No patient found the tourniquet uncomfortable, and on follow-up

enquiry 8 patients had found it to be a useful and practical form of treatment.

This simple tourniquet test therefore helps identify those patients who have a venous leak at their first clinic visit, without the need for invasive investigations. The penoscrotal tourniquet has several advantages over a penile tourniquet, including control of leakage from crural veins and it does not obstruct ejaculation.

33. THE FATE OF THE DEFUNCTALIZED BLADDER FOLLOWING SUPRAVESICAL DIVERSION

T. Creagh, R. Grainger, T. E. D. McDermott, M. R. Butler.
Dublin.

(Presentation made by R. Harkin)

Following supravescical diversion, the remaining bladder has recently been reported to cause morbidity in the majority of patients.

Between 1971 and 1990, we performed ileal (35) and colon (2) conduits without cystectomies on 37 patients. There were 14 males and 23 females with an average age of 45 years (range 13 - 79). The indications for diversion were incontinence (8), neuropathic bladder (8), tumours (7), interstitial cystitis (6), tuberculosis (4), epispadias/ectopia vesicae (3) and contracted bladder (1).

Seven patients died or were lost to follow-up within 6 months. The remaining 30 patients were followed for an average of 7 years (range 1 - 18 years). Complications resulting from the remaining bladder were (a) pyocystitis (3) requiring cystectomy in 2 patients and creation of a vesico-vaginal fistula in one patient, (b) haemorrhage (1) requiring transfusion and (c) pain (1).

This study suggests that the residual bladder infrequently causes complications and does not support the concept that simultaneous cystectomy should be performed at the time of supravescical diversion in all patients.

34. SACRAL ANTERIOR ROOT STIMULATION FOR URINARY CONTINENCE IN SPINAL CORD INJURY PATIENTS WITH DETRUSOR HYPERREFLEXIA

K. J. O'Flynn, R. P. MacDonagh, D. G. Thomas.
Spinal Injuries Unit, Lodge Moor Hospital Sheffield.

Sacral anterior root stimulation (SARS) was first used to improve bladder emptying in spinal cord injury (SCI) patients in 1976. We report our experience in 30 consecutive patients who underwent SARS insertion.

Patients and Methods: SARS were implanted in 30 patients (25M, 5F, mean age 31 years, range 18 - 52 years) with complete supraconal lesions and reflex voiding. Principal indications were incomplete bladder emptying, autonomic dysreflexia, recurrent U.T.I. and urinary incontinence. 24 patients had a complete sacral deafferentation at the time of SARS insertion. All patients had pre and post-operative video-pressure cystometry to assess functional bladder capacity, presence of stress leakage, the state of the bladder neck and voiding parameters. Mean follow up was 20 months (range 5 - 120 months).

Results: 80% patients are using their implant, all with residual urines < 50 mls. All patients had an increase in functional bladder capacity (mean 320 mls, range 175 - 1000 mls), 21 (70%)

patients are dry, 2 are damp and 7 are wet. However with bladder volumes in excess of 650 mls, 6 patients experience minor stress leakage on severe physical exertion. Post operative complications included CSF leakage 6, implant infection 1, technical failure 1, and wound infection 1.

Conclusions: Thorough pre-operative investigation and patient selection are vital for optimal results. The primary indication for SARS insertion remains incomplete bladder emptying and continence cannot be guaranteed.

35. AMBULATORY URODYNAMICS: AN ADVANCE IN THE URODYNAMIC ROUTINE

K. J. O'Flynn, D. G. Thomas. Department of Urology, Lodge Moor Hospital, Redmires Rd., Sheffield S10 4LH.

Conventional urodynamics are usually performed under non-physiological test conditions (e.g rate of bladder filling, temperature of filling fluid, laboratory environment) and provide only a "snapshot view" of bladder activity. This may lead to diagnostic doubt. The advent of solid state microtip transducers and physiological bladder filling potentially overcomes these problems. We describe our experience of ambulatory monitoring (AM) in 35 patients with equivocal conventional urodynamics (CMG).

Materials and Methods: 35 patients with normal or inadequate data on standard urodynamics had AM performed using Gaeltec microtip pressure transducers (mean duration 210 minutes). Information was stored in a small portable transducer and the data printed out on a standard PC computer.

Results:

CMG	AM
Normal 20	Instability 15 GSI 5
Hyperreflexia/Instability 5	Normal 1 Hyperreflexia + GSI 4
Unsatisfactory 8	Low pressure/low flow 2 Normal 2 Obstructed 3 Obstructed + Instability 1
Cystoplasty 2	Instability 2

Conclusions: AM allows a more physiological assessment of detrusor function, enabling the patient to mimic their daily routine. AM has a role in the management of patient with persistent urinary symptoms, with normal or equivocal urodynamic findings.

Session III

36. IN SITU OESTROGEN PRODUCTION IN BENIGN AND MALIGNANT BREAST DISEASE

K. Dawson, J. Aitken, B. Cooke, S. P. Parbhoo.
University Departments of Surgery and Biochemistry*,
Royal Free Hospital and Medical School, London NW3
2QG, UK.

Oestrogens, synthesised by the aromatase enzyme system, influence breast disease. The adipose in breast tissue can synthesise oestrogen in situ as can some breast cancers thus stimu-

lating tumour growth by paracrine/autocrine stimulation. We have examined the aromatase activity in 95 patients with breast cancer and 60 with benign breast disease.

There was measurable activity in 43/95 breast cancer patients (45.2%). This included tumour (37.3%), axillary lymph nodes (10.8%), axillary adipose (9.8%) and fat adjacent to the tumour (24.1%). The results were not influenced by the site, stage, grade or oestrogen receptor status of the tumour. Neither did the menopausal status of the patient, family history, age of menarche, age at birth of first child or previous endocrine therapy have an effect. There were positive results in 26.2% of the 60 patients with benign breast disease. These were mainly in local adipose tissue although 15.9% of the breast lesions themselves also showed activity. The results were examined in the light of the parameters above and again none had any influence.

These results indicate that about 1/3 of women with benign or malignant breast disease show significant aromatase activity. There were no predictive factors as to what patients showed activity. Trials of anti-aromatase drugs must use the aromatase positivity of patients as the basis for treatment if fair comparisons are to be made with standard regimens of endocrine manipulation.

37. SURGERY VERSUS TAMOXIFEN IN SELECTED ELDERLY PATIENTS WITH OPERABLE BREAST CANCER: EARLY RESULTS OF A RANDOMISED TRIAL

P. M. Cannon, S. C. Low, A. Dixon, I. O. Ellis, C. W. Elston, R. W. Blamey.
Nottingham City Hospital.

A previous trial¹ comparing tamoxifen with mastectomy for elderly patients with operable breast cancer showed that tamoxifen gave significantly poorer local disease control. We therefore undertook a trial comparing the two treatments in only selected patients with oestrogen receptor (ER) positive tumours as determined from fine-needle aspirates by immuno cytochemical analysis (ERICA).

Of 167 patients, 118 (71%) were ER positive (ERICA H-Score ≥ 100) and randomised to either mastectomy (n = 47) or tamoxifen (n = 71). To date, there have been 2 (4%) local recurrences in the mastectomy group compared to 8 (11%) cases of local progression in those given tamoxifen alone. On life-table analysis, the local relapse-free survival is 94% after mastectomy, and 75% in those given tamoxifen at 24 months. This difference, although not statistically significant, is appreciable.

Of the 8 progressors on tamoxifen, there was only 1 (2%) early progressor (< 6 months) which is a significant reduction compared with a 30% rate of early progression in our unselected historical controls (chi sq = 12.5, 1 df; p < 0.001). The remaining 7 cases progressed after initial favourable responses. Among these, we found significantly higher local progression in those with static disease compared to partial or complete regression on actuarial analysis (p < 0.02 and p < 0.001 respectively).

Conclusion: We would recommend a 2-stage selection policy in the elderly for treatment with Tamoxifen alone. An initial selection should be made using ERICA and then a second selection made at 6 months with those with static disease being converted to mastectomy.

Reference

1. Robertson, J. F. R., Todd, J. H., Ellis, I. O., Elston, C. W., Blamey, R. W. Comparison of mastectomy with tamoxifen for treating elderly patients with operable breast cancer. *BMJ* 1988; 297: 511-514.

38. NON-PALPABLE BREAST CANCER; SURGICAL MORBIDITY

E. D. Mulligan, M. J. Kerin, K. Cronin, A. Stack, N. N. Williams, P. Dervan, J. Ennis, J. M. Fitzpatrick, T. F. Gorey.

Departments of Surgery, Radiology and Pathology, Mater Misericordiae Hospital, Dublin.

Advantages from breast screening are well documented. Non-palpable mammographic abnormalities require needle localisation and biopsy.

The aim of this study was to assess the morbidity associated with surgical intervention for nonpalpable needle localised breast abnormalities. Over the past 2 years 166 breast lesions have been localised with a wire guided technique using a mammomat 11 (Siemens). This involved placement of a hook-wire using stereotactic guidance followed by excision of the localised area and specimen mammography.

Seventy two patients had malignant lesions excised and 94 had benign biopsies performed. 8 patients (5%) required a second localisation procedure and 3 of these had malignancy. The majority (59) of patients had drains left in site after their initial biopsy and the wound haematoma rate (7/28, 29/138) was not influenced by the presence or absence of a drain. 5 patients in the series developed a wound cellulitis and this was not influenced by subcuticular or interrupted wound closure. The majority 140 (84%) of patients were detained overnight and of those who required definitive surgery for carcinoma a mastectomy was performed in 50 (70%) of cases. One patient developed a DVT 10 days post mastectomy.

In conclusion, this study demonstrates that wire guided localisation and surgery can be performed with minimal morbidity and is associated with local complications for which we have been unable to demonstrate benefit of vacuum drains.

39. PROSPECTIVE EVALUATION OF FINE NEEDLE ASPIRATION CYTOLOGY IN BREAST LUMPS. SHOULD A CYTOLOGIST BE PRESENT?

F. Abbaskoor, M. K. O'Donoghue, G. Fulton, W. A. Tanner, F. B. V. Keane.

Department of Surgery, Meath and Adelaide Hospitals, Dublin.

Fine Needle Aspiration Cytology (FNAC) can provide a tissue diagnosis without the need for biopsy.

A prospective internal audit of 92 consecutive patients, who had FNAC performed by surgeons in a surgical Out-Patients over a 10 month period using a standard technique, was examined to determine the role of FNAC in the diagnosis of breast disease.

Forty-nine per cent (45/92) FNAC had a positive finding and the rest were inconclusive. The positive findings were malignancy (n=8), benign disease (n=37). All malignancies were confirmed on excision biopsy. With regard to the benign disease group 26/37 were consistent with breast cysts, and no further action was taken, 11/37 were suggestive of other benign disease and 4 underwent confirmatory excision biopsy. The diagnosis was also confirmed by mammography in 15/37.

In the inconclusive group (n=47), 5 were clinically aspirated cysts, and 17 underwent excision biopsy (14 benign, 3 malig-

nant). Two of the 3 malignant lumps were missed on mammography.

The results show that patients with a positive finding on FNAC had the correct diagnosis made in all cases, suggesting a high specificity, however, the inconclusive rate at 51% is disappointing and could be due to technical failure of aspiration, preparation, or interpretation. Despite careful introduction of this technique further refinements are required before it could be regarded as a useful investigation. Perhaps a cytologist should be present?

40. A 5 YEAR RETROSPECTIVE STUDY IN THE TREATMENT OF CARCINOMA OF THE BREAST IN A COUNTY HOSPITAL

Presenter: B. V. Joseph, F. O. Cunningham.
General Surgery, Our Lady's Hospital, Navan, Co. Meath.

Abbreviations: OD - Observed death. ED - Expected death. C.I. - Confidence Interval. Group A - Stage I & II disease. Group P - Stage III & IV disease.

Objectives: 1) To calculate 55 year survival rates. 2) To compare survival rates of Group A Vs Group B.

Method: 86 patients were studied from Dec., 1986 to June, 1992 of which 68 had total mastectomy and axillary clearance, 3 were put on Tamoxifen only and 15 had other forms of surgery. Adjuvant treatment given depended on the presence or absence of metastases and age of the patient i.e. pre., peri. or post. menopausal. 83 patients were staged adequately, of which, 64 were in Group A and 19 in Group B. A life table was used to calculate yearly and 5 year survival. The Log Rank Test was used to compare survival between Group A & B.

Results:

- (1) 12 patients had recorded deaths over the 5 year period.
- (2) Survival.

			95% C.I.
(a) Overall	3yr.	81.79%	96.4 to 67.2%
	5 yr	72.95%	115.9% to 30.0%
(b) A Vs. B		A	B
3 yr.		86.64%	58.98%
5 yr.		82.53%	42.13%
(c) Relative Death Rate:		A	B
		O_p/E_p	0.539
(d) Relative Death Risk: B/A = 4.78			2.578

Conclusion: 1) The overall 5 year survival was 73%. 2) The stage of disease had a very important bearing on survival, Group B having 4.7 times the risk of dying compared to A.

41. STEREOTACTIC CYTOLOGY - A VALUABLE ADJUNCT TO A BREAST SCREENING PROGRAMME

M. J. Kerin, N. N. Williams, K. J. Cronin, M. Dowling*, P. Dervan*, J. Ennis†, J. M. Fitzpatrick, T. F. Gorey.
Departments of Surgery, Pathology*, and Radiology†, Mater Misericordiae Hospital and University College Dublin.

Stereotactic localisation and fine needle aspiration have not gained widespread acceptance in the management of non-palpable mammographic abnormalities. In this prospective study we have performed stereotactic guided cytology with immediate reporting prior to biopsy in a consecutive series of 166 patients with screen detected non palpable abnormalities. Specimens

were obtained by multiple passes through the abnormality with a 22G Franzen needle and after conventional staining, the cytological diagnosis was made as (i) inadequate (ii) benign, (iii) atypical, (iv) suspicious, (v) malignant. After definitive surgery all tumours were staged according to the UICC classification by an independent pathologist. Of 62 patients with invasive malignancy 58 (94%) were correctly diagnosed cytologically. Only 1 of a further 10 patients with in situ carcinoma had positive cytology. Four patients with benign disease had atypical cytology but there were no false positive patients in this series. As 45 of the 62 patients with invasive carcinoma had stage (i) disease a cytological diagnosis allows potentially curative wide local excision in a majority of screen detected malignancies. While open biopsy is still necessary in patients with negative cytology, this had important implications for the health service.

42. CA 15.3 IMPROVES INTERPRETATION OF BONE SCANS IN PATIENTS WITH A METASTATIC BREAST CARCINOMA

E. Conveney, J. G. Geraghty, P. Byrne, G. Clarke, J. Duffy, N. O'Higgins.

University Department of Surgery, St. Vincent's Hospital, Elm Park, Dublin 4.

The skeleton is the most common site of distant metastases in patients with breast carcinoma. It is generally accepted that bone scans are unreliable in the detection of bony metastases. The aims of the present study were two fold:

1. To determine the specificity of bone scans related site of metastases.

2. To study the influence of circulating levels of the tumour marker CA 15.3 in the interpretation of bone scans.

A total of 171 patients with breast carcinoma and abnormal bone scans between 1985 and 1990 were included in the study. The specificity of bone scans in detecting metastases in the ribs and lumbosacral spine was 50% and 57% respectively. In contrast, the corresponding specificities for thoracic spine and multiple metastases (greater than 2) were 100% and 94% respectively. A total of 38 patients had normal scans initially and subsequently developed lesions demonstrating metastatic disease. In this group of patients, CA 15.3 levels were raised in 93% of cases (25 units/ml), there was a total of 17 equivocal bone scans. All patients in this group had CA 15.3 levels less than 25 units/ml. This study shows that the specificity of bone scanning in detecting metastatic breast carcinoma is site dependent and that circulating levels of CA 15.3 may improve interpretation of bone scans.

43. CA 15-3 IN PRIMARY BREAST CARCINOMA - A USEFUL PREDICTOR OF DISEASE BURDEN AND PROGRESSION? A REVIEW OF 433 CASES

D. O'Hanlon, J. Byrne, P. G. Horgan, H. Grimes*, H. F. Given.

Depts. of Surgery and Clinical Biochemistry*, University College Hospital, Galway.

CA 15-3 is a monoclonal antibody raised against antigens present on the surface of breast carcinoma cells, namely DF3

and 115D8. the antigens are also detectable in the serum of patients. Previous reports suggest that serum levels of these antigens correlate with tumour burden. The aim of this study was to review our data on the 433 patients, who to date have had full follow up. Preop CA15-3 levels were obtained followed by three monthly estimations for the first year and six monthly estimations subsequently. The patients also had full clinical follow up performed on each of the occasions. Serum CA15-3 levels were also taken from 71 patients with benign breast disease. Normal levels were also taken from 71 patients with benign breast disease. Normal levels were taken as < 30.1 IU/L.

Patients with benign breast disease had CA15-3 levels of 19.1 ± 1.6 IU/L (Results as mean $\pm$ SE). The mean serum level in Stage 1 disease at presentation was 16.7 ± 0.8 IU/L, in Stage 2 disease was 20.8 ± 1.5 IU/L, in Stage 3 disease was 31.9 ± 3.8 IU/L and in Stage 4 disease was 94.0 ± 16.6 IU/L.

32 patients had local recurrence, 18 of these had an elevated CA14-3 with a mean value of 32.6 IU/L. 9 out of 20 patients with regional recurrences had an elevated CA 15-3, mean of 54.8 IU/L. 17 out of 28 patients with visceral mets had an elevated CA15-3 level with a mean value of 81.9 IU/L. 31 of 35 patients with skeletal mets had an elevated CA 15-3 level with a mean value of 145.6 IU/L.

These results would suggest that serum CA15-3 levels are at least a marker of tumour burden at presentation. Furthermore an elevation of CA15-3 levels during follow up would suggest the presence of impending onset of either locally, regionally or systemically advanced disease.

44. MITOGEN RESPONSIVENESS OF PERIPHERAL LYMPHOCYTES AT PRESENTATION WITH BREAST CANCER

P. G. Horgan, J. Byrne, D. O'Brien, C. Phelan, P. Given.
University College Hospital, Galway.

Breast Cancer is a disease which appears to have a wide range of biological behaviour, with aggressive disease not always identified at presentation using routine clinical methods. The aim of this study was to evaluate the cell-mediated immune response to breast cancer patients at presentation in order to identify potential aggressive disease.

A total of 110 consecutive patients presenting with breast cancer over a 3-year period were evaluated. Controls were 34 normal women. Peripheral blood was drawn and separated using standard Ficoll techniques. Peripheral lymphocytes were subsequently tested for responses to the mitogens phytohaemagglutinin (PHA), concanavalin A (Con A), and the production of Interleukin 2 (IL-2).

Mean (s.e.m.) lymphocyte blastogenesis in response to PHA in controls was found to be $54903 \pm (2790)$. Significant PHA suppression was found in 24 patients; 19772 (1557), $P < 0.0001$. The remainder showed no suppression (51088 (1990)). The situation was similar with responses to Con A: controls 53619 (3335) versus suppressed 20137 (1028) ($P < 0.0001$). IL-2 production in patients suppressed to both PHA and Con A was significantly suppressed compared with controls; 55.4 (21.4) pg per 0.1 ml versus 7.28 (2.08) pg per 0.1 ml $P < 0.02$.

We conclude that there exists a subpopulation of breast cancer patients who are immunosuppressed at presentation with decreased production of IL-2. This may help identify aggressive disease in the future.

45.

PERIPHERAL ANEURYSMS — TO OPERATE OR NOT?

M. Barry, P. Kent, S. Sheehan, M. P. Colgan, D. Moore, G. Shanik.
St. James's Hospital, Dublin.

Controversy surrounds the associated mortality and morbidity of peripheral aneurysms with resultant indecision regarding surgical intervention. Over the past five years 17 patients with 22 peripheral aneurysms (11 femoral and 11 popliteal) were treated in this unit. There were 16 males and one female with a mean age of 67.4 years. Five of the eleven (45%) popliteal aneurysms were symptomatic (sympt) at presentation, in contrast to eight of the eleven (73%) femoral aneurysms. Eleven patients presented with rest pain and two with a ruptured femoral aneurysm. Surgery was performed in all patients and the overall results are as follows:

		Outcome		Amput	Death
		Asympt.	Claud.		
Pop.	Asympt.	6	5 (83%)	1 (17%)	—
	Sympt.	5	2 (40%)	2 (40%)	1 (20%)
	Asympt.	3	3 (100%)	—	—
Fem.	Sympt.	8	2 (25%)	3 (38%)	—
					3

These results show that patients with asymptomatic peripheral aneurysms do extremely well, however once the aneurysm becomes symptomatic, the prognosis is quite poor. We therefore recommend a more aggressive approach towards the prophylactic treatment of these patients.

Abbreviations: Claud - claudication, Amput - amputation, Asympt - asymptomatic.

46.

EXPERIENCE IN THE USE OF VEIN CUFFS IN INFRA-INGUINAL ARTERIAL BYPASS PROCEDURES

P. Kent, P. Murphy, S. Sheehan, M. P. Colgan, D. Moore, G. Shanik.
St. James's Hospital, Dublin.

The compliance difference between prosthetic grafts and small arteries has been proposed as one factor leading to bypass graft failure. The use of vein cuffs between the prosthetic graft and the distal artery has been advocated as one possible way of reducing this compliance mismatch.

During the last two years 44 vein cuffs were used in arterial bypass procedures in 35 patients (21 male, 14 female). Indications for bypass procedures were rest pain (21), tissue loss or gangrene (20) and femoral or popliteal aneurysms (3).

23/44 (52%) of the grafts (43/44) (98%) PTFE, 1/44 (2%) vein, were inserted distal to the popliteal artery, 10/44 (23%) were inserted into the popliteal artery, 6/44 (14%) were axilloprofunda bypasses and 5/44 (11%) were aorto-profunda bypasses.

The primary limb salvage rate is 31/35 (88%). One patient died in the post-operative period, 2 patients had below and 1 patient had an above knee amputation. The secondary limb salvage rate is 27/35 (77%) at a median follow-up of 3 months, (range 1-18 months).

The initial results of the use of vein cuffs in infra-inguinal bypass surgery are encouraging.

47.

PERSISTENT AND DOSE DEPENDENT REDUCTION OF RABBIT INTIMAL HYPERPLASIA WITH ALPHA ADRENERGIC BLOCKADE

R. Vashisht, M. Sian, P. Franks, M. K. O'Malley.
Department of Surgery, Charing Cross and Westminster Medical School, London, England.

Preliminary studies have shown that alpha adrenergic blockade may reduce the development of intimal hyperplasia in rabbit aorta. In this study a newer, more specific alpha antagonist has been used to examine whether this effect is dose dependent and related to the duration of administration.

48 New Zealand white rabbits underwent endothelial denudation of the abdominal aorta using a Fogarty embolectomy balloon catheter. Control rabbits were killed either one or twelve weeks later. Test rabbits were given low (2 mg) or high dose (8 mg) doxazosin daily and killed at either 1 or 12 weeks. The aortas were harvested following fixation in-situ with 4% glutaraldehyde and neointimal hyperplasia was measured using an x-y digitiser. The results are expressed as a percentage of luminal reduction.

	Control	Doxazosin (2mg)	Doxazosin (8mg)
1 week	14.8% (6.6-40.0)	7.7% (2.7-10.1)	8.2% (0.9-11.5)
12 weeks	32.6% (18.1-44.8)	25.7% (5.5-50.3)	5.5% (2.7-16.2)
		p = NS	p < 0.0001

n = 8 for each group; Median (range), Mann-Whitney U test

We conclude that alpha, adrenergic blockade significantly reduced neointimal hyperplasia, that this effect is dose dependent and is related to the duration of administration of the drug.

48.

THE OUTCOME OF SURGERY FOR RECURRENT LOWER LIMB VARICOSITIES

S. Hone, Y. Gul, D. Waldron, W. P. Hederman.
Department of Vascular Surgery, Mater Misericordiae Hospital, Eccles Street, Dublin 7.

Recurrent varicosities following saphenofemoral ligation occurs in 10 to 20% of cases. Reoperation may be difficult and time-consuming. We have used a high inguinal incision for recurrent incompetence.

40 patients with recurrent long saphenous varicosities were treated over a three year period. There were 28 females, mean age 48 and 12 males, mean age 49. The average period from primary procedure to reoperation was 99 months. The commonest cause for reoperation for prominent veins (75%), with pain and swelling occurring in 60%. Follow up was carried out using operative notes and a detailed postal questionnaire. Two patients developed wound infection and 15% complained of minor pain and bruising post operatively. Patient satisfaction levels varied from 68% completely satisfied, 24% to 8% not satisfied. The main reasons for dissatisfaction were related to patients expectations.

In conclusion surgical treatment of recurrent lower limb varicosities is worthwhile and our surgical technique permits easy access and enables clear identification of the recurrent tributaries.

49. PROPHYLACTIC ANTIBIOTICS IN VARICOSE VEIN SURGERY

S. Hone, Y. Gul, D. Waldron, W. P. Hederman.
Department of Vascular Surgery, Mater Misericordiae
Hospital, Eccles Street, Dublin 7.

Prophylactic antibiotics may reduce wound infection following operations involving groin incisions. The financial considerations involved however in the use of antibiotics in large numbers of patients undergoing surgical therapy for lower limb varicosities is considerable. We performed a prospective randomised study involving 82 patients (98 groin incisions) of whom 40 (55 groins) received 1.2 grms of augmentin intravenously at induction of anaesthesia, the other 42 (58 groins) receiving no antibiotics. Each patient was reviewed at one and six weeks to exclude groin infection (as defined by international standards). The total wound infection rate was 5%, none in the antibiotic group and 10% in the control group ($P < 0.05$).

This study demonstrated that prophylactic antibiotics should be considered to protect against groin wound infection in the surgery of varicose veins.

50. CORONARY ARTERY BYPASS IN DIABETIC PATIENTS

M. Maher, H. P. Singh, S. Dias, T. Aherne.
Department of Cardiothoracic Surgery, Regional Hospital,
Cork.

Patients with Diabetic mellitus have an increased risk of Coronary Artery Disease. Coronary Artery Bypass Grafting (CABG) can be technically more difficult in diabetic patients and may be of less benefit than in non-diabetics. We reviewed 32 diabetic patients 26 Non-Insulin Dependent Diabetes Mellitus (NIDDM) and 6 Insulin Dependent Diabetes Mellitus (IDDM) with mean duration of disease of 8.5 years (range 2 months - 35 years), who had CABG over a 5 year period. Mean age was 61 years (48 - 70 years), 28 patients had 3 vessel disease while 4 had 2 vessel disease. Several patients had associated illnesses including hypertension (9) hyperlipidaemia (4) retinopathy (4) peripheral vascular disease (3). The number of grafts were as follows: 5 grafts (4 patients), 4 grafts (12 patients), 3 grafts (14 patients), 2 grafts (2 patients). All patients were reviewed by review of hospital records and detailed postal questionnaire. There was no mortality in this series. 10 patients suffered from wound morbidity of either the chest or the leg wound. On review at a mean follow up of 2.5 years (1 - 7 years) 24 patients had no further angina. 5 patients complained of angina on excessive exercise while 3 had angina on minimal effort. 4 patients required admission to a cardiac unit while 3 were treated for CCF as out-patients.

In conclusion CABG is a worthwhile operation for diabetic patients.

51. PREDICTION OF LIMB SALVAGE IN VASCULAR TRAUMA OF THE EXTREMITIES - A COMPARISON OF TWO PREDICTIVE INDICES

S. T. O'Sullivan, D. J. Hehir, M. O'Connor, J. A. O'Donnell, M. P. Brady.
University Department of Surgery, Cork Regional Hospital.

Complex injuries of the extremities are associated with high rates of amputation. The decision whether to attempt limb

salvage or to perform primary amputation is based on several clinical criteria. Many predictive indices of limb salvage have been described. This study aims to identify which criteria are most useful in determining the outcome of reconstructive surgery in severely injured limbs with associated vascular compromise.

We analysed 40 consecutive patients undergoing reconstruction of 44 limbs for extensive vascular trauma, 19 upper limb vascular injuries and 25 cases of lower limb vascular injury. A high incidence of co-existing injuries was noted, bone (21), nerve (18), soft tissue (31). Amputation was required in 15 instances (34%), of which 3 were delayed amputations. Amputation was necessary in 4 cases of upper limb trauma and in 11 cases of lower limb trauma. Limb salvage was not related to the presence or absence of shock, or to the order of repair (orthopaedic, vascular, plastic). Marine trauma cases ($n=6$) had a significantly higher amputation rate (67%), which may be attributed to the prolonged ischaemic time (mean 12.4 hours, compared to mean ischaemic time of land based injuries of 6.8 hours, $p < 0.0001$).

The Mangled Extremity Severity Score (MESS) and the Limb Salvage Index (LSI) were employed retrospectively in all cases of lower limb trauma, and the MESS in the amputation group was 7.4, compared to 4.27 in the salvage group ($p = 0.17$).

Although predictive indices offer useful guidelines in management of the patient with limb trauma, taken alone they are too inaccurate to allow rigid application in clinical practice.

52. INTRAVENOUS NUTRITION AFTER ANEURYSM REPAIR

J. A. McKeever, M. A. Stokes, C. A. Bannon, E. Beausang,
D. Mehigan, T. V. Keaveney.
Dept. of Vascular Surgery, St. Vincent's Hospital, Elm Park,
Dublin.

A randomized prospective study was undertaken to assess whether intravenous nutrition (IVN) was of benefit to patients undergoing major vascular surgery. Twelve patients having elective abdominal aortic aneurysm repair were randomized to receive either IVN (5 patients) or the standard post-operative regime (7 patients) or intravenous fluids progressing to oral fluid and diet as clinically indicated. The IVN contained 10g of nitrogen and 1770 kJ. It was given via a peripheral vein and was commenced on the second post-operative day and continued until day 7.

The physiological parameters measured to assess post-operative improvement included the vital capacity, forced expiratory volume, peak expiratory flow rate (PEFR), serum albumin and grip strength (GS). Also measured were the incidence of post-operative complications and the length of the post-operative stay. Some of the results are shown and are given as the mean ($\pm$ SD):

	IVN	Control	Significance
Δ PEFR (%)	77.4 $\pm$ 53.3	12.3 $\pm$ 19.7	$p < 0.05$
Δ GS (%)	79.1 $\pm$ 30.4	19.9 $\pm$ 18.9	$p < 0.005$
Complications	1	4	n.s.

These results show that IVN given post-operatively will cause an improvement in the physiological parameters measured and may result in less post-operative complications and a shorter hospital stay.

53.

PERCUTANEOUS FEMOROFEMORAL
CARDIOPULMONARY SUPPORT IN RESUSCITATIONT. F. Browne, U. M. Sivananthan, M. R. Rees, S. Whittaker,
G. A. Davies.Departments of Cardiovascular Research and
Cardioradiology, Killingbeck Hospital, Leeds, UK.

Percutaneous femorofemoral cardiopulmonary support has a significant role to play in the emergency situation.

Percutaneous cardiopulmonary support render haemodynamic stability and maintains perfusion to vital organs thereby enabling intervention to be carried out. It has been used successfully for resuscitation patients from a range of conditions, e.g. trauma, hypothermia, fat embolism.

Emergency cardiopulmonary support was instituted in 9 patients (eight men, one woman; mean age 66 range 54 to 81). Five patients were in asystole who had failed to respond to conventional cardiopulmonary resuscitation, and four patients were in cardiogenic shock also unresponsive to medical treatment, all after cardiac arrest. Seven underwent coronary angiography and subsequent angioplasty. In one case cardiopulmonary support was instituted after cardiac revascularisation in a patient who failed to wean from bypass. In all cases vascular access was obtained by percutaneous cannulation of the femoral vessels using 17F cannulae. The mobile percutaneous cardiopulmonary support system consists of a non occlusive vortex pump, heat exchanger, hollow fibre oxygenator and control console. Four of the seven patients who underwent supported angioplastics survived and were discharged from hospital.

Emergency percutaneous cardiopulmonary support provides a powerful resuscitation tool after which intervention can successfully be undertaken.

Session IV

54.

MYOINTIMAL HYPERPLASIA AFTER BALLOON
CATHETER DE-ENDOTHELIALISATION IN HUMAN
BEINGS AND IN ANIMAL MODELSR. Vashisht, E. Sharp, A. Coady, A. Sterpetti, R. M.
Greenhalgh, M. K. O'Malley.Department of Surgery, Charing Cross and Westminster
Medical School, London, England.

It is suggested that more than 50% of peripheral vein grafts fail because of myointimal hyperplasia (MIH). Several pharmacological agents have been shown to prevent MIH and deendothelialisation with balloon catheter is the most widely used animal model. However, it is not known how the histopathological features from this experimental model compare with humans.

16 rabbits underwent balloon catheter de-endothelialisation of the abdominal aorta. They were sacrificed one week (n = 8) and 12 weeks (n = 8) after surgery. The human group consisted of 11 patients who previously underwent embolectomy of peripheral lower limb arteries and subsequently underwent either arterial bypass (n = 5) or amputation (n = 6) thus providing an opportunity for arterial biopsy. The time interval between embolectomy and re-operation ranged from 3 days to 10 months. Arterial specimens were analysed with standard staining plus

demonstration of factor-VIII for endothelial cells (ECs). Phosphotungstic acid-hamatoxylin for smooth muscle cells (SMC's), Van Gieson for collagen and Verhoeff's elastic laminae.

MIH consistently developed after balloon catheter embolectomy in humans and rabbits. In humans SMCs were eccentric (n = 6) or concentric (n = 5) with multiple layers. The internal elastic lamina was disrupted in all but one case where it was duplicated. ECs were completely absent in three specimens (4 days, 4 and 12 weeks); in the remaining cases ECs were either present in patchy islands (n = 5) or circumferentially distributed (n = 3). These histological changes in humans were closely time dependent and were similar to the rabbit model.

We conclude that balloon catheter embolectomy results in MIH in humans and rabbits and balloon catheter de-endothelialisation is a realistic model to analyse pharmacological prevention of MIH as the histological features closely resemble those seen in human beings.

55.

IMMUNOLOGICAL ESCAPE IN CARCINOMA OF THE
BREAST: THE ROLE OF SUPPRESSOR T-
LYMPHOCYTESD. P. O'Brien, D. B. Gough, P. G. Horgan, C. Phelan,
H. F. Given.

Dept. of Surgery, University College Hospital, Galway.

Carcinogenesis involves a transformation of "normal" cells into "malignant" ones, coupled with a failure of the host's defences to control these cells. Since tumours develop and progress despite the attentions of the immune system, there must be mechanisms whereby these cancers "escape" such a system. There is much evidence to suggest that active involvement of Suppressor T lymphocytes in such a mechanism. We examined T-lymphocyte Helper : Suppressor (H:S) ratios and Cell Mediated Immunity (CMI) in sixty-four patients (age range; mean; median (yrs.): 28.84; 59.5; 59) presenting with breast carcinoma (Stages I, II, III & IV; 26 (41%), 13 (20%), 8 (12%) & 17 (27%). H:S ratios were determined by immunomagnetic cell isolation. CMI was assessed by the response of cultured lymphocytes to Mitogen Stimulation [Concanavalin A (ConA)] *in vitro*. Thirty healthy volunteers were used as controls. Immunosuppression (I.S.) was defined as CMI values (in Log₁₀ form) that are less than the control mean minus two standard deviations. Although the patient group and a greater range in their H:S ratios (0.4 - 7.8) in contrast to the control group (0.85 - 2.77), there was no statistical difference between the patient population, as a whole or in the individual disease stages, and the controls. there was a positive correlation between H:S ratios and CMI i.e. as the relative number of Helper cells increased, CMI increased. Conversely, as the relative numbers of suppressor cells increased, CMI diminished (0.01 < p < 0.02). According to the definition of I.S., there were seventeen patients (27%) so categorised. There was no statistical significance between the H:S ratios of the I.S. group or those of the remaining immuno competent (I.C.) group. It was noted, however, that the latter group had greater numbers of helper cells (H:S ratios; range, mean media; I.S.; 0.4 - 3.7, 1.5, 1.26; I.C.; 0.9 - 7.8, 2.3, 1.7).

In conclusion, we have demonstrated a strong, positive association between depressed CMI and the number of suppressor T-lymphocytes.

56.

IMMUNE MONONUCLEAR CELLS REGULATE THE
NORMAL WOUND HEALING PROCESS

M. C. Regan, I. E. Efron, S. I. Kirk, M. Hurson, H. L. Wasserkrug, A. Barbul.

Johns Hopkins Medical Institutions, Baltimore, USA.

T lymphocytes and macrophages are present in the healing wound. There is abundant *in vitro* evidence to show that cytokines produced by these immune cells can modulate fibroblast function, however there is little information regarding their *in vivo* role. In this study we sought to determine the consequences of T lymphocyte and macrophage depletion on normal healing.

80 male Lewis rats underwent dorsal skin incision with subcutaneous polyvinyl alcohol sponge implantation. Immune mononuclear cells were selectively depleted by intraperitoneal injection of monoclonal antibody (MoAb) on days -1, 3, and 7. The mouse anti rat MoAbs OX-19 (against all T lymphocytes), W3/25 (T helper) and OX-8 (T suppressor) and OX-42 (macrophage) were used. Matched controls received non-specific mouse immunoglobulin. At 10 days, healing was assessed by tensiometric measurement of fresh and formalin fixed wound breaking strength. Sponge hydroxyproline (OHP) was determined as an index of reparative collagen synthesis. Mononuclear cell depletion was assessed by flow cytometry, while macrophage numbers were determined by non specific esterase staining. (mean $\pm$ sem, * $p < 0.05$)

	Breaking Strength (gm)		OHP (mg/100mg sponge)	
	Control	MoAb	Control	MoAb
OX-19	243 $\pm$ 16	196 $\pm$ 11*	2315 $\pm$ 12S	1854 $\pm$ 104*
W3/25	281 $\pm$ 25	289 $\pm$ 22	1588 $\pm$ 62	1645 $\pm$ 58
OX-8	240 $\pm$ 1S	295 $\pm$ 16*	1539 $\pm$ S4	1851 $\pm$ 101*
OX-42	272 $\pm$ 19	182 $\pm$ 9*	1799 $\pm$ 101	1501 $\pm$ 54*

Thus, both T lymphocytes and macrophages enhance wound healing, since their depletion impairs all wound healing parameters. Depletion of T suppressor cells enhances wound healing suggesting a down regulatory role in the normal healing process. Modulation of mononuclear cell activity in wounds has potential clinical application.

57.

PROGRESS ON A TISSUE CULTURED SMALL
DIAMETER VASCULAR GRAFT

T. F. Browne, S. Haynes, G. A. Davies.

Cardiac Research Unit, Killingbeck Hospital, Leeds, U.K.

The use of collagen in combination with animal vascular cell types to construct a blood vessel equivalent was first proposed in 1986. Reorganisation of collagen fibres by smooth muscle cells resulted in the formation of a tubular structure when cast over a central mandrel. The tissue-like tube on its own could not withstand physiological pressures and needed the support of a Dacron outer sleeve. This structure was, however, prone to delamination as a result of the lack of integration between the layers.

We have successfully isolated human vascular smooth muscle cells and endothelium from vein remnants and grown them in culture. A range of biocompatible synthetic materials (nylons, polyurethanes, polyesters and carbon fibre) have been evaluated for their interaction with the collagenous matrix impregnated with human smooth muscle cells as assessed by electron microscopy. A protocol has been devised utilising a two stage matrix casting

procedure resulting in improved penetration and integration within the materials. The subsequent reorganisation of collagen dependent on smooth muscle activity has been shown to form a uniform fibrillar surface suitable for use as an atherosclerotic model.

58.

THE SAFETY OF DILATATION OF MALIGNANT
STRICTURES: AN IN VITRO STUDY

J. Thornton, J. Sparkes, A. D. K. Hill, P. Gillen, T. N.

Walsh, T. P. J. Hennessy.

University Dept. of Surgery, St. James's Hospital, Dublin.

Endoscopic dilatation has an established role in benign oesophageal strictures but its safety in malignant strictures has not been studied. In this study 39 tumour-bearing specimens were dilated with Eder Puestow dilators immediately after resection and the diameters at which the olive first engaged and at which perforation occurred were recorded. Fifteen patients had undergone adjuvant chemo-radiotherapy (cisplatin, 5-Fluorouracil and 40Gy) and 23 patients had no prior treatment. There were 14 squamous and 25 adenocarcinomas. All specimens were opened and carefully examined and the integrity of the specimens confirmed histologically.

Results:

	Chemo- radiotherapy (n = 15)	No Chemo- radiotherapy (n = 23)	
Diameter at Engagement (Fr)	38.7	37.6	ns
Pre-perforation diameter (Fr)	14.3	10.4	ns
Perforation diameter (Fr)	45.5	45.7	ns
Perforation	3.0 (20%)	11.0 (48%)	0.08
Adeno.	0/9 (0%)	7/16 (44%)	0.02
Squamous	3/7 (43%)	4/7 (57%)	ns

Wilcoxon Rank Sum Test; Chi squared test; Fr = French gauge.

Nearly 50% of malignant strictures will perforate prior to maximum diameter (58Fr). There is a trend towards reduced perforation rate following chemoradiotherapy which is only significant in the adenocarcinoma group. Findings of this *in vitro* study have implications for palliative management.

59.

EFFECT OF TRAUMA ON MACROPHAGE SIGNAL
TRANSDUCTION PATHWAYS

C. J. Kelly, J. Gallagher, L. Modyka, H. P. Redmond,

J. M. Daly.

University of Pennsylvania, Philadelphia, PA.

Decreased macrophage effector function and enhanced prostaglandin E_2 synthesis are associated with trauma. Protein kinase C (PKC), which initiates superoxide synthesis and phagocytosis, and phospholipase A_2 (PLA $_2$) which initiates eicosanoid metabolism are key enzymes in cell signal transduction. The aim of this study was to investigate the effect of trauma on macrophage signal transduction. CFW mice (n=150) were randomized to control or hindlimb amputation groups. PGE $_2$ release, and membrane (M) and cytosolic (C) PKC activity were measured by radioimmunoassay. Membrane fatty acids and PLA $_2$ activity were measured by thin layer and gas chromatography, respectively.

	Membrane Arachidonate	PGE ₂	PLA ₂	
Control	4.31 ± 1 mg%	14.7 ± 3ng	8 ± 1 pmol	
HLA	15.3 ± 2mg%*	38.1 ± 4ng@	32 ± 2*	
	Control-	Control+	HLA-	HLA + (pmol)
(C) PKC	31.5 ± 3	9.04 ± 2	29.3 ± 2	11.9 ± 1
(M) PKC	0.83 ± 1	22.4 ± 2	2.98 ± 1	16.4 ± 1@
(Mean ± SEM, * p < 0.05) -/4 = ± PMA)				

HLA resulted in a shift in cell membrane metabolism with increased PLA₂ activity, arachidonic acid turnover and PGE₂ synthesis. This was associated with a significant reduction in PKC membrane translocation. In response to phorbol ester (PMA). Together these data demonstrate an alteration in signal transduction pathways which may account for the observed defects in macrophage function after injury.)

60.

THE BENEFICIAL EFFECTS OF IMMUNOSTIMULATION IN POST-TRAUMATIC SEPSIS

O. M. Austin, H. P. Redmond, R. J. Cunney, P. A. Grace, D. Bouchier-Hayes.

Beaumont Hospital, RCSI, Dublin.

GM-CSF enhances immune mechanism directed against bacterial infection. Injury is associated with an increased incidence of such infection. This study assessed the potential immunostimulatory role of GM-CSF in the injured host predisposed to infection. Injury is associated with an increased incidence of such infection. This study assessed the potential immunostimulatory role of GM-CSF in the injured host predisposed to infection. Injury is associated with an increased incidence of such infection. This study assessed the potential immunostimulatory role of GM-CSF or saline vehicle control for 5 days and were analysed as follows: Study 1: Mice (n = 20/group) underwent caecal ligation and puncture (CLP) and were studied for survival (5 days). Study 2: Mice (n = 15/group) were sacrificed and peritoneal cells were harvested for cell yields, percent resident peritoneal macrophages (PM0) and neutrophils, and assessment of superoxide anion generation by PM0.

Cell yields PMO Neutrophil PMO 02- Survival					
	(X10 ⁶)	(%)	(%)	(nmol/90min)	(%)
AMP	8±1	55±1	7±3	0.93±0.1	5
AMP+					
GM-CSE	8±1 *	57±5	21±4 *	1.4±0 *	35

Data = mean ± sem. * = p < 0.05

GM-CSF administered following injury is protective against the development of methal intraabdominal sepsis (p = 0.02). Mechanisms of action include stimulation of neutrophil influx into the peritoneal cavity and priming of resident peritoneal macrophages for enhanced release of O₂. These findings identify novel mechanisms of action of GM-CSF in the injured state and indicate a potential role for this cytokine in the traumatised host predisposed to infection.

61.

THE EFFECTS OF VITAMIN A ON AN OESTROGEN DEPENDENT BREAST CANCER CELL LINE, ZR-75-1

C. Curran, J. Byrne, J. O'Donoghue, P. G. Horgan, H. F. Given. Dept. of Surgery, University College Hospital, Galway.

Breast carcinoma cell lines remain an efficacious model of in vivo activity of breast cancer cells. ZR-75-1 cells (effusion

human ductal cells) are reliable models of behaviour for oestrogen dependent mammary carcinoma cells. Retinol (vitamin A) has been suggested as an efficacious anti-tumour agent in mammary carcinoma, although its mode of action and exact therapeutic levels remain a matter of some conjecture given its known toxicity at higher dosages.

The aim of this study was to assess the exact toxic levels of Retinol in an in vitro situation in an attempt to suggest what the optimum dosage might be and to define its mode of action in an oestrogen dependent setting.

For the purposes of this study, a ZR-75-1 cell line was established and a standard growth curve established. Inhibition of growth of cells was confirmed by treatment with Tamoxifen and Megestrol Acetate, both of which inhibited cell growth.

Cells (2 x 10⁵/well) were incubated with Retinol increasing from 1 IU/well (138ug/L) to 2 IU/well (276ug/L), to 5 IU/well (75011g/L) to 10 IU/well (1500ug/L) and cell concentrations documented every 48 hours from day 1 to day 14. As controls, normal human lymphocytes from a healthy female volunteer were incubated with Retinol at doses of 376ug/L and 750ug/L. Results demonstrated that Retinol caused death of breast carcinoma cells at all doses from 138ug/L to 1500/L, reducing the number of viable cells from 2 x 10⁵/ml to zero over periods ranging from 7 to 14 days, the effect being most marked at higher concentrations, untreated tumour cells showing a normal growth curve over this period. Normal lymphocytes continued to follow normal growth curves at levels up to 376ug/L of Retinol but marked lymphocyte toxicity was evident at doses of 1500ug/L. Microscopy of carcinoma cells following treatment with Retinol further demonstrated intracytoplasmic changes consistent with cell death. The normal human serum Retinol level has been documented as being from 185ug/L-555ug/L, suggesting that in a therapeutic setting that Retinol may have a role as an adjuvant therapy in patients with breast carcinoma.

Session V

62.

CARDIAC FUNCTION IN MALNOURISHED PATIENTS

M. A. Stokes, M. Abernathy*, N. Sharpe, Hill.

University Depts. of Medicine* & Surgery, Auckland Hospital, Auckland, New Zealand.

Introduction: Malnourished patients suffer from impaired skeletal and respiratory muscle function and this is improved by nutritional support. It is unknown if cardiac muscle is impaired.

Methods: Ten patients, requiring two weeks of nutritional support, underwent 2-dimensional echocardiography, respiratory function, grip strength and body composition measurements, before and after feeding.

Results: Heart size was small (left ventricular mass = 115 ± 41g), but normal in relation to body size (the left ventricular mass/body weight = 2.1 g/kg [normal = 2.3]). Parameters of cardiac function were all within the normal range (fractional shortening = 33.4 ± 7.4 [normal 28 - 41] and the systolic time interval = 0.36 ± 0.1 [normal > 0.35]), despite abnormal respiratory (vital capacity 66 ± 18% of normal) and skeletal function (grip strength 54 ± 23% of normal). Changes in the amount of extracellular water were mirrored by changes in cardiac output and the thickness of the walls. With feeding, improvements in

grip strength correlated with improvements in both systolic and diastolic function.

Conclusion: Unlike skeletal and respiratory muscle function, cardiac function is preserved in malnourished patients. Most changes in cardiac function which occurred on feeding are dependant on body water changes, secondary to improved protein nutrition.

63. SURGERY FOR HYPERPARATHYROIDISM: A 20 YEAR REVIEW

M. Lucy, E. W. D. McDermott, P. M. Mercer, N. J. O'Higgins.

University College Dublin, St Vincent's Hospital, Elm Park, Dublin.

All patients who had parathyroid surgery for hyperparathyroidism (HPT) between 1970-1991 were reviewed. The indications for surgery, operative procedure, and outcome were analysed.

Of the 159 cases identified 111 were female and 48 male. The median age was 54 years (20 - 80 years). Data was adequate on 141/159 cases. The numbers presenting with primary, secondary and tertiary HPT were respectively 120/141, 17/141 and 4/141. For primary HPT the mean preoperative total calcium was 2.96 mmol/L ($n < 2.6$ mmol/L) and ionized 1.6 mmol/L ($n < 1.33$ mmol/L). For primary HPT a single adenoma was found in 97/120, multiple 3/120, hyperplasia 16/120 and carcinoma 3/120. All the patients with secondary and tertiary HPT had hyperplasia.

Post-operatively 72% of the primary HPT patients developed temporary biochemical hypocalcaemia and seven permanent hypocalcaemia. Re-exploration for hypercalcaemia was required in 5/120 cases, one of which remains hypercalcaemic. In secondary HPT generally 3.5 glands were removed, 4/17 have permanent hypocalcaemia and 4/17 persistent hypercalcaemia. Two patients required re-exploration. The four tertiary HPT patients had 3.5 glands removed and all developed permanent hypocalcaemia.

This study shows that surgery for primary HPT at St. Vincent's Hospital had excellent results with minimal morbidity. Outcome for secondary and tertiary HPT was less satisfactory.

64. A RETROSPECTIVE STUDY OF SURGERY FOR RENAL HYPERPARATHYROIDISM

G. Murugasu, J. G. Geraghty, A. Groeschel, M. Carmody, J. Donohue, D. H. Osborne.

Department of Surgery, Beaumont Hospital, Dublin 9.

Surgery for hyperparathyroidism is most commonly done for primary disease. This study evaluates our experience in surgery for renal hyperparathyroidism ($n = 35$) from January 1986 to December 1991. Most patients ($n = 24$) had renal transplantation carried out prior to surgery for renal hyperparathyroidism. The mean pre-operative parathyroid hormone level was 348 pg/L and the mean pre-operative calcium level was 2.79 mmol/L. A total of 32 patients had an uneventful primary neck exploration in which half of one parathyroid gland was left in the neck. The mean follow up time in these patients was 14.4 months and the mean calcium level at follow up was 2.27 mmol/L. Three patients were referred with renal hyperparathyroidism despite having a mean of 2 neck explorations prior to referral. Two patients had a successful neck exploration carried out and the third required a mediastinal split to identify a parathyroid adenoma

in the left upper chest. Three patients developed recurrent hyperparathyroidism (9%) and all three underwent successful removal and forearm autotransplantation of the parathyroid remnant. There was no mortality in this series, but 5 patients remain on calcium supplementation for symptomatic hypocalcaemia. Surgery for renal hyperparathyroidism carried minimum morbidity and mortality. It remains unclear however, whether primary autotransplantation or leaving a parathyroid remnant in the neck is the correct surgical option.

65. TRANS-SPHENOIDAL SURGERY IN ACROMEGALY: THE ENDOCRINE RESULTS

D. P. O'Brien, M. McLaughlin*, J. Devlin*, J. P. Phillips. Depts. of Endocrinology* and Neurosurgery, Beaumont Hospital, Dublin.

Acromegalic patients have a reduced life span with an increased risk of death from cardiovascular and cerebrovascular conditions. It is thus imperative that an effective form of therapy is available to reverse this endocrinopathy. Treatment options include the use of pharmacological agents, irradiation or surgery. We reviewed our experience with the trans-sphenoidal approach for the management of acromegals, paying particular attention to the hormonal effects (i.e. human growth hormone or hGH < 5.0 ng/ml). Acromegaly is a clinical diagnosis which is confirmed biochemically and categorised radiologically (computerised tomography) into intrasellar or extrasellar groups. Eighteen patients (age range = 20-65 yrs., mean = 49 yrs.) were reviewed. Ten patients had intrasellar tumours whilst eight had extrasellar extension. All patients had fasting hGH levels taken (i) baseline/pre-op; (ii) one week post-op and (iii) eighteen months post-op ($n = 17$). All patients had basal pituitary function tests prior to surgery and eighteen months post op. Baseline hGH levels (ng/ml) were as follows (range; mean; median) = 3.5 - 42.0; 21.2; 20.0. Only one patient had hGH < 5.0 ng/ml. All patients had a reduction in their hGH one week post-op (range; mean; median) = 0 - 30; 6.1; 4.0. At this stage, thirteen patients (72%) had hGH < 5.0 ng/ml. By eighteen months, the results (range; mean; median) were 0 - 24.0; 5.6; 2.3 (ng/ml). Eleven patients (11/17 or 65%) had hGH < 5.0 ng/ml. Of the six cases who had hGH assays performed at eighteen months ($n = 17$), four had initial intrasellar tumours, two had extrasellar extensions. Five patients had pituitary deficit post surgery necessitating hormonal replacement therapy. There was no mortality or morbidity recorded.

In conclusion, Trans-sphenoidal surgery is a safe and effective method of treating acromegaly, even in the presence of Extrasellar extension.

66. CARCINOID TUMOURS OF THE THYMUS

Y. Elias, M. Tahir, J. McKeever, M. Tighe, V. Lynch. St. Vincent's Hospital, Dublin.

Carcinoid tumors of the thymus are rare. Since 1956 there had been scattered reports of functional thymic tumors and mediastinal carcinoids it was Rosai & Higa who first defined thymic carcinoids as a distinct clinical entity in 1972. There are 132 cases documented in the literature and we report one.

Thymic carcinoids occur in a wide range of age (9 - 87 years) predominantly in males and attaining huge sizes at the time of

diagnosis. About one third of these tumours produce hormones with ACTH being the most common hormone produced. These typically occur at a younger age (3rd to 4th decade) and carry a high perioperative mortality (about 16%).

Although histologically more than 80% of them are reported as encapsulated, some are locally invasive and at surgery are found invading vital neighbouring structures.

Surgical excision alone or combined with adjuvant radiotherapy or chemotherapy offers the only chance of cure. Many of these tumours are very large at the time of diagnosis. CT scan is extremely helpful in defining the tumour and planning surgery.

The most favoured approach described in the literature is a median sternotomy (90%) with only 14 cases having had a lateral thoracotomy. We used a right lateral thoracotomy in our case as the tumor was very large and extending into the right hemithorax to visualise and protect the phrenic nerve.

67. COINCIDENCE OF THYROID ENLARGEMENT IN BREAST CANCER

Presenter: M. Ahmed, P. P. A. Smyth, A.M. Hetherington, F. O. Cunningham.

General Surgery, Our Lady's Hospital, Navan, Co. Meath.

The coincidence of simultaneous occurrence of diseases of the thyroid and breast has long been a subject of conjecture.

Previous studies in the Dublin area have shown an increased prevalence of thyroid enlargement in patients with breast cancer.

The objective of the present study was to measure thyroid volume using Ultrasound Scanning in consecutive patients with breast cancer attending a Specialist Breast Clinic in Navan, Co. Meath in the North East of Ireland. The results will be compared to age matched controls.

Results

Group	Enlarged	N	Age (Yrs.)	Thyroid mls	Mean Volume % > 180mls
Breast Cancer	48	57.6 ± 12.3	20.5 ± 11.7	47.9%	
Hospital Controls	37	55.0 ± 13.5	15.7 ± 6.00	16.2%	
Younger Female	33	33.0 ± 4.80	15.6 ± 4.80	30.3%	

Conclusions: Mean thyroid volume was significantly greater in patients with breast cancer than in age matched controls ($p < 0.01$). Of 48 individual patients with breast cancer, 47.9% had enlarged volumes (>18.0 mls.) compared to 16.2% of controls. Interestingly, in younger females without breast disease an even larger proportion 30.3% had enlarged thyroid volumes. The findings lead us to speculate on the possibility of common growth stimulus in breast cancer and non-toxic goitre. They emphasize the importance of further study in this area.

68. THYROID DISEASE IN THE WEST OF IRELAND - A TEN YEAR REVIEW FROM 1982 TO 1991

D. O'Hanlon, P. Horgan, M. Little*, H. F. Given, D. S. Quill.

Depts. of Surgery and Pathology*, University College Hospital, Galway.

Thyroid disease is a common surgical problem. The aim of

this study was to review our experience with thyroid disease over a ten year period from 1982 to 1991. 553 patients were included in the study. Each patient had tissue submitted to the Dept. of Pathology, UCHG, during this period. 64 patients had more than one specimen submitted.

The average number of patients operated on per year was 57 ± 15 (mean + SD), ranging from 43 in 1985 to 95 in 1989. Females outnumbered males with only 16% of patients being male, a ratio of just over 5:1.

117 patients had FNAC alone. 32 patients had FNAC followed by operative intervention. 118 patients had R. lobectomy, 89 had L. lobectomy and 58 had total or subtotal thyroidectomy. 11 had the isthmus alone excised. 22 patients had operations for thyroglossal duct remnants, 15 of these were male and 7 were female. 2 patients had operations for abscesses, both of these were male. In the remainder of patients the type of operation performed was not listed.

33 patients had thyroiditis confirmed histologically. 29 Hashimoto's disease, 3 De Quervain's thyroiditis and 1 Reidel's thyroiditis.

10 patients were operated on for Grave's disease.

The commonest histological diagnosis was nodular hyperplasia, incl. simple cysts in 6 patients, colloid nodules in 96, adenomatous hyperplasia in 42, nodular thyroid in 19 and multinodular goitre in 100.

Adenomas were diagnosed in 87 patients and were characterised as colloid adenomas in 13 patients, follicular adenomas in 66, Hurthle cell adenomas in 3, adenolipoma in 1 and oxyphil adenomas in 4 patients.

Carcinoma was diagnosed in 48 patients including Papillary ca. in 14 patients, mixed papillary and follicular ca. in 3, follicular ca. in 14, medullary ca. in 2, anaplastic ca. in 6, lymphomas in 7 and a secondary adenoma in one patient.

69. BLEBECTOMY AS DEFINITIVE TREATMENT FOR SPONTANEOUS PNEUMOTHORACES

C. O. Duncan, J. A. McKeever, M. A. Stokes, V. Lynch.
Department of Surgery, St. Vincent's Hospital, Elm Park, Dublin.

Blebectomy, with or without pleurodesis, is now established as treatment for a recurrent or persistent spontaneous pneumothorax. between 1980 and 1991, 161 blebectomies were performed in this hospital on 119 males and 42 females. The patients had a mean (SD) age of 33.5 (17). 103 were smokers, smoking 19.7 (12) cigarettes per day. Bullae were the cause in 86% of the men, but only 70% of the women ($p < 0.05$, χ^2 test).

Surgery was performed because of recurrence in 87, for persistence in 44, because of bilateral pneumothoraces in 28 and because of size in two cases. Patients had a mean of 2.3 (1.2) bullae, 3.2 (4.5) cms in size. 58% were on the right side, and the upper lobe was affected in 82% of cases. Pleurodesis was performed in 23.

Post-operative stay was 11.3 (5.7) days and 22 patients suffered complications. There were five recurrences with a follow-up of 15.8 (18.9) months. Recurrence was more common in those who had a post-operative complication ($p < 0.01$, χ^2 with Yates' correction).

In conclusion, blebectomy is a safe and effective treatment for recurrent or persistent spontaneous pneumothoraces.

70. BREAST RECONSTRUCTION AFTER MASTECTOMY

M. O'Donnell, J. A. E. Hobby.
Departments of Plastic Surgery, Odestock Hospital,
Salisbury, Wilts, U.K.

Almost 400 women have undergone breast reconstruction in this Unit, following mastectomy, with a follow-up period of 2-12 years.

The age range at reconstruction was 25-68 years (mean 47 yrs.). Referral for reconstruction was by general surgeons in 80% cases, with radiologists and general practitioners referring the remainder in most cases. 80% patients had undergone modified radical mastectomy, or simple mastectomy with axillary clearance or sampling. Immediate reconstruction at the time of mastectomy was undertaken in 22 cases. Bilateral reconstruction was performed in 11 patients, who had experienced bilateral mastectomies. The mean time interval between mastectomy and delayed reconstruction was 3.5 years (range 0.4-22 years). The Latissimus Dorsi Myocutaneous Flap with incorporated silicone prosthesis was used in 75% cases, and the remainder utilised Transverse Rectus Abdominus Myocutaneous (TRAM) flap, Abdominal Advancement Flap, or simple insertion of Prosthesis.

Breast reconstruction is desired by many women after mastectomy. This review illustrates methods and results, both aesthetically and in terms of tumour behaviour.

71. THORACOSCOPIC MANAGEMENT OF RECURRENT SPONTANEOUS PNEUMOTHORACES (RSP)

D. Little, M. Murphy, K. Mealy, P. Burke, P. Broe.
Department of Surgery, Beaumont Hospital and Royal
College of Surgeons, Dublin.

Advances in endoscopic surgical techniques have resulted in new options in the management of RSP. We compared open thoracotomy and blebectomy (OT, n = 11), with thoracoscopic ablation using cautery (TA, n = 8) and thoracoscopic ligation and blebectomy (TLB, n = 7) in 23 consecutive patients presenting with 26 RSO over a two year period.

Outcome was assessed by comparing success rate, complication rate, duration of post-operative tube thoracotomy drainage, hospital stay and number of analgesic injections. Results are expressed as a percentage or as mean $\pm$ sem.

	Success Rate	Complication Rate	Analgesic Usage	Chest Drain (days)	Hospital Stay (days)
OT	100%	36%	10.1 $\pm$ 2.2	6.0 $\pm$ 1.2	9.1 $\pm$ 1.2
TA	12.5**	62.5%	15.1 $\pm$ 4.4	7.9 $\pm$ 2.0	13.4 $\pm$ 3.5
TLB	100%	28%	2.3 $\pm$ 0.7**	3.7 $\pm$ 0.7***	4.9 $\pm$ 0.6**

* chi squared = 19.7 p < 0.0001 vs OT and TLB;

** ANOVA, Fishers Test, p < 0.05 vs OT and TA;

*** p < 0.05 vs TA.

OT and TLB are equally effective in the management of RSP, however TA is significantly less effective. Post-operative complication rate, analgesic usage, chest drain duration and postoperative hospital stay were all less in the TLB group.

These initial results indicate that TLB is safe and effective in the management of RSP and offers benefit to both patient and hospital.

72. THE USE OF A FOLEY CATHETER BALLOON IN IMMEDIATE SKIN EXPANSION

S. K. Al-Ghazal, M. McKiernan, K. Khan, J. McCann.
Dept. of Plastic, Reconstructive & Hand Surgery, University
College Hospital, Galway, Ireland.

The aim of the plastic and the reconstructive surgeon as with any surgeon is to provide tissue replacement for defects with minimal scars.

Tissue expansion is one of the few methods that satisfies both cosmetic and functional requirements, and it can be done by inserting a normal expander and filling it either over a period of time or during the operation as one stage procedure.

With regard to the one stage procedure where there is difficulty in primary closure of a small defect, a Foley catheter balloon can be inserted under the skin flaps by creating a pocket and the balloon of a Foley catheter can be filled gradually to capacity over 30 - 45 minutes. The size of the balloon and the catheter depends upon the size of skin expansion needed.

The reason for using Foley catheter instead of the ordinary expander is because of availability and low price.

We report its use in three different cases with good results, and outline its broader clinical application.

73. THORACOSCOPY AS AN AID IN THE DIAGNOSIS AND MANAGEMENT OF INTRA-THORACIC CONDITIONS

M. Murphy, K. Mealy, P. Broe.
Department of Surgery, Beaumont Hospital and Royal
College of Surgeons in Ireland, Dublin.

Thoracoscopy provides a minimally invasive option in the diagnosis and treatment of intrathoracic conditions. We have examined our experience of 23 consecutive thoracoscopies over a nine month period (Sept. 91 - June 92). Twelve of the patients were male and the mean age was 42 (range 14 - 84).

Twelve of the thoracoscopies were performed for diagnosis and the other eleven patients had a therapeutic procedure performed. Indications for thoracoscopy were: thoracoscopy and biopsy (n = 9); thoracoscopic ligation and blebectomy (n = 8); thoracoscopy alone (n = 3); thoracoscopic cervical sympathectomy (n = 2) and thoracoscopically assisted oesophagectomy (n = 1). Of the twelve diagnostic thoracoscopies the presenting condition was a pleural effusion (n = 8), lung infiltrate (n = 2), broncho-pleural fistula (n = 1) and elevated hemidiaphragm (n = 1).

All thoracoscopic therapeutic procedures were successful. Of the twelve diagnostic thoracoscopies performed five confirmed a diagnosis and led to definitive management. No significant complications occurred due to thoracoscopy.

These preliminary results indicate that thoracoscopy is safe, useful in furthering the diagnosis of complicated lung effusions and effective in the management of hyperhydrosis, bleb disease and may have a role in oesophageal mobilisation of oesophagectomy.

74.

MYO-CUTANEOUS FLAP COVER IN ADVANCED
BREAST CARCINOMA

M. O'Donnell, J. A. E. Hobby.

Dept. of Plastic Surgery, Odstock Hospital, Salisbury, Wilts.

18 patients with ulcerating breast carcinoma who underwent palliative flap cover for ulcerating breast carcinoma are reviewed.

The patients included 17 women and 1 man. The age range was 33 - 74 years. All but one had previous radiotherapy. 11 required synchronous mastectomy at the time of flap cover, 4 of whom had had previous lumpectomy. Only 1 patient presented with advanced ulcerating carcinoma without previous treatment. Methods of cover included Latissimus Dorsi Myocutaneous Flap (10), Transverse Rectus Abdominus Muscle (TRAM) Flap (7), and combination (1). The interval between diagnosis of carcinoma, and the chest wall involvement was 0 - 7.3 years.

Methods and results of flap cover are illustrated, emphasizing the palliative benefit of myocutaneous flap cover in advanced breast carcinoma.

75.

MACROPHAGES ENHANCE WOUND CONTRACTION

M. C. Regan, S. J. Kirk, M. Hurson, H. L. Wasserkrug,
A. Barbul.

John Hopkins Medical Institutions, Baltimore, U.S.A.

Wound contraction is an essential component of wound healing. Using fibroblast populated collagen lattices, an in vitro model of contraction in which fibroblasts are suspended in a collagen gel matrix, we sought to determine the factors governing contraction. Fibroblasts recovered from healing wounds at 5, 7 and 10 days following injury display an enhanced contractile activity when compared to normal dermal fibroblasts.

Addition of wound fluid (WF) from 10 day old wounds to gels containing normal dermal fibroblasts caused a significantly greater degree of contraction compared to wound fluid from 3 day wounds. This enhanced ability to induce contraction developed gradually during the first 10 days of healing. (mm² ± sem, *p < 0.05 vs control)

Time	Control	3 day WF	5 day WF	7 day WF	10 day WF
24 hrs.	668±33	567±32	536±30	467±34*	486±43*
48 hrs.	590±38	448±31	426±40*	395±43*	407±52*
72 hrs.	456±27	364±17*	345±29*	313±33*	293±24*

The addition of both crude wound mononuclear cells (WMNC) and purified wound macrophages from 10 day wounds, to lattices prepared with normal dermal fibroblasts, resulted in a similar increase in the rate of contraction. Purified lymphocytes recovered from these wounds had no significant effect on contraction.

Time	Control	WMNC	Macrophage	Lymphocyte
24 hrs.	391±28	389±34	382±28	377±18
48 hrs.	388±26	242±41*	266±7*	342±11
72 hrs.	278±17	203±42*	222±9*	249±8

Thus, macrophages recovered from ten day old wounds enhance the contraction of collagen gel matrices by fibroblasts. A factor which causes a similar enhancement in the capacity of normal dermal fibroblasts to contract the gels is present in the wound environment soon after injury and increases from the fifth to tenth day.

Session VI

76.

GALLSTONES - MANAGEMENT IN THE
LAPAROSCOPIC ERA

K. J. Cronin, M. J. Kerin, N. N. Williams, S. E. A. Attwood,
J. Crowe, P. MacMathuna, J. Lennon, T. Corrigan, R.
O'Connell, J. M. Fitzpatrick, T. F. Gorey.

Dept. of Surgery and Gastroenterology, Mater Misericordiae
Hospital and University College, Dublin.

Laparoscopic cholecystectomy is now accepted as the standard management of gallstones. We have reviewed our hospital's experience with gallstones since the introduction of laparoscopic cholecystectomy. 232 patients presenting with gallstone related disease (154 elective, 36 acute cholecystitis, 14 biliary colic, 18 pancreatitis, 10 obstructive jaundice) were considered for laparoscopic cholecystectomy. An open procedure was electively performed in 16 (14 previous surgery, 2 failed ERCP) sphincterotomy and duct clearance alone. Per-operative cholangiography was attempted in 28 cases and successful in 25 (90%). Per-operative ERCP was performed in 44 cases, 18 pancreatitis, 15 abnormalities on liver function tests, 5 obstructive jaundice, 3 failed perop cholangiograms and 3 abnormal per-op cholangiograms). One patient had a successful peroperative choledocholithotomy carried out together with cholecystectomy. Laparoscopic cholecystectomy was successful in 196 of the 216 patients in whom it was attempted and the remainder were converted to open cholecystectomy (12 unsatisfactory anatomy, 8 bleeding). There was no mortality and complications occurred in 15 patients (wound infection 10, 1 bile leak which required stenting and 4 laparotomies for post-op haemorrhage).

This study confirms the efficacy of laparoscopic cholecystectomy and the ability of ERCP to deal with common bile duct stones in conjunction with it. Laparoscopic common bile duct exploration may be a valuable adjunct to laparoscopic cholecystectomy in the future.

77.

RATIONALISING THE USE OF ENDOSCOPIC
RETROGRADE CHOLANGIOPANCREATOGRAPHY
(ERCP) IN PATIENTS HAVING LAPAROSCOPIC
CHOLECYSTECTOMY (LC)

A. Browne, A. Quershi, A. Leahy, G. Courtney, P. Grace, H.
Osborne, D. Bouchier-Hayes.

Dept. of Surgery, Royal College of Surgeons in Ireland,
Beaumont Hospital, Dublin.

Fifteen percent (n = 55) of our LC patients had ERCP with 20% (n = 11) yielding stones. This study assessed the ability of routine biochemical tests and ultrasound to predict the presence or absence of ductal stones, to determine if unnecessary ERCP's can be reduced. Fifty patients having LC and successful ERCP were studied. Five other patients had failed ERCP. Prior to ERCP, elevated serum bilirubin (Bili), alkaline phosphatase (AP), aspartate transferase (AST), alanine transferase (ALT) and amylase, were considered suggestive of ductal pathology. Single mode ultrasound (US) of the biliary tree was considered positive if there was evidence of duct dilatation (> 10mm) or a calculus. Eleven patients had ductal stones at ERCP all successfully treated by sphincterotomy with no major morbidity.

Index	%	Sensitivity	Specificity	Predictive Values (%)	
				Positive	Negative
Bili	38	0.73	0.72	42	90
AP	80	0.91	0.23	25	90
AST	64	0.82	0.41	28	89
ALT	74	0.91	0.31	27	92
Amylase	24	0.27	0.74	25	76
US	10	0.27	0.95	60	82

Most sensitive indices were AP, ALT and AST. Ultrasound, serum amylase and bilirubin were most specific and by excluding patients with these three parameters normal, the number of ERCP's would have been reduced to 32 (64%) without overlooking any stones.

78.

LAPAROSCOPIC PERITONEAL LAVAGE IN THE TREATMENT OF PERFORATED COLONIC DISEASE

M. S. Dudeney, H. P. Redmond, P. A. Grace, D. Bouchier-Hayes.

Department of Surgery, Beaumont Hospital, Dublin 9.

Standard therapy for perforated colonic disease is colonic resection with antibiotic therapy. A minimally invasive approach has recently been proposed in clinical studies using laparoscopic peritoneal lavage. The aim of this study was to compare the techniques of open colonic resection with laparoscopic peritoneal lavage as a therapeutic procedure in an experimental model of perforated colonic disease. 60 female CD - 1 mice, 6 - 8 weeks, were subjected to caecal ligation and puncture and after two hours were randomized to one of three different treatment groups. Group 1 (n = 20) underwent laparotomy and caecectomy. Group 2 (n = 20) underwent laparoscopic peritoneal lavage (LPL) using 10 ml of saline. Group 3 (n = 20) received sham laparotomy. Animals were subsequently studied for mortality and in-vitro antimicrobial activity [peritoneal cell fluxes and peritoneal macrophage (PMO) superoxide anion generation (O_2^-) and tumour necrosis factor- α (TNF- α) release].

	Survival (%)	Neutrophil (%)	PMO (%)	O_2^- (nmol)	TNF- α (pg/ml)
Control	10	73±3	16±2	0.8±0.4	3±0.5
LPL	18	93±3	6±10	0.8±0.5	12±2
Caecectomy	50*	64±2*	32±4*	2.8±1*	20±3*

Data = mean ± sem. Survival (Chi-square) = 5 days; in-vitro expts (ANOVA) = 12 hours. * = p < 0.05 vs other groups.

These data demonstrate that caecectomy offered significant protection against intra-abdominal sepsis compared with control and LPL (p < 0.05). This protective effect was associated with lowest peritoneal neutrophil influx (p = 0.01 vs LPL), but highest peritoneal macrophage antimicrobial activity (O_2^- and TNF- α release). Thus, LPL was not protective against perforated colonic disease in this model.

79.

LAPAROSCOPIC HIGHLY SELECTIVE VAGOTOMY IN THE PIG

D. J. Buckley, D. J. Hehir, W. O. Kirwan.

University Department of Surgery, Regional Hospital Cork.

Highly Selective Vagotomy (HSV) is a proven treatment option in the management of peptic ulceration. We have previ-

ously utilised the minipig prior to the clinical introduction of laparoscopic cholecystectomy. The aim of this project was to develop a laparoscopic method of vagal interruption for humans.

In a pilot study six minipigs had a posterior truncal vagotomy with anterior highly selective vagotomy by open surgery. The endoscopic procedure was developed and refined in a further 13 animals. The current operation includes division of the branches of the anterior vagus under direct vision, and excision of a 2 cm portion of the posterior vagus via a sub-hepatic dissection in the peri-oesophageal space.

Seven further animals have had this operation. Successful vagotomy was determined by immediate laparotomy, gastrotomy and staining of the gastric mucosa with congo red solution to detect residual acid production. The stomach and distal oesophagus was then excised and inspected for persistent vagal fibres. Two operations were incomplete, in one due to an anterior vagal branch proximal to the "crow's foot", and the other due to a posterior vagal fibre at the oesophagus.

Use of an animal model is highly desirable prior to the introduction of clinical laparoscopic highly selective vagotomy.

80.

LAPAROSCOPIC CHOLECYSTECTOMY: A LOW MORBIDITY PROCEDURE?

M. Goggin, W. P. Joyce, O. Traynor, J. Hyland.

Department of Surgery, St. Vincent's Hospital, Dublin 4.

Laparoscopic cholecystectomy is now the preferred treatment in the management of symptomatic gallstone disease. Initial reports on the experience of this new technique would suggest that it is associated with a high operative complication rate and in particular iatrogenic ductal injury when compared to peon cholecystectomy. We report our evolving experience with 240 consecutive laparoscopic cholecystectomies from one surgical unit paying particular attention to peri-operative complication rates and follow-up.

From June 1990 - June 1992, 240 patients have undergone laparoscopic cholecystectomy with a conversion to open cholecystectomy of 9.5%. The male/female ratio was 1:4 and mean age was 44 years (range 14 - 85 years). Indications for surgery included, biliary colic (n = 192), recent acute cholecystitis (n = 28), obstructive jaundice (n = 20) or gallstone pancreatitis (n = 10). All patients were assessed pre-operatively by ultrasound examination or ERCP when indicated and more recently operatively-cholangiography is being used in selected cases. Mean post-operative stay was 3.2 days (range 2 - 27 days) and mean follow-up was 11 months (range 2 - 24 months). No peri-operative death occurred, however 13 major and 5 minor post-operative complications were encountered. 7 patients developed a sub-hepatic collection post-operatively of which 5 required percutaneous drainage. Three patients represented with jaundice, all had bile duct stones and required ERCP and stone extraction. Two patients developed a small bowel obstruction postoperatively of which 1 required laparotomy. One patient developed a post-operative myocardial infarction. Three patients developed wound haematomas which settled conservatively and 2 patients required a post-operative blood transfusion.

Laparoscopic cholecystectomy is now the procedure of choice in the management of symptomatic gallstones. These data would suggest that it is a low morbidity procedure associated with an acceptable low complication rate.

81.

CHOLANGIOGRAPHY DURING LAPAROSCOPIC
CHOLECYSTECTOMY

D. J. Buckley, D. J. Hehir, W. O. Kirwan.

University Department of Surgery, Regional Hospital, Cork.

Since the introduction of laparoscopic cholecystectomy at this unit we have attempted to perform routine peroperative cholangiography and have prospectively audited our results. To date 160 patients had attempted laparoscopic cholecystectomy (LC) and preoperative cholangiography (LPC). For the purposes of the study, patients were divided into two groups; Group A comprised the first 80 patients and Group B the remainder.

Results	Group A (n =80)	Group B (n = 80)
LC	68	70
LPC	38	61
LPC (Calculi)	0	6
abnormal (Anatomy)	1	1

Of the eight patients with abnormal LPC, four had conventional cholecystectomy and extraction of calculi and two had endoscopic extraction. Both patients with abnormal anatomy had satisfactory open cholecystectomy.

There were no deaths or duct injuries in the series. No patient following LPC had presented with retained CBD calculi to date. The higher LPC success in Group B is directly attributable to operator experience.

In our experience routine peroperative cholangiography is useful in laparoscopic cholecystectomy specially as all six cases of choledocholithiasis in our series were previously unsuspected.

82.

ABDOMINAL ULTRASOUND FOLLOWING
LAPAROSCOPIC CHOLECYSTECTOMY: A
PROSPECTIVE STUDY

T. A. Farrell, J. Geraghty, F. K. Keeling.

Departments of Radiology & Surgery, Beaumont Hospital,
Dublin 9.

Purpose: To determine the normal post-operative sonographic appearance of the abdomen, the significance of intra-abdominal collections and the value of routine scanning post laparoscopic cholecystectomy (LC).

Patients and Methods: One hundred consecutive patients admitted for LC were prospectively examined by ultrasound on 3 occasions - pre-operatively, 48 hours post-operatively and one month post-operatively. Specific features were sought such as the presence of a fluid collection and the common duct diameter and these were correlated with the patients' temperature, white cell count and liver function tests to determine their clinical significance.

Results: There was a transient increase in the mean common duct diameter 48 hours post-operatively with 24% of our patients having common ducts greater than 6mm. Most of these common ducts returned to normal when scanned one month later. Ten patients (10%) had an intra-abdominal fluid collection demonstrable at 48 hours, only one of which was clinically significant.

Conclusion: We demonstrated a transient increase in common duct diameter size post cholecystectomy which has not been previously described. The incidence of significant intra-abdominal fluid collection was low (1%) suggesting that ultrasonography post LC is not routinely indicated.

83.

LAPAROSCOPY FOR SMALL BOWEL RESECTION

I. P. Kelly, S. E. A. Attwood, P. R. O'Connell,
T. P. Corrigan.

The Mater Misericordiae Hospital, Dublin.

Laparoscopy improves diagnosis and minimises the trauma of access for major surgery allowing rapid, comfortable and complication free recovery. We have applied this to resection of small intestine in three patients. In two a barium study showed a malignant stenosis and laparoscopy was performed to assess resectability, tumour invasion and distal metastases. In the third case laparoscopy, performed for acute abdominal pain, revealed a large haemorrhagic jejunal diverticulum.

Laparoscopy was performed through a one cm infra-umbilical incision. The lesions were freely mobile and easily brought to the umbilicus using two accessory 5mm laparoscopy ports. Both patients with tumour had extensive nodal metastases which made curative resection impossible. The infra-umbilical trocar incision was extended (ranging 3 - 5 cm) to remove the mobilised segments allowing the intestine to be exteriorised, resected and anastomosed with continuous suture. Patients mobilised on the first post operative day and were discharged 3 to 5 days later without complication. Narcotic analgesia was not required. Histology in two showed adenocarcinoma with extensive lymph node involvement and one haemorrhagic diverticulum.

This technique combined the advantages of a laparoscopic operation (minimally invasive diagnosis, mobilisation and resection) while allowing a safe and easy anastomosis to be performed externally.

84.

LAPAROTOMY INHIBITS TUMOR GROWTH

A. D. K. Hill, H. P. Redmond, H. Naama, P. A. Grace,
D. Bouchier-Hayes.

Department of Surgery, Beaumont Hospital, Dublin 9.

Surgical injury may be associated with enhanced tumor growth, but mechanisms are unclear. We tested the hypothesis that laparotomy would enhance tumor growth. Mice (n = 36) received Lewis lung carcinoma implants (5 x 155 cells, subcutaneously, right flank) and were randomized to control (Cont) or laparotomy (Lap). Tumor volume, carcass weight, and percentage change in body weight were measured on day 10. Peritoneal macrophages were harvested and studied for tumor necrosis factor- α (TNF- α)-dependent cytotoxicity (L929 bioassay) and TNF- α -independent cytotoxicity (superoxide anion production).

	Tumor Volume(cc) (Day 10)	Carcass Weight (g)	% Change in body weight	O ₂ ⁻ nmol	TNF- α pg/ml /10 ⁶
Cont:	2.45 $\pm$ 0.4	22.5 $\pm$ 1	10.7 $\pm$ 4	0.3 $\pm$ 1	10.2 $\pm$ 1
Lap:	1.23 $\pm$ 0.2*	24.3 $\pm$ 1	8.6 $\pm$ 2	0.9 $\pm$ 0.0 ^o	7.3 $\pm$ 1

Data = mean $\pm$ SEM; Unpaired Student's test, (* = p < 0.02;
^o = p < 0.01 vs controls).

Laparotomy was associated with a reduction in tumor volume but no alteration in carcass weight or percentage change in body weight. Superoxide anion production (O₂⁻) was increased in the laparotomy group but there was no difference in TNF- α production. Thus, surgical injury to the peritoneal cavity reduces extraperitoneal tumor growth. The mechanism of action functions through injury-induced enhancement of macrophage anti-tumor cytotoxicity.

85.

ESTABLISHING A UNIQUE DATA BASE OF SKIN
CANCER IN THE WEST OF IRELAND - A
PRELIMINARY REPORT

E. Moore, E. Barry, C. Duffy, P. Hogan, G. Nee, M. Fahy*,
M. McKiernan, D. P. Kenny, J. McCann†.

*Dept. of Accounting & Finance, U.C.G. and †Dept. of
Plastic, Reconstructive & Hand Surgery, U.C.H.G.

Clinical audit has assumed a role of major importance in clinical practice in recent years. The diverse facets of audit have put more pressure on Physicians to present data concerning their patients in a concise manner on a regular basis. It is obvious from clinical practice, that there is a high incidence of skin cancer in the West of Ireland and of multiple skin cancers on the same patient at the same time. Skin cancer surgery forms a major workload of this Plastic Surgery Unit.

This prompted us to set up a Western Skin Cancer Registry (WESCAR) to document if possible all the skin cancers in the West of Ireland and to see if there is a common aetiological factor or factors. In order to audit our work we have developed an unique computer software package which allows us to compile a database of all skin cancers with associated features dealt with by the Unit.

We describe our experiences in establishing WESCAR and its use in practice.

86.

THE CLINICAL SPECTRUM OF GALLBLADDER
CANCER

V. Elias, E. Gibney, W. Joyce, O. Traynor.
Liver Unit St. Vincent's Hospital, Dublin 4.

Carcinoma of the gallbladder is a rare tumour which carries a poor prognosis. Surgical treatment is usually palliative, but occasionally, radical surgery can usefully prolong life. Over a period of five years, twenty two patient with gallbladder carcinoma were seen at this institution. There were sixteen females and six males with a mean age of sixty seven years (range 51 - 84 years). Presenting features were pain in the right upper quadrant (seventeen patients), weight loss (twelve patients), jaundice (eleven patients). In two patients the cancer was discovered incidentally at histology following cholecystectomy. All twenty two patients had gallstones. The diagnosis in the symptomatic patients was suggested by ultra sound scan (eighteen patients) CT scan (fifteen patients) or ERCP (six patients). The patients were staged according to the Nevin staging system: There were two patients with stage III, one patient with stage IV, and nineteen patients with stage V. Ten patients were considered incurable and had no surgical treatment. Five patients had a palliative biliary by-pass procedure. Three patients had simple cholecystectomy, two patients had cholecystectomy with hepatic pedicle lymphadenectomy, and two patients had major liver resection. The mean survival for patients having no treatment was three months and for patients having biliary by-pass was four months. The perioperative mortality of patients undergoing surgical resection was 16%. One patient survived more than three years and six patients survived from six months to three years following surgery. Gallbladder cancer is a rare tumour which is usually very advanced at the time of diagnosis. Surgical resection is rarely possible but can prolong survival in selected cases.

87.

AN INTERIM ANALYSIS OF SOFT TISSUE AND
VISCERAL SARCOMAS IN IRISH PATIENTS

Dublin Soft Tissue Tumour Panel

* E. Gaffney, J. Doyle, P. Dervan, J. McMahon, M.
McCabe, P. Kelly, M. Leader.

St. James's/FDVBH, Mater, St. Vincent's and Beaumont
Hospitals, Dublin.

Sarcomas are uncommon, heterogeneous and difficult to diagnose and treat. The Dublin Soft Tissue Tumour panel has met regularly since January 1989 to review all sarcomas and sarcomalike lesions of soft tissues and viscera accessioned by four pathology departments affiliated with the three Dublin medical schools. The Panel's aims are: standardised pathological evaluation, collaborative research and optimal patient management.

To date, the Panel has reviewed 330 sarcomas. The patients were treated by 62 surgeons and nonsurgical specialists. Sarcomas were often not suspected clinically and pre-operative evaluation varied according to availability of CT or MRI. Over 20 sarcoma types are represented, the most common being leiomyosarcoma and malignant fibrous histiocytoma. Specific diagnostic problems are (i) non-neoplastic lesions that mimic sarcomas (clarified by detailed clinical correlation and follow-up), (ii) small round cell tumours in young adults and (iii) non-sarcomas presenting as soft tissue masses, (cases in latter two categories usually resolved by immunohistological staining and electron microscopy).

Overall management for patients diagnosed since 1989 was: surgery alone (34%), surgery and chemotherapy (34%), surgery and radiotherapy (19%), other (13%). Overall 2-year survival (data incomplete) is 47%. Standard clinicopathological variables such as tumour type, size, stage at presentation, surgical resectability, tumour grade and treatment modality will be analysed statistically for correlation with prognosis.

Because there is a need for more uniform pre-operative assessment and coordinated treatment, the current Panel is being expanded into a multidisciplinary group to review all aspects of investigation and management of soft tissue and visceral sarcomas in Irish patients.

*Supported by Irish Cancer and Health Research Board.

88.

PROGNOSTIC VALUE OF PLOIDY AND NUCLEOLAR
ORGANIZER REGIONS (AGNORS) FOR ACINIC CELL
CARCINOMA

C. I. Timon, P. Gullane, I. Dardick.

Department of Otolaryngology, Toronto General Hospital,
Toronto, Canada.

Currently, acinic cell carcinoma (ACC) of the salivary gland lacks reliable predictors of biological behaviour. Flow cytometry and AgNOR determination are potential tools for this purpose.

As a result, ploidy, S-phase and AgNOR counts were determined for 45 patients with acinic cell carcinoma and compared with clinical outcome.

Median patient follow-up for recurrence was 6 years and for survival was 7.4 years. Ten of 21 diploid tumours developed a recurrence and four died of disease. Six of 15 aneuploid tumours developed recurrences and four died of disease. The S-phase percentage varied from 0/2 to 21.1 but did not differentiate between good and bad outcome.

The mean AgNOR count was 3.13 for non-recurrent, and 4.57 for recurrent disease, however the difference was not statistically significant.

In this study it was not possible to differentiate patients with unfavourable prognosis based on ploidy, S-phase or AgNOR count analysis.

89.

SPLENECTOMY IMPAIRS HOST RESPONSE TO CANDIDA INFECTION

H. P. Redmond, I. McCarthy, M. S. Dudeney, A. D. K. Hill, P. A. Grace, D. Bouchier-Hayes.

Department of Surgery, Beaumont Hospital, Beaumont, Dublin 9.

Post splenectomy septic sequelae may be fatal, but the mechanisms are unclear. We hypothesised that peritoneal macrophag (PM0) antimicrobial function is abnormal following splenectomy and that this may predispose to increased mortality from the fungal pathogen *Candida albicans*. Study 1: (in-vivo), female CD-1 mice were randomized into control (C), laparotomy (L) or laparotomy + splenectomy (S) and inoculated with *Candida albicans* (10^7 organisms, i.p.) and were studied for mortality. Study 2: (in-vitro), mice were randomized to C, L or S groups. Twenty-four hours later, PM0 were harvested and studied for their anti-fungal activity, including percent PM0 ingestion of candida and vacuolar sealing of candida within PM0, percent candida killing, and superoxide anion (O_2^-) generation, the mechanism by which candida are killed.

(Data = mean $\pm$ sem. * = $p < 0.05$ vs controls).

	O_2^- (mmol)	Candida ingestion (%)	Candida killing (%)	Unsealed vacuoles (%)	Survival (%)
C	0.02 $\pm$ 0.01	32 $\pm$ 1	28 $\pm$ 4	55 $\pm$ 1	87
L	0.03 $\pm$ 0.00	17 $\pm$ 2	19 $\pm$ 3	77 $\pm$ 3	80
S	0.15 $\pm$ 0.03	10 $\pm$ 2	13 $\pm$ 3*	94 $\pm$ 2*	53*

S was associated with a significantly higher mortality from candida sepsis compared to C ($p < 0.05$). This may have resulted from S-induced defective phagocytosis of candida and depressed candida killing but increased O_2^- may result from increased leakage of O_2^- from more unsealed vacuoles in the S group. Thus, S defective PM intracellular candida killing whilst enhancing the release of O_2^- extracellularly from unsealed vacuoles causing tissue injury.

90.

COLO-RECTAL CARCINOMA (CRCA): THE PLACE FOR SURGERY IN METASTATIC DISEASE TO THE LIVER

N. N. Williams, W. P. Joyce, N. F. Couse, M. Morrin, P. V. Delaney.

Regional Hospital Limerick & University of Limerick.

There is sufficient evidence now to show that a significant number of patients with liver metastases from CRCA will benefit from surgery. Adson estimates this figure to be about 27% with an overall 5 year survival rate of 25%. In Ireland, unfortunately, we don't have statistics to substantiate these claims.

Each year in this country there are 1600 new cases of CRCA. About 300 of these will have liver secondaries at the time of initial laparotomy. It is likely that 85 will have liver involvement amenable to surgery. At present we don't know how many of these patients are being adequately treated and what the outcome is. We do know that the average survival for untreated patients is 7 months.

In our hospital between 1987 & 1991 we have dealt with 223 patients with CRCA. 22% had liver metastases at the time of initial surgery. (33%) of these patients underwent surgical treatment for their metastatic disease. Surgery consisted of either major liver resection and/or intra hepatic arterial cannulation (IHAC) with regional chemotherapy.

In the group undergoing major liver resection (no operative mortality) there is 1 patient alive at > 63/12; 1 patient > 24/12; 2 patients > 18/12; 1 patient > 9/12. (Average survival 26/12). There is no evidence of recurrence in any of these patients who have been followed sequentially by C.T. Scanning and CEA assay.

The summary of our results show that surgery in this group of patients is safe (operative mortality 0%) and offers a worthwhile benefit in terms of survival.

Extrapolating from British figures it is possible, however, that only 1/3 of suitable patients with metastatic liver deposits are being offered appropriate treatment.

In conclusion we feel that this is a problem which is well capable of being dealt with by Irish surgeons and should be addressed urgently in the best interests of our patients.

Is it any longer ethical to deny these patients effective treatment when surgical resection has become so safe and the evidence of prolonged survival is so overwhelming?