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Hermes

Risk factors for surgery in pediatric intussusception in the era of pneumatic reduction
Fallon SC, Lopez ME, Zhang W et al
J Pediatr Surg (2013) ***48****:1032–1036*

The authors of this work reviewed their experience with intussusception at a tertiary care children's hospital over a recent 6-year period. Out of 379 treated patients, 101 (26%) required operative management, with 34 undergoing intestinal resection; 20% of these had a pathologic lead point, most commonly Meckel's diverticulum. Indications for surgery included failed reduction(s), peritonitis, sepsis, perforation, and suspicion of a pathologic lead point. Over the course of the period reviewed, pneumatic reduction as the primary method increased from 56% to 88% of cases. Over the same time course, surgical intervention decreased from 46% to 21%. Surgical rates were higher with primary hydrostatic (30%) compared to pneumatic (19.5%) reductions. Delayed (>2 h) repeat enemas resulted in successful reduction in 8% of cases with progressive decrease in success with increased number of enema attempts. Abdominal symptoms >2 days, age <1 year, US findings of a lead point, free/interloop fluid, or bowel wall thickening, and failure of initial enema reduction were significant predictors of operative treatment for intussusception. Free/interloop fluid or a lead point on US and fever correlated significantly with the need for surgical bowel resection. The authors suggest that these findings should help to risk-stratify patients and facilitate prompt transfer to a center with pediatric surgical capabilities.

Magnetic resonance imaging identifies unsuspected liver abnormalities in patients after the fontan procedure
Bulut OP, Romero R, Mahle WT et al
J Pediatr (2013) ***163****:201–206*

The Fontan (cavopulmonary shunt) procedure, used for a wide variety of single ventricle physiology cardiac lesions, is now the most common cardiac surgical procedure performed in children over the age of 2 years and has a current 20-year survival rate of 70–85%. Supraphysiologic systemic venous pressure leads to long-term morbidity, including chronic liver disease with a risk of cirrhosis and even hepatocellular carcinoma. The time frame for the evolution of hepatic changes is unclear, and liver dysfunction is often missed or underestimated by serum biochemical testing. This is a retrospective analysis of 26/39 children post Fontan procedure (mean 9.5 years; range 5.4–15.6 years post-op) who underwent clinical, laboratory and contrast-enhanced MRI imaging evaluation for possible liver disease. None of the patients had clinical evidence of a failing Fontan circuit. 9/26 had clinical hepatomegaly and 2/26 mildly elevated liver transaminase levels. All MRI scans demonstrated morphologic liver changes with varying degrees of parenchymal and periportal increased T2 signal, a heterogeneous or reticular contrast enhancement pattern, and capsular retraction suggestive of congestion and fibrosis. Nine patients (35%) had multifocal arterially enhancing nodular lesions that were isointense to liver parenchyma on precontrast and delayed postcontrast images. The majority of these nodules occurred in children >10 years post-op. There was a good correlation between MR and histologic findings in two children who had liver biopsies. However, the authors caution that the imaging findings are non-uniform and biopsy may miss or underestimate changes. They suggest that MRI is a useful method to screen for liver disease in this patient group and may be a useful outcome measure for future potential interventions aimed at reducing hepatic morbidity in patients undergoing the Fontan procedure.

Chest CT in bronchopulmonary dysplasia: Clinical and radiological correlation
Tonson la Tour A, Spadola L, Sayegh Y et al
Pediatr Pulmonol (2013) ***48****:693–698*

The current definition of bronchopulmonary dysplasia (BPD) is clinical and does not include radiologic findings. It is defined as oxygen dependency for at least 28 days with severity graded according to oxygen and ventilator needs at 36 weeks post-menstrual age. The authors aim was to use a validated chest CT score to correlate radiological findings with clinical characteristics (including gestational age, type and duration of ventilation, treatment and disease severity) and determine the potential usefulness of HRCT findings in the evaluation of BPD. They describe retrospective scoring by

two blinded readers of 29 chest CTs in 19 moderate–severe BPD infants (study period 1998–2007; mean age 14.6 months, range 1.5–53.7 months). The most common findings, present in all or most, were bronchial wall thickening and linear and subpleural opacities. Areas of low attenuation were present in 68%; bullae (26%) and bronchiectasis (21%) were the least common findings. Individual CT parameters and overall CT score of the first CT did not correlate significantly with clinical data, although each individual radiologic item was good to excellent for positive predictive value of BPD severity. Increasing areas of low attenuation significantly distinguished between moderate and severe BPD. Four children who had more than one CT scan showed little change in the appearance or score over time. The authors conclude that CT scoring is readily feasible in BPD, and areas of low attenuation are the most sensitive parameter related to disease severity, but cannot predict evolution of BPD. They acknowledge that their study was limited by its retrospective nature and small numbers.

Laundry detergent "pod" ingestions: a case series and discussion of recent literature

Beuhler MC, Gala PK, Wolfe HA et al

Pediatr Emer Care (2013) ***29****:743–747*

Laundry detergent ingestions in young children are common (>6,000 reported in the US in 2011). Pediatric ingestions of traditional detergent powders and liquids typically result in minimal toxicity, primarily mild oral irritation and transient vomiting. In 2011, individual single-use packets, or "pods," of highly concentrated detergent contained within a water-soluble membrane (polyvinyl alcohol) designed to dissolve in wash water were introduced into the US. In spite of these pods being available in Europe for some time, there was no prerecognition of the need for increased caution or surveillance. In fact, one of the early advertisements demonstrated the ease of use by showing a child tossing the product into the washing machine. More recently, safety warnings and some changes in packaging have occurred to educate the public and improve product safety. The authors review the available literature and describe four children who required intensive care management with an unexpectedly severe clinical course following laundry pod ingestion. The children were 10–20 months of age and all had ingested only part of the pod. Three developed significant neurologic symptoms with progressive somnolence, as well as vomiting and respiratory distress, and were intubated for airway protection. Two had patchy opacities on chest radiographs consistent with atelectasis or aspiration, and one had swelling of the epiglottis and aryepiglottic folds on a lateral neck radiograph. Two of the children were hospitalized for 7–10 days and had prolonged feeding and swallowing dysfunction. Biochemical testing of some of the products was undertaken but the exact cause of the CNS toxicity was uncertain. Prior European experience was generally not well documented, although these authors mention several reports, including an abstract describing two cases of acute respiratory distress syndrome following ingestion. The authors suggest that a different approach to the triage and management of pediatric exposures to laundry detergent pod ingestions is required compared with non-pod ingestions. The typically recommended practice of administering water after ingestion to dilute the agent and mitigate caustic effects requires some caution because of possible rapid neurologic deterioration and risk of aspiration.

Wilms tumor

Friedman AD

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The author provides a concise summary of the demographics, hereditary associations, presentation, evaluation and staging, treatment, prognosis, and surveillance of Wilms tumor in childhood. Of particular interest is the editor's added historical note on the life of Max Wilms (1867–1918). Having been born into a West German family of lawyers, he began studying law, but switched to medicine, graduating from the University of Bonn in 1890. He worked as a pathologist with an interest in kidney and tumor cells, and then studied surgery, eventually becoming the chairman of surgery in Heidelberg in 1910. He was the co-author of a highly regarded textbook of surgery. His most prominent place in medical history dates to a monograph in 1899, which suggested the embryonic origin of renal tumor cells in a cohort of children with nephroblastomas. In 1918 he contracted diphtheria and died after saving the life of a French prisoner of war by performing a cricothyroidotomy.

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