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Saline Hydrostatic Intussusception Reduction

An intussusception is an invagination of the proximal bowel into the lumen of the distal bowel. Most (>90%) intussusception in children are ileocolic, with the least of them being either ileoileal or colocolic. Swollen Peyer's patches, enlarged lymph nodes, polyps, Meckel's diverticulum and duplication cysts are the most common etiological factors associated with intussusceptions. They occur usually in children between the ages of six months to three years demonstrating signs/symptoms such as colicky pain, bilious vomiting, abdominal distension, and currant jelly stools. The diagnosis of intussusception can be made using an abdominal ultrasound when demonstrating an oval pseudokidney mass lesion with central echoes, a sonolucent target lesion, various layers and concentric rings, fluid, enlarged lymph nodes or other soft tissue or cystic mass suggestive of a pathological lead point. Ultrasonographically guided hydrostatic reduction with the use of normal warm saline is believed to be one of the most promising method for the non-surgical treatment of pediatric intussusception. It has been found to be safe, simple, effective, economical, and a less time-consuming procedure coupled with fewer complications, no radiation hazard and a minimal hospital stay. It is also associated with less morbidity since there is no incidence of a pseudo-obstruction as is seen in the fluoroscopic guided procedure, there is no fluctuation in the intracolonic pressure and there is minimal chance for chemical peritonitis as it occurs when using other contrast material. Risk factors for failure of reduction include localization (left colon), bloody stools, free peritoneal fluid and fluid trapped in the intussusceptum. Contraindications for hydrostatic reduction include absent or scattered vascularity within the lesion in color Doppler studies, evident signs of perforation or peritonitis, ascites, multiple intussusception with a pathological lead point or shock. The reduction success rate using saline hydrostatic reduction monitored by ultrasound is above 80%.

References:

1- Shehata S, El Kholi N, Sultan A, El Sahwi E: Hydrostatic reduction of intussusception: barium, air, or saline? Pediatr Surg Int. 16(5-6):380-2, 2000

2- Nayak D, Jagdish S: Ultrasound guided hydrostatic reduction of intussusception in children by saline enema: our experience. Indian J Surg. 70(1):8-13, 2008

3- Mensah Y, Glover-Addy H, Etwire V, Appeadu-Mensah W, Twum M: Ultrasound guided hydrostatic reduction of intussusception in children at Korle Bu Teaching Hospital: an initial experience. Ghana Med J. 45(3):128-31, 2011

4- Digant SM, Rucha S, Eke D: Ultrasound guided reduction of an ileocolic intussusception by a hydrostatic method by using normal saline enema in paediatric patients: a study of 30 cases. J Clin Diagn Res. 6(10):1722-5, 2012

5- He N, Zhang S, Ye X, Zhu X, Zhao Z, Sui X: Risk factors associated with failed sonographically guided saline hydrostatic intussusception reduction in children. J Ultrasound Med. 33(9):1669-75, 2014

6- Flaum V, Schneider A, Gomes Ferreira C, et al: Twenty years' experience for reduction of ileocolic

intussusceptions by saline enema under sonography control. J Pediatr Surg. 51(1):179-82, 2016

Perforated Peptic Ulcer Disease

Peptic ulcer disease (PUD) is uncommon in children and rarely suspected as an etiology of abdominal symptoms until the child develops a complication such as upper gastrointestinal bleeding, obstruction or perforation. Peptic ulcer disease is classified as gastric or duodenal depending on location. Children less than 10 years of age predominantly have duodenal peptic ulcers, while above that age gastric ulcer predominates. Most duodenal peptic ulcer disease is associated with Helicobacter Pylori infection of the gastric antral mucosa. Other causes of PUD results from medications (aspirin, NSAID, steroids) and severe stress (burns, head trauma, Crohn's disease). Peptic ulcer perforation occurs in almost 12% of children with peptic ulcer disease. Children with PUD perforation present with an acute sudden onset painful abdomen, vomiting, nocturnal awakening and generalized peritonitis with board like abdomen. Almost 90% of children will show free air under the diaphragm in plain abdominal films. CT-Scans are more sensitive in establishing the diagnosis of free or contained perforation. Laparoscopy can be utilized for diagnosis and management of perforated PUD. Surgical management of perforated PUD depends on the severity of the disease and extent of perforation. Most small perforations can be managed with laparoscopic simple closure using an omental patch. Laparoscopic omental patch is the easiest, quickest and safest treatment. In complex or large perforated duodenal ulcers open definitive procedure such as vagotomy or gastric resections may be required due to larger spillage of GI content, more sepsis and instability. Postoperatively these patients will require eradication of Helicobacter pylori if breath test or biopsy is positive along with proton pump inhibitors. The rate of PUD recurrence is very high in untreated H. Pylori infection.

References:

1- Hua MC, Kong MS, Lai MW, Luo CC: Perforated peptic ulcer in children: a 20-year experience.J Pediatr Gastroenterol Nutr. 45(1):71-4, 2007

2- Yadav RP, Agrawal CS, Gupta RK, Rajbansi S, Bajracharya A, Adhikary S: Perforated duodenal ulcer in a young child: an uncommon condition. JNMA J Nepal Med Assoc. 48(174):165-7, 2009

3- Coppolino F, Gatta G, Di Grezia G, Reginelli A, Iacobellis F, Vallone G, Giganti M, Genovese E: Gastrointestinal perforation: ultrasonographic diagnosis. Crit Ultrasound J. 5 Suppl 1:S4, 2013

4- Schwartz S, Edden Y, Orkin B, Erlichman M: Perforated peptic ulcer in an adolescent girl. Pediatr Emerg Care. 28(7):709-11, 2012

5- Yildiz T, Ilce HT, Ceran C, Ilce Z: Simple patch closure for perforated peptic ulcer in children followed by helicobacter pylori eradication. Pak J Med Sci. 30(3):493-6, 2014

6- Wong CW, Chung PH, Tam PK, Wong KK: Laparoscopic versus open operation for perforated peptic ulcer in pediatric patients: A 10-year experience. J Pediatr Surg. 50(12):2038-40, 2015

OEIS Complex

OEIS complex is a very rare group of malformations which includes omphalocele, exstrophy of cloaca, imperforate anus and spinal defect. This constellation has also

been labeled exstrophy of the cloaca, exstrophia splanchnica, vesicointestinal fissure, and ectopic cloaca. It represents the most severe form of exstrophy-epispadia complex occurring at a rate of one in 200-400,000 live births. Most cases are sporadic with no obvious etiology. OEIS complex may be difficult to diagnose prenatally. Currently there is no clear distinction how OEIS complex occurs during development. OEIS complex can also be associated with spina bifida, genital abnormalities, renal malformations, symphysis pubis diastasis and limb abnormalities. Exstrophy of the cloaca includes the persistence and exstrophy of a common cloaca that receives ureters, ileum and a rudimentary hindgut. Terminal myelocystoceles constitute approximately 5% of skin-covered lumbosacral masses and are especially common in patients with cloacal exstrophy or the OEIS complex. Most patients with OEIS complex have a single umbilical artery. Associated cardiac defects are rare. Brain is normal and most patients have normal intelligence. Suspicion of OEIS complex prenatally occurs when the US reveals nonvisualization of the bladder, infra-umbilical anterior abdominal wall defect, omphalocele and myelomeningocele. Prenatal MRI is diagnostic of the complex malformation helping plan surgery and provide family/genetic counseling before birth. Management of OEIS complex requires and interdisciplinary surgical approach from pediatric surgery, pediatric urology, orthopedics and neurosurgery. The driving factor behind surgical correction is to prevent postrenal obstructive uropathy. Surgical treatment has resulted in improved survival and quality of life.

References:

1- Ben-Neriah Z, Withers S, Thomas M, Toi A, Chong K, Pai A, Velscher L, Vero S, Keating S, Taylor G, Chitayat D: OEIS complex: prenatal ultrasound and autopsy findings. Ultrasound Obstet Gynecol. 29(2):170-7, 2007

2- Sawaya D, Gearhart JP: Gastrointestinal reconstruction and outcomes for patients with the OEIS complex. Semin Pediatr Surg. 20(2):123-5, 2011

3- Phillips TM, Salmasi AH, Stec A, Novak TE, Gearhart JP, Mathews RI: Urological outcomes in the omphalocele exstrophy imperforate anus spinal defects (OEIS) complex: experience with 80 patients. J Pediatr Urol. 9(3):353-8, 2013

4-Mandrekar SR, Amoncar S, Banaulikar S, Sawant V, Pinto RG: Omphalocele, exstrophy of cloaca, imperforate anus and spinal defect (OEIS Complex) with overlapping features of body stalk anomaly (limb body wall complex). Indian J Hum Genet. 20(2):195-8, 2014

5- Santoro JD, Chao S, Hsieh MH, Lee HC: Multimodality Renal Failure in a Patient with OEIS Complex. AJP Rep. 5(2):e161-4, 2015

6- Allam ES, Shetty VS, Farmakis SG: Fetal and neonatal presentation of OEIS complex. J Pediatr Surg. 50(12):2155-8, 2015

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