PEDIATRIC SURGERY *Update* ©
Vol. 21 No. 06 DECEMBER 2003

Recurrent Inguinal Hernias

Inguinal hernias continue to be the most common congenital pathology in children needing surgical repair early in life. Approximately 1-3% of children have an inguinal hernia. The incidence is higher in premature babies (3-5%). Almost all inguinal hernias in children are the indirect type (99%). The few direct hernias in children are the result of previous surgery or inguinal floor disruption. Management of inguinal hernias in infants and children is straightforward: outpatient surgery after diagnosis for most cases. The procedure consists of high ligation of the hernial sac. Incidence of developing a recurrent inguinal hernia is around 0.8%. Most recurrences occur two years after the initial surgery. Several factors play a role in increasing hernia recurrence. These are: 1) Missed sac or inadequate ligation of the indirect sac. 2) Children operated for incarcerated inguinal hernias since tissue is more friable and edematous at the time of surgery. 3) Infection of the wound after hernia repair predisposing to tissue breakdown and a higher recurrence rate. 4) Connective tissue disorders (Hurler, Ehlers-Danlos, etc.). 5) Growth failure and poor nutrition. 6) Prematurity has been identified as a co-morbid factor in hernia recurrence. 7) Children hernia repair done by non-pediatric surgeons is also a risk factor for recurrence. 8) Conditions causing increase intra-abdominal pressure (VP shunts, posterior urethral valves, bladder exstrophy repair, weight lifting and respiratory conditions) are also related to higher rate of recurrence in children. Repair of the recurrent hernia is done through the inguinal scar or using laparoscopy. The sac is mobilized and ligated. Laparoscopic repair of recurrent inguinal hernia has the advantage of passing through a virgin field reducing damage to vas or vessels and allowing inspection of the area with direct purse string repair of the defect.

References:

1- Grosfeld JL, Minnick K, Shedd F, West KW, Rescorla FJ, Vane DW: Inguinal hernia in children: factors affecting recurrence in 62 cases. J Pediatr Surg 26(3):283-7, 1991
2- Steinau G, Treutner KH, Feeken G, Schumpelick V: Recurrent inguinal hernias in infants and children. World J Surg 19(2):303-6, 1995
3- Esposito C, Montupet P: Laparoscopic treatment of recurrent inguinal hernia in children. Pediatr Surg Int 14(3):182-4, 1998
4- Perlstein J, Du Bois JJ: The role of laparoscopy in the management of suspected recurrent pediatric hernias. J Pediatr Surg 35(8):1205-8, 2000
5- Meier AH, Ricketts RR: Surgical complications of inguinal and abdominal wall hernias. Semin Pediatr Surg 12(2):83-88, 2003

Incarcerated Inguinal Hernias

Incarceration and strangulation are the most dreaded complications of inguinal hernias in children. Incarceration refers to viscera (bowel, ovaries, bladder) that protrudes through the inguinal defect and cannot return back to its anatomical position without manipulation or surgery. Bowel incarceration in infants with inguinal hernia is a notable cause of intestinal obstruction in this age group. Strangulation is the ischemic effect caused on the trapped viscera by the incarcerated defect. Incarceration occurs in almost one-third of inguinal hernias. It is more common in children less than one year of age and males. With prolonged incarceration there can also occur testicular infarction. In infant girls the normal anatomy is altered when an ovary is trapped in a hernia sac, and these changes make torsion more likely. This risk warrants treating the asymptomatic irreducible ovary as any other incarcerated hernia with urgency. Incarceration increases the rate of complications, is seen in a younger population of children and increases hospital stay. Children with incarcerated hernia should have a trial of manual reduction followed by prompt repair within the next five to seven days to avoid re-incarceration.

References:
1- Palmer BV: Incarcerated inguinal hernia in children. Ann R Coll Surg Engl 60(2):121-4, 1978
2- Puri P, Guiney EJ, O'Donnell B: Inguinal hernia in infants: the fate of the testis following incarceration. J Pediatr Surg 19(1):44-6, 1984
3- Boley SJ, Cahn D, Lauer T, Weinberg G, Kleinhaus S: The irreducible ovary: a true emergency. J Pediatr Surg 26(9):1035-8, 1991
4- Stephens BJ, Rice WT, Koucky CJ, Gruenberg JC: Optimal timing of elective indirect inguinal hernia repair in healthy children: clinical considerations for improved outcome. World J Surg 16(5):952-6, 1992
5- Stylianos S, Jacir NN, Harris BH: Incarceration of inguinal hernia in infants prior to elective repair. J Pediatr Surg 28(4):582-3, 1993
6- Gahukamble DB, Khamage AS: Early versus delayed repair of reduced incarcerated inguinal hernias in the pediatric population. J Pediatr Surg 31(9):1218-20, 1996
7- Niedzielski J, Kr l R, Gawlowska A: Could incarceration of inguinal hernia in children be prevented? Med Sci Monit 9(1):CR16-8, 2003

Acute Chest Syndrome

Acute chest syndrome (ACS) is a pneumonia like illness, the most frequent cause of hospitalization and morbidity in children with Sickle Cell Disease (SCD). ACS can also occur after surgical procedures in children with SCD. Clinically ACS includes fever, cough, chest pain, leukocytosis and a new infiltrate in chest films. The most common etiologic factors for ACS include infection, pulmonary fat embolism (infarcted bone marrow) and hypoventilation. History of pulmonary disease is a predictive factor for the ACS. The risk of ACS is inversely proportional to age with the highest incidence in small children. Abdominal surgery is a high risk situation to develop postoperative ACS with characteristic basilar atelectasis after either open or laparoscopic surgery. Preoperative transfusion reduces pulmonary complications and is beneficial. Management of ACS encompasses antibiotics, hydration, oxygenation, transfusion, analgesia, bronchodilators, supportive respiratory therapy and antiinflammatory agents.

References:

1- Ware RE, Filston HC: Surgical management of children with hemoglobinopathies. Surg Clin North Am 72(6):1223-36, 1992

2- Castro O, Brambilla DJ, Thorington B, Reindorf CA, Scott RB, Gillette P, Vera JC, Levy PS: The acute chest syndrome in sickle cell disease: incidence and risk factors. The Cooperative Study of Sickle Cell Disease. Blood 15;84(2):643-9, 1994

3- Dreyer ZE: Chest infections and syndromes in sickle cell disease of childhood. Semin Respir Infect 11(3):163-72, 1996

4- Vichinsky EP, Neumayr LD, Earles AN, Williams R, Lennette ET, Dean D, Nickerson B, Orringer E, McKie V, Bellevue R, Daeschner C, Manci EA: Causes and outcomes of the acute chest syndrome in sickle cell disease. National Acute Chest Syndrome Study Group. N Engl J Med 342(25):1855-65, 2000

5- Wales PW, Carver E, Crawford MW, Kim PC: Acute chest syndrome after abdominal surgery in children with sickle cell disease: Is a laparoscopic approach better? J Pediatr Surg 36(5):718-21, 2001

6- Siddiqui AK, Ahmed S: Pulmonary manifestations of sickle cell disease. Postgrad Med J 79(933):384-90, 2003

---

* Edited by: **Humberto Lugo-Vicente, MD, FACS, FAAP**
Professor /Academic Director of Pediatric Surgery, University of Puerto Rico - School of Medicine,
Rio Piedras, Puerto Rico.
Address: P.O. Box 10426, Caparra Heights Station, San Juan, Puerto Rico USA 00922-0426.
Tel (787)-786-3495 Fax (787)-720-6103 E-mail: *titolugo@coqui.net*
Internet: http://home.coqui.net/titolugo

ISSN 1089-7739