



# **PEDIATRIC SURGERY Update** © **Vol. 30 No. 02 FEBRUARY 2008**

## **Mesh Repair Congenital Diaphragmatic Hernia**

Congenital diaphragmatic hernia continues to carry a high mortality associated with the presence of pulmonary hypoplasia. Repair of the diaphragmatic defect is usually carried on when the child obtains sufficient hemodynamic stability to tolerate a major surgical procedure. Surgical repair or closure of the defect is either carried out primarily or in case that most of the hemidiaphragm is lacking, using a piece of prosthetic mesh. Primary repair is performed when there is sufficient diaphragm to approximate with low tension, carries a low rate of recurrence and avoids the mechanical and infectious complications associated with implanted prostheses. When the size of the defect can be known preoperatively a split abdominal wall muscle flap through a low abdominal incision can be planned. Mesh repair utilizes several prosthetic materials such as polytetrafluoroethylene (Gore-Tex), polypropylene (Marlex), lyophilized dura, Surgisis or even small intestinal submucosa. Composite patch repair using Gore-Tex/Marlex has also been reported. Overall, recurrence rates after mesh repair is significant greater (almost 50%) than after primary repair. Polypropylene mesh in contact with small bowel carries a high risk of fistula formation reason why Gore-Tex is preferred. Vycryl mesh is not a suitable material for repairing these defects.

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## **Solitary Intestinal Fibromatosis**

Congenital solitary intestinal fibromatosis (SIF) is a very rare tumor that occurs in the newborn and infant period. It belongs to the group of pediatric fibromatosis. Solitary Intestinal fibromatosis involves the intestinal wall, can produce bowel obstruction or perforation and usually involves most frequently the jejunum and ileum. SIF presents most

commonly as a solitary or less commonly as multiple lesions usually confined to soft tissue and bone. Lesions in the duodenum can cause gastric outlet obstruction indistinguishable from pyloric stenosis. Most cases consist of solitary tumors affecting the small or large bowel. Histologic examination in each case shows a transmural infiltrative spindle cell lesion having the morphologic features of fibromatosis. The spindle cells have no atypia, stain positively for Vimentin and CD34 while negative for muscle cell markers. Ultrastructural studies reveals the tumor to be composed of myofibroblasts. The tumor most often presents as a polypoid mass protruding into the intestinal lumen causing obstruction. Symptoms are usually bilious vomiting, abdominal distension, malabsorption and obstipation. Management consists of wide local resection of the tumor along with the segment of affected bowel. Some cases have demonstrated spontaneous regression. Solitary lesions carry an excellent prognosis after resection, while multiple lesions carry a worse prognosis.

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### **Natural Orifice Transluminal Endoscopic Surgery**

Natural orifice transluminal endoscopic surgery (NOTES) is the next frontier in minimal invasive surgical procedures. NOTES takes advantage of doing a laparoscopic procedure through natural orifices of our body such as mouth (trans-gastric), anus (trans-colonic) or vagina totally eliminating a scar in the abdomen. Theoretically, this approach could reduce postoperative abdominal wall pain, wound infection, hernia formation, and adhesions. So far studies in animal models have demonstrated the feasibility of performing such procedure to remove the gallbladder through either per-oral transgastric or per-anal transcolonic by perforating such viscera and introducing a multichannel locking endoscope to introduce the laparoscopic instruments utilized during actual transperitoneal procedures. The incision done in the perforated viscera is subsequently closed with endoscopic clips, endoloops, or a prototype closure device. In contrast to the transgastric method, a transcolonic approach provides more consistent identification of structures in the upper abdomen and provides better en face orientation and scope stability. There is no bleeding or laceration of adjacent organs. Animal models have been used to demonstrate the possible applications of NOTES, including transgastric peritoneoscopy, tubal ligation, gastrojejunostomy, partial hysterectomy, oophorectomy, nephrectomy and transcolonic

exploration, liver biopsy, distal pancreatectomy and cholecystectomy. The first human report in 2007 was a successful trans-vaginal cholecystectomy.

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\* 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](mailto:titolugo@coqui.net)

Internet: <http://home.coqui.net/titolugo>

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