



# **PEDIATRIC SURGERY Update** ©

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### **Octreotide**

Octreotide is a synthetic peptide analog of somatostatin with the same pharmacologic effect. Octreotide has a longer half-life in circulation and higher potency than somatostatin. Octreotide decreases the production of gastrointestinal peptides, such as gastrin, secretin, gastric inhibitory peptide, cholecystokinin, neurotensin, motilin, and pancreatic polypeptide. Octreotide has several therapeutic uses in children. Octreotide significantly reduced the amount of blood transfusions in children with severe gastrointestinal bleeding and hemodynamic instability from acute variceal hemorrhage. Octreotide successfully reduced bleeding in a patient with typhlitis and cecal ulceration prior to surgery but failed to control massive bleeding in children with a Meckel's diverticulum. Octreotide inhibits pancreatic secretion and can be of help in resolution of pancreatic pseudocysts allowing healing of pancreatic duct with resolution of ascites. It can significantly reduce serum lipase levels and reduce the clinical need for analgesics in acute pancreatitis. Octreotide is effective in the management of chylothorax by shortening the TPN duration, hospital stay and avoiding surgery since it reduces thoracic duct lymph flow and absorption. Octreotide is effective in reducing stool output in children with a variety of disorders, including massive ileostomy losses, intestinal fistula, congenital microvillus atrophy, idiopathic secretory diarrhea, carcinoid tumor, cryptosporidium diarrhea and watery diarrhea hypokalemia achlorhydria syndrome. Octreotide should be avoided in patients with diagnosed or suspected congenital long Q-Tc syndrome and cautiously used in conjunction with drugs that prolong Q-T interval. Because of its inhibitory action on insulin, octreotide has been associated with glucose intolerance and hyperglycemia that may necessitate insulin therapy.

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## Peritoneovenous Shunt

Peritoneovenous shunt (PVS), also known as Leveen or Denver shunt, is a shunt utilized to manage medically intractable ascites in adults and children. These shunts allow ascitic fluid to flow down a pressure gradient from the peritoneal cavity to the venous circulation and have a valve mechanism that prevents backflow of blood if the venous pressure rises above the intraabdominal pressure. The advantage of the Denver shunt is that the valve chamber lies in the subcutaneous tissue and therefore can be manually compressed to relieve blockage and promote flow. The shunt can also be flushed percutaneously if necessary. When peritoneal pressure is 3 cm higher than CV pressure the valve opens. PVS can be placed surgically, laparoscopically-assisted or percutaneously. Persistent ascites is rare in children, carries a significant morbidity and is a difficult management problem owing to the massive abdominal distension. Etiology is often related to previous surgery, congenital malformation of lymphatic channels, or idiopathic. Other causes include inflammatory, neoplastic, traumatic, mechanical obstruction or nonaccidental injury. Conservative and symptomatic management is usually the mainstay of treatment while surgery is indicated when conservative therapy fails. Certain complications have been described in association with the procedure of placing the PVS. One of the major concerns is diversion of large amounts of fluid into the central circulation, potentially contributing to fluid overload. In anticipation of this potential complication, diuretic therapy is initiated that seemed to avoid this problem. Other reported complications include shunt blockage and leaks, venous thrombosis, disseminated intravascular coagulation, infection, and air embolus during insertion. The PVS is an effective alternative in management for intractable ascites in children.

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## Corpus Luteum Cyst

A corpus luteum cyst (CLC) is a functional ovarian cyst very rarely found in adolescent girls. The cyst develops when the corpus luteum fails to regress following the release of the ovum. CLC may rupture about the time of menstruation and take up to three months to disappear completely. This type of cyst occurs after an egg has been released from a follicle. The follicle becomes a secretory gland known as corpus luteum. Produces large quantity of estrogen and progesterone in preparation for conception, but if pregnancy does not occur it disappears. If it fills with fluid or blood it will grow and create a cyst.

The cyst might cause pain by way of torsion, rupture or bleeding. Fertility drugs used to induce an ovulation increase the risk of corpus luteum cyst development. Symptomatic large ovarian cysts will need imaging, genetic marker determination and surgery. Laparoscopy is becoming the favored approach by most pediatric surgeons for the treatment of ovarian cysts with benign imaging and labs characteristics. All surgical procedures for ovarian cysts should spare functional ovary as much as is technically possible. The management of symptomatic corpus luteum cysts is ovarian cystectomy using the tissue sparing procedure of stripping of the cyst. In cases of endometrioma cysts the amount of ovarian tissue removed together with the cyst is significantly much greater than with the nonendometriotic cysts.

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