



# **PEDIATRIC SURGERY Update** © **Vol. 26 No. 06 JUNE 2006**

## **Traumatic Diaphragmatic Hernia**

Motor vehicle trauma is the leading cause of an acquired diaphragmatic hernia in a child and adult. The traumatic event can either be penetrating directly injuring the diaphragm, or most commonly blunt abdominal causing a sharp increase in intraabdominal pressure with rupture of the diaphragmatic muscle. The more medial and lateral fibers of the posterior diaphragm arising from the lumbocostal arch and the vertebrocostal trigone are the weakest points of rupture. The posterolateral portion is virtually always the area that ruptures with trauma. Diaphragmatic injuries are difficult to diagnose preoperatively and can be missed easily. Traumatic diaphragmatic hernia should be suspected on the basis of an abnormal chest radiograph in the trauma victim with multiple injuries. If diaphragmatic injury is suspected, ultrasound or CT Scan investigation must be performed. Most cases involve the left diaphragm due to the buttressing effect of the liver. The incidence of bowel strangulation is high in traumatic diaphragmatic hernias. In the acute setting, transabdominal repair after palpation of both hemidiaphragms is the procedure of choice because of the high incidence of associated trauma. Injury severity score and hemorrhagic shock upon admission strongly influence the outcome. Delayed presentation can be repaired through the chest.

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## **Mediastinal Teratomas**

Mediastinal teratomas are rare tumors that originate in the anterior mediastinum and comprise almost one-fifth of all mediastinal masses. Most grow to large size before causing symptoms. Mediastinal teratoma can appear in any age of the child. Primary symptom is respiratory distress caused by airway compression, followed by feeding problems related to dyspnea, coughing, wheezing and chest pain. Most mediastinal teratomas are mature and benign. Teratomas arise from pluripotent cells and are composed of a wide diversity of

tissues originating from three germ layers ectoderm, mesoderm and endoderm. Besides an anterior mediastinal mass, plain chest films can show calcifications. CT Scan is the study of choice to demonstrate the extent of the tumor and its relationship with other structures. As with any other suspected teratoma preoperative alpha fetoprotein and human chorionic gonadotropin markers levels should be obtained. Teratomas are classified as mature, immature and malignant. Mature teratomas are predominantly cystic, while malignant teratomas are mainly solid lesions. Immature teratomas have immature tissue with mature elements. Surgical excision through a median sternotomy is the treatment of choice for mediastinal teratomas. Adjuvant chemotherapy is used in immature and malignant teratoma to increase survival.

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## Juvenile Secretory Carcinoma

Carcinoma of the breast in a child is a rare pathologic entity, constitutes less than 1% of all breast lesions in this age group. Juvenile secretory carcinoma is an uncommon malignant tumor that can develop in the breasts of both sexes with a mean age of occurrence at 10 years. It is a slow growing tumor that can recur locally and metastasize to the ipsilateral axillary lymph nodes. Juvenile secretory carcinoma component are devoid of estrogen and progesterone receptors. The child develops a painless mass often near the areola in the breast early in life. The lesion is well demarcated and unencapsulated invading the adjacent tissue. Immunohistochemical staining for alpha lactalbumin is present. When in doubt fine needle aspiration biopsy (cytology) can provide a preoperative diagnosis of the lesion. In all cases, the samples are cellular and feature diffuse, prominent, intracytoplasmic vacuoles and secretion in malignant cells with occasional signet-ring like forms. Management consists of simple mastectomy (wide local excision) with sentinel axillary lymph node biopsy, especially in males cases were metastasis to the axilla are more common. Biological behavior seems to be similarly favorable in both sexes.

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