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Mediastinal Cysts

Mediastinal cysts identified in children are classified according to the compartment where they arise as: anterior (extends to the sternum, thoracic inlet and anterior border of the heart), middle (between anterior mediastinum and anterior borders of the vertebrae) or posterior mediastinum. Although usually asymptomatic, they require excision for purpose of diagnosis and avoidance of symptoms such as chest pain, airway obstruction, hemoptysis or dysphagia. Diagnosis can be accomplished with the use of CT-Scan, US and esophagogram. Some of the most common encounter cysts in the mediastinum are: bronchogenic cysts, neurenteric cysts, pericardial cysts, cystic hygroma, thymic and dermoid cysts.

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Bronchogenic Cysts

Bronchogenic cysts (BC), first described in 1911, are benign congenital lesions of the respiratory tract that have the potential to develop complications creating a dilemma in diagnosis and treatment. BC are commonly located in the mediastinum (2/3) or lung parenchyma (1/3) arising from anomalous budding along the primitive tracheobronchial tube (foregut duplication errors). Other atypical locations are cervical, subcutaneous, paravertebral, etc. Contain mucoid material lined with ciliated columnar epithelium (bronchial glands, smooth muscle, cartilage) not communicating with the respiratory tract. Clinical presentation may range from prenatal diagnosis, asymptomatic (1/3) lesions identified during routine work-up to symptomatic (2/3) cases. Infants may show respiratory distress: cough, dyspnea, cyanosis, hemoptysis or dysphagia. Older children present with chest pain, non-productive cough or pulmonary infection. Diagnosis relies on chest films and CT-Scan. Bronchoscopy and barium swallow are not very useful. Infection, hemorrhage, erosion, malignant potential and expansion mandate surgical management consisting of thoracotomy with excision of the lesion if mediastinal in location, and segmentectomy or lobectomy for intraparenchymal cysts. Marsupialization is associated with recurrence.

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Neurenteric Cysts

The rare neurenteric cyst (NC), also call enterogenous or gastrogenous cysts, is a combination of an endodermal (duplication) cyst of foregut origin with a spinal canal dysraphism (cleft, hemivertebrae, spina bifida). NC represent failure of complete separation of the notochord from the foregut during the 3rd week of embryogenesis. NC are found in the posterior mediastinum, superior to the carina and to the right side. Symptoms of respiratory distress become obvious during the first months of life. Those lined with gastric epithelium might develop hemorrhage, ulceration or erosion. NC are either tubular or spherical, a minority communicating with the GI tract below the diaphragm. Respiratory distress, a posterior mediastinal mass and a thoracic vertebral defect in x-ray suggest the diagnosis. CT, MRI and myelography (intraspinal component) are precise. Therapy of choice is complete resection.

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Thymic Cysts

Thymic cysts are benign lesion that can arise either aberrantly in the neck (laterally, deep to anterior border of sternocleidomastoid muscle) or in the anterior mediastinum. Believed to develop from remnants of thymic tissue that have failed to descend from the ventral wing of the third branchial pouch into the mediastinum during the 6th to 8th week of fetal life. Most cases in the neck produce no symptoms and usually appear incidentally between ages 6 and 8 years as a soft swelling in the anterior neck triangle rarely invading contiguous structures. Others children might develop respiratory distress, tracheal compression, swelling and enlargement due to hemorrhage or infection. Malignant transformation has also been documented. Preoperative diagnosis is seldom achieved as they are confused with branchial cleft cysts and cystic hygromas. Complete excision is management of choice.

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