Cystic Mediastinal Lesions

• Account for 10-15% of intrathoracic masses found by radiographic imaging
• Several tissue types are represented, including pericardial, thymic, enteric, and bronchogenic elements
• Represent a mixture of developmental and acquired lesions

Developmental (Congenital) Mediastinal Cysts
**Pericardial Cysts**

- Usually seen in the basal portion of the mediastinum, abutting the heart shadow, as a rounded mass of variable density on plain films.
- CT scans demonstrate a fluid-filled, thin-walled cyst in continuity with the pericardium.
- Microscopy shows a mesothelial-lined fibrous cyst—“the hernia sac of the mediastinum.”
Differential Diagnosis of Pericardial Cyst – Multicystic Mesothelioma

Unilocular Thymic Cysts

• May be present in the anterior or middle mediastinum, as an irregular or rounded density on plain films of the chest
• CT scans demonstrate a cyst with variable dense contents and an irregular wall; multiloculation may be present
• Microscopy shows a squamous lining with thymic tissue sometimes incorporated into the wall of the cyst; cholesterol clefts and calcification are common
Unilocular Thymic Cyst

Bronchogenic Cysts

- Rounded masses, usually in the middle mediastinum
- Patients may or may not complain of cough and expectoration of foul-tasting material ("motor oil"), depending on whether the cyst connects to a major bronchus
- CT scans may show calcified cartilaginous tissue in bronchogenic cysts
- Microscopy demonstrates the presence of cartilage, smooth muscle, and ciliated bronchial-type epithelium
Enteric Duplication (Gastroenteric) Mediastinal Cysts

• Probably derived from misplaced foregut rests
• Typically seen in children < 15 years old, who present with dysphagia, cough, or vomiting
• Characteristically present in the posterior mediastinum as spheroid masses that may show internal loculation
• Specialized gastric-mucosal, squamoid, or simple columnar epithelial linings (or mixtures thereof) may be present
Mullerian (Hattori) Cysts of the Posterior Mediastinum

- Paravertebral in location, in women
- Unilocular, with an epithelial lining resembling that of endosalpingiosis
- Immunoreactive for CA-125, ERP, PRP, PAX8, and WT1
- Simple excision is curative

Mullerian cysts of the posterior mediastinum: report of two cases and review of the literature

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ABSTRACT

Cystic lesions can be occasionally be found in the mediastinum, and typically include bronchogenic cysts, esophageal duplication cysts, and neuroenteric cysts. In 2005, Hattori described the first mediastinal cyst with Mullerian differentiation. Since that time, three other authors have described similar cysts occurring in the posterior mediastinum. Here we present two cases of patients with similar cysts with Mullerian differentiation with expression of estrogen receptor, progesterone receptor, PAX8 and WT1, occurring in the posterior mediastinum and review the related literature.

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Acquired Non-Neoplastic Mediastinal Cyst—Multilocular Thymic Cyst

Multilocular Thymic Cysts

- Usually present in the anterior mediastinum as irregular or rounded densities in radiographic studies
- CT scans demonstrate variably dense contents and internal multiloculation
- Cholesterol clefts are inconspicuous, and mural lymphoid tissue is abundant
- Multilocular thymic cysts may rarely undergo malignant transformation

Abstract

The clinical and pathologic features in 15 cases of multilocular thymic cyst (MTC) of the anterior mediastinum unassociated with lymphoma or seminoma were studied. The majority of cases were asymptomatic and discovered incidentally on routine chest x-ray. Several patients presented with acute symptoms of chest pain or dyspnea, sometimes associated with dyspnea. Two cases had an incidental thymoma, and two had an incidental thymic carcinoma. The main histologic features of MTC included the following: multiple cystic cavities partially filled by serous, sero- or colloidal fluid (some having features of Hassall corpuscles), scattered nests and islands of non-neoplastic thymic tissue within the cyst walls, often concurrent with the cyst lining, several acute and chronic inflammation, accompanied by fibrous thickening, necrosis, hemorrhage, and cholesterol granuloma formation. These features suggest that MTC most likely results from the cystic transformation of medullary duct epithelium-lined cysts (including Hassall corpuscles) induced by an acquired inflammatory process. The changes are similar to those sometimes seen in association with thymic or thymic disease and thymic seminoma, which are also thought to be due to the formation that accompanies those tumors rather than the tumors themselves. We believe that MTC is pathogenetically analogous to a variety of cystic conditions of the head and neck region, for which the common denominator seems to be the induction of cystic transformation in ductular epithelial formations of branchial pouch or related derivatives by an acquired inflammatory process.
Proliferating Thymic Cysts

- Unusual examples of multilocular thymic cyst in which the squamoid lining epithelium proliferates irregularly into the cyst wall, yielding an image which simulates that of squamous carcinoma
- Probably represents “pseudoepitheliomatous hyperplasia” of the lining epithelium, with an unknown cause

Multilocular thymic cyst with pseudoepitheliomatous hyperplasia.

Abstract
Six cases are described of thymic cysts of the anterior mediastinum showing pseudoepitheliomatous hyperplasia of the lining epithelium. The patients' ages ranged from 11 to 44 years; five cysts occurred in males and were in a female. Histologically, the lesions were characterized by epidermoid proliferation of the cyst lining epithelium that grew as sheets and tongues of epidermoid squamous cells with hyperchromatic nuclei, prominent nucleoli, and angulated keratin figures. The walls of the cyst adjacent to the areas of epithelial proliferation showed abrupt keratinization, spongiosis, and superficial inflammatory changes. All cases were handled by local surgical excision. There was no evidence of recurrence or metastases over a follow-up period of up to 5 years (average follow-up, 4 years). It is proposed that pseudoepitheliomatous hyperplasia may develop in thymic cysts as an expression of regeneration of the lining epithelium in response to the inflammatory, hemorraghic, and necrotizing changes which often accompany these lesions. This should not be mistaken for malignancy, and should be distinguished from the exceptional cases of true thymic neoplasms seen in association with thymic cysts.
Neoplastic & Paraneoplastic Cystic Lesions of the Mediastinum

Mediastinal Lymphangiomas

- May be seen in all 3 mediastinal compartments, as unilocular or multilocular masses on imaging studies
- Predominate in children
- Interanastomosing vascular channels, associated with infiltrates of lymphocytes, & sometimes containing internal micropapillations
Thymic Cysts in Hodgkin or Non-Hodgkin Lymphoma

• Usually seen after therapy of some kind (radiation; chemotherapy) but may occur as a spontaneous tumor-related phenomenon as well

• A central cystic cavity is surrounded by atypical lymphoid tissue containing diagnostic Reed cells or, alternatively, non-Hodgkin lymphoma
Other Potentially-Cystic Neoplasms of the Anterior Mediastinum

- Teratoma
- Thymoma
- Carcinoma \textit{ex thymic cyst}
- Cystic \textit{de novo} thymic carcinoma
- Seminoma
- Thymic carcinoid tumor

Intrathymic Cystic Teratomas

- Predominantly seen in children and young adults, typically presenting with nondescript symptoms & signs or as lesions found incidentally on chest radiographs
- “Eggshell” calcification of the mass is possibly seen in plain-film radiographs
- At least 2 of 3 germ layers must be represented in the lesional tissue
- Immature neuroepithelial components are not prognostically important before the age of 15 years
Cystic Thymoma

- Spontaneous cystic change may be so marked in thymoma that the initial pathologic impression is that of thymic cyst
- Thorough sampling of the lesional wall may well be necessary to identify neoplastic tissue
- Occasional tumors manifest a striking degree of hemorrhage and necrosis, but these findings do not influence prognosis
Carcinomas & Thymic Cysts

- A rare event that appears to be associated only with the multilocular form of thymic cyst
- Enlarging mural nodules are visible in the cyst radiographically
- Histotypes of the carcinomas in this setting include keratinizing & non-keratinizing squamous carcinoma; basaloid carcinoma; mucoepidermoid carcinoma; papillary carcinoma; & sarcomatoid carcinoma
- De novo thymic carcinomas also may become cystic