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Cystic Lesions of the Mediastinum

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Cystic lesions are commonly seen in the mediastinum, and they may arise from virtually any organ. The vast majority of these lesions are benign and result in no symptoms. When large, cysts may produce symptoms related to compression of adjacent structures. The most common mediastinal cysts are pericardial and foregut duplication cysts. Both computed tomography and magnetic resonance are routinely used to evaluate these lesions. Although computed tomography offers superior spatial resolution, magnetic resonance is useful in differentiating cysts that contain proteinaceous material from solid lesions. Occasionally, cysts arise from solid lesions, such as thymoma or teratoma. Although cysts are alike in appearance, location helps narrowing the differential diagnoses.
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Introduction

Cystic lesions in the mediastinum are relatively common and may arise from virtually every organ. The vast majority of these lesions are benign, with most being discovered incidentally. When symptoms are present, these are usually the result of compression of adjacent structures. The most common are pericardial and foregut duplication cysts. Although in some occasions the origin of a cyst is unclear, location plays a major role in determining the organ from which it may be arising. For example, a cystic lesion in the region of the thymic bed is most likely compatible with a thymic cyst. In this review, we discuss the major cystic lesions that may arise in the mediastinum.

Pericardial Cyst

Pericardial cysts result from aberrant formation of the somatic cavities. These congenital lesions, also termed mesothelial cysts of the pericardium, are most commonly unilocular. The cyst wall is lined by a single layer of mesothelial cells.[1,2] The most common location for pericardial cysts to be found is the right anterior cardiophrenic angle. The left cardiophrenic angle is the second most common location. These cysts, however, may arise elsewhere in the mediastinum.[1] Most patients are asymptomatic. Symptomatic patients present with chest pain, cough, fever, and arrhythmias. Occasionally, symptoms may be the result of compression of adjacent structures. Serious complications are rare.[3]

Computed tomography (CT) and magnetic resonance (MR) are the best modalities to characterize these lesions, as radiographic findings are nonspecific, often depicting a smooth-contoured anterior mediastinal mass. On CT and MR, not only tissue characterization, but also its relationship with adjacent structures is possible.

Pericardial cysts are classically well defined, fluid-attenuation lesions with no enhancement or septations (Fig. 1). Intermediate attenuation is possible in those cysts containing proteinaceous fluid.[4] When hemorrhagic contents are present, the cyst may appear hyperattenuating. On MR imaging, pericardial cysts typically show low-signal intensity on T1-weighted images, whereas signal intensity is high on T2-weighted images (Fig. 1). If the contents of the cyst are proteinaceous, its signal on T1-weighted images would be higher. When assessed with diffusion-weighted imaging, proteinaceous cysts demonstrate high signal intensity on apparent diffusion coefficient maps and no restricted diffusion.[4,5] Pericardial cysts may become infected and demonstrate calcification because of the inflammatory process (Fig. 2).

Thymic Cyst

Mediastinal thymic cysts are uncommon and represent only 1%-3% of mediastinal masses. They are either congenital or acquired. They are most commonly encountered in the

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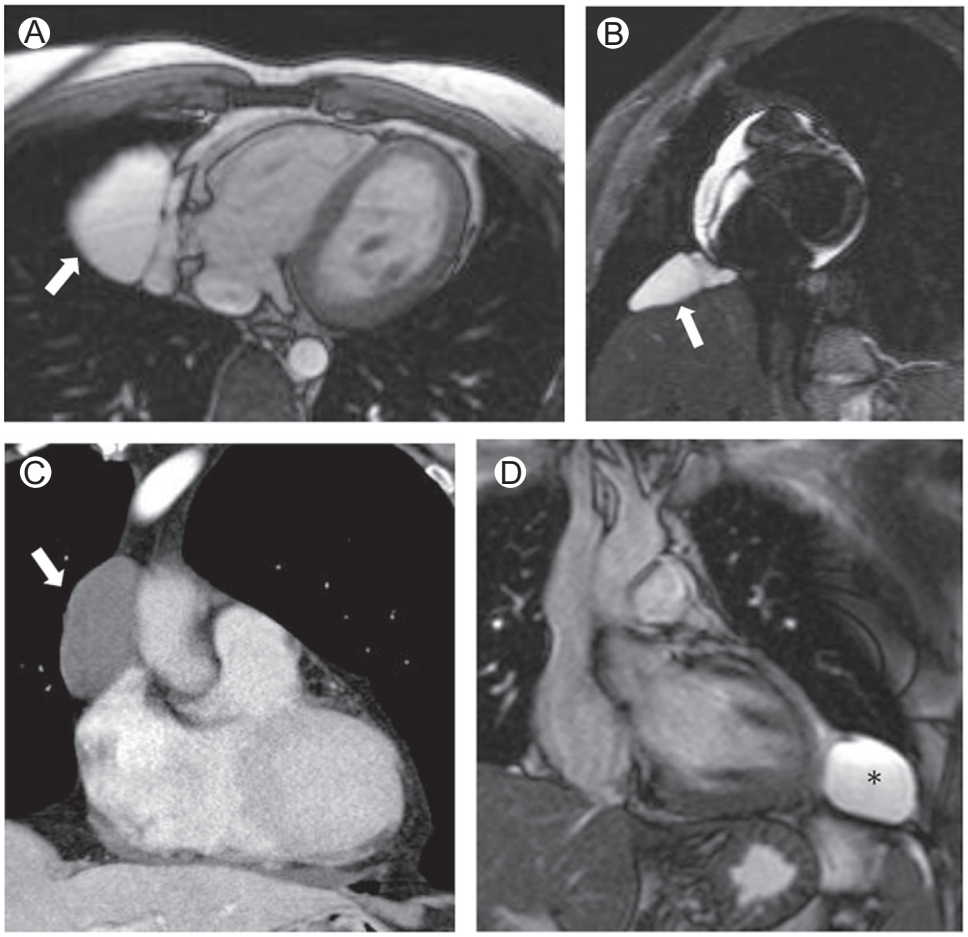

Figure 1 Pericardial cysts in 3 different patients. Axial balanced steady-state free precession (bSSFP) (A) and short-axis T2-weighted image (B) showing a well-circumscribed, T2 hyperintense, thin-walled lesion in the right cardiophrenic angle (arrows). Coronal contrast-enhanced CT image of the chest (C) in a different patient shows a smooth-contoured fluid-attenuation lesion in a slightly higher location adjacent to the ascending portion of the ascending aorta (arrow). Coronal bSSFP image of the chest (D) in a third patient shows a well-defined T2 hyperintense mass (asterisk) in the left cardiophrenic angle. (Case courtesy Santiago Martinez, MD.)

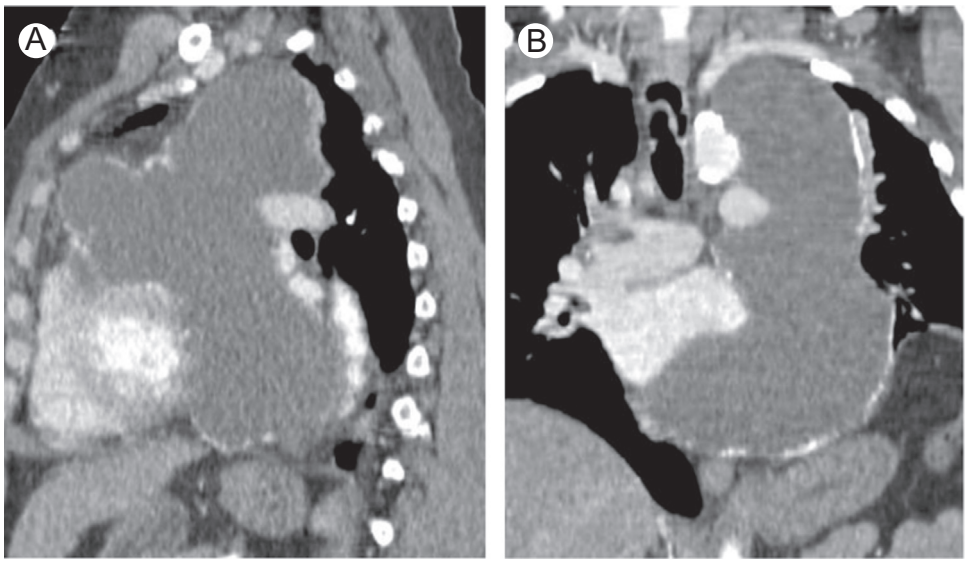

Figure 2 Large chronically inflamed pericardial cyst. Sagittal (A) and coronal (B) contrast-enhanced CT images of the chest demonstrating a large, peripherally calcified fluid-attenuation mediastinal mass displacing vascular structures. Upon surgical resection, pathologic analysis yielded acute on chronic inflammation of a large pericardial cyst.