

Title: Identification of a Rare Congenital Foregut Duplication Cyst

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Introduction: Congenital foregut duplication cysts are extremely rare, and there are no recent studies that help distinguish bronchogenic versus esophageal origin using CT alone. Our patient has been mainly asymptomatic, and his cyst discovered incidentally although present from birth. Unusual features of this case involve the cyst's center of mass towards the esophagus although bronchogenic in origin. Foregut duplication cysts can be distinguished histologically from their epithelium as resembling airway, esophagus, or small intestine (3). Based on the International Thymic Malignancy Interest Group's (ITMIG) new classification system, duplication cysts tend to fall within the visceral mediastinum but can be anywhere within the mediastinum (4).

Case Report: 13-year-old male with no significant past medical history presented with general chest pain and mild dysphagia. An incidental low-attenuation lesion was found on CT in the posterior mediastinum to the right of the distal esophagus measuring 2.8 x 2.4 x 4.4 cm. Based on post-operative pathology identifying smooth bronchial tissue, location distal to esophagus but above hilum, nonenhancement and low-attenuation on CT, no signs of malignancy or adenopathy, the lesion was identified as a bronchogenic cyst. The gross macroscopic presence of cartilage and fibromuscular connective tissue in the case distinguish the lesion as bronchogenic. Positive clinical features of bronchogenic cysts may present in the early decades of life and include possible mass effect or airway compression from drainage obstruction leading to recurrent respiratory tract infections or significant respiratory distress.

Discussion: Foregut Duplication Cysts: X-ray imaging reveals discrete, round, and sharply defined fluid-filled densities, but is nonspecific. Thin walls and lack of internal enhancement is typical of cysts. Some bronchogenic cysts may appear solid (HU > 20). For nonspecific findings on CT, contrast-enhanced MR depicts a T2 signal like CSF, confirming the cystic nature, and enhancement of the wall (1). MR imaging may demonstrate high signal intensity on T2-weighted images. Hemorrhagic, proteinaceous, or mucoid components lead to variable T1-weighted images and may point to an infection or malignant transformation (4). Esophageal duplication cysts appear identical to bronchogenic cysts on radiology, CT, and MR (1). For children with ectopic gastric mucosa (about half of all esophageal cysts), ^{99m}technetium sodium pertechnetate imaging can help diagnose an esophageal duplication cyst (2). Bronchogenic cysts can be identified on imaging in visceral mediastinum (retrocardiac position). They may be symptomatic from mass effect with chronic coughing or recurrent pneumonia and present in the first couple of decades of life (1). X-ray imaging (which is nonspecific) may reveal discrete, round, and sharply defined fluid-filled densities. Here CT imaging reveals a single, well-circumscribed, homogenous, smooth, low-attenuation (HU < 20) cystic lesion with no internal enhancement. Surgical excision revealed a right posterior mediastinal cyst intimate to esophagus inside adventitia and intimate with muscularis propria. Histology confirms the presence of cartilage, smooth muscle, and respiratory epithelium (1). These cysts may have variable epithelial cell layers, containing cartilage and respiratory glands but fibromuscular connective tissue remains the distinguishing feature (3). They are typically at the level of the carina.

Figure 1: Sagittal, Coronal and Axial contrast-enhanced CT images of thorax. Low-attenuation lesion in the posterior mediastinum to the right of the distal esophagus, well circumscribed, homogenous, and hypoattenuating without foal fat. Posterior to the heart an anterior to the spine.



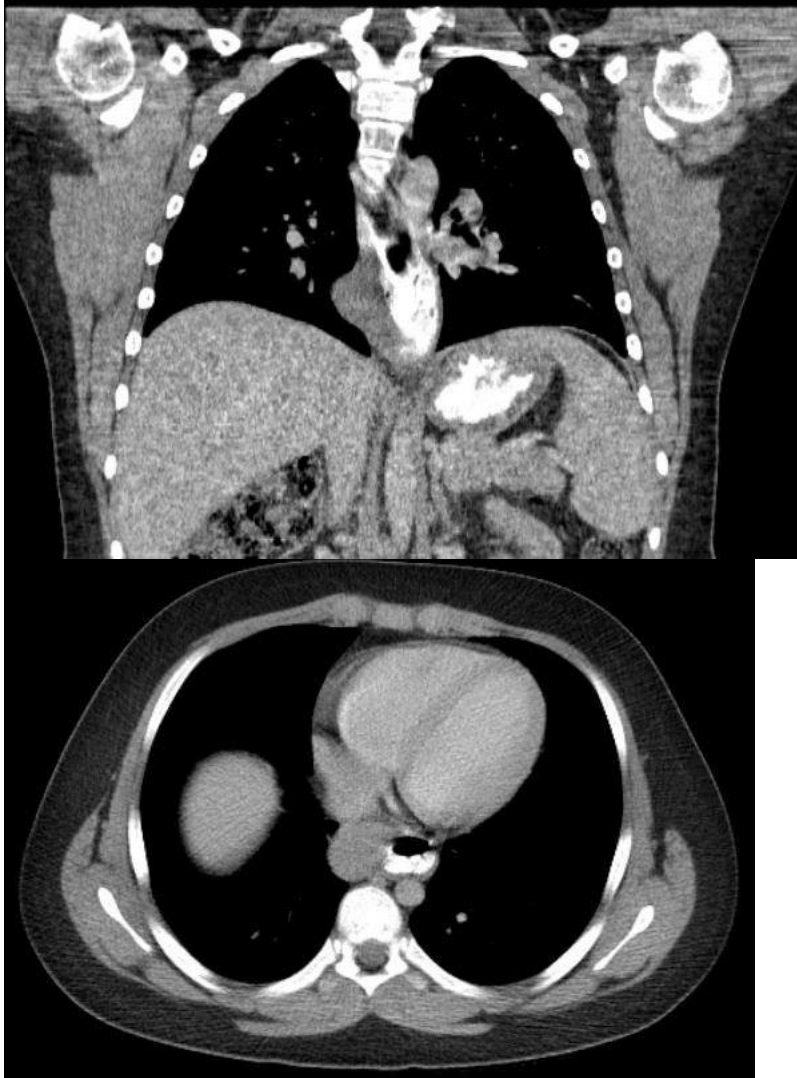
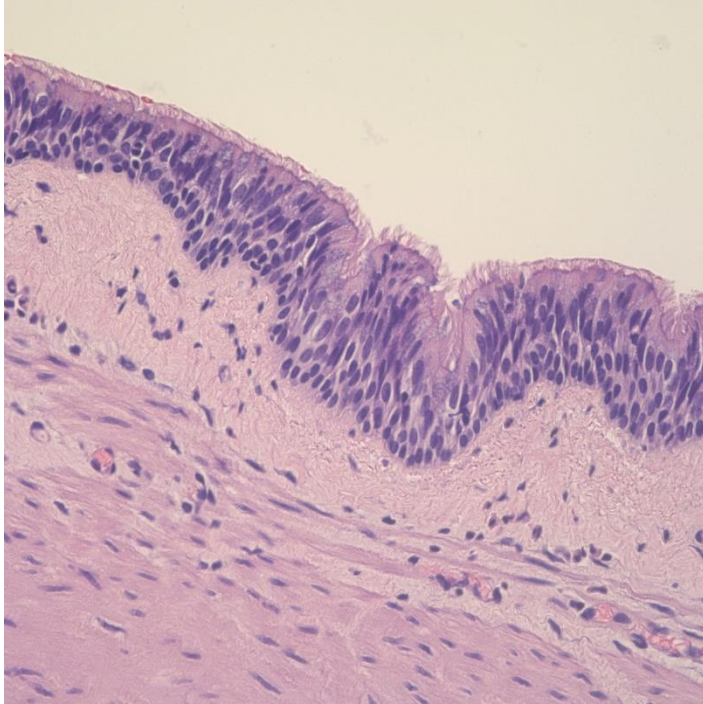


Figure 2: Grosse Pathology revealed the presence of cartilage, smooth muscle, and respirator epithelium and fibromuscular connective tissue.



References:

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