Mediastinal Esophageal Cyst Causing Unilateral Hyperlucent Lung

Unilateral emphysema secondary to bronchial obstruction by a foregut-derived mediastinal cyst is rare. Here we describe an infant with a unilateral hyperlucent lung due to compression on the left main bronchus by an esophageal cyst, visualized by chest computed tomography and magnetic resonance imaging. A chest roentgenogram and a perfusion scan presented the normalized left lung after resection of the cyst. (JJTCVS 1999; 47: 141–143)

Index words: hyperlucent lung, mediastinal cyst

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The distinctive radiographic signs of the Swyer-James syndrome are a unilateral hyperlucent lung of normal or decreased size with diminished lung markings, a smaller hilar shadow than the contralateral lung and slight displacement of the mediastinum to the affected side. A unilateral hyperlucent lung, however, can be caused by other conditions. A partially obstructing lesion in the main bronchus can produce three of the roentgenographic signs of Swyer-James syndrome. Here we report a rare infantile case of a unilateral hyperlucent lung caused by an esophageal cyst.

Case

An 11-month-old male infant with a history of repeated pulmonary infection was admitted to the Department of Pediatrics of our University. Left lung emphysema and a decreased size of the left pulmonary arterial trunk on a chest roentgenogram had been noted at 2 months old. On admission, a physical examination revealed hyper-resonance and diminished respiratory sounds of the left hemithorax. A systolic murmur on the left sternal border was noted. Chemistry profile, complete blood cell count, and room-air blood gas values on admission were all normal except for an increased serum SCC concentration at 2.98 ng/ml.

A chest roentgenogram on admission revealed...
the left lung hyperlucency with sparse pulmonary vessels (Fig. 1). A pulmonary angiogram revealed thin and attenuated vessels throughout the left lung and no stenosis in the left pulmonary arterial trunk (Fig. 2). A pulmonary scan showed a marked decrease in the perfusion of the left lung (Fig. 3). A chest CT scan confirmed an unexpected mediastinal mass located inferiorly to the aortic arch (Fig. 4). The findings from MRI, of a low intensity lesion on T1-weighted imaging (Fig. 5) and a high intensity on T2-weighted imaging, suggested that the mass contained protein-rich fluid. Fiberoptic bronchoscopy revealed a nearly obstructed left main bronchus compressed by the surroundings. These findings suggested that the mediastinal cyst was responsible for the severe stenosis in the left main bronchus.

Left thoracotomy revealed a well-encapsulated mediastinal soft mass, strongly adhering to the esophagus and compressing the left main bronchus. The excised mediastinal mass was 3.2 × 2.3 × 2.2 cm in size, consisting of a thin-walled cyst, filled with brownish turbid fluid. The cyst fluid contained CEA (439 ng/ml), CA19-9 (74.5 × 10^7 U/ml) and SCC (30.1 ng/ml). Histologically, the cyst was covered with stratified ciliated epithelia, and had two layers of smooth muscle. These findings were compatible with an esophageal cyst.\(^2\)

He was discharged from our department on the 13th postoperative day without any complications. At 6 months after the operation, a chest roentgenogram showed improvement in the left lung hyper-