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A Rare Case of Left Lower Lobe Pulmonary Sequestration Presenting as Empyema

KEYWORDS: Pulmonary sequesteration, empyema,

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ABSTRACT *Pulmonary sequestration is a rare congenital anomaly of the lung that has variable presentation. It can remain asymptomatic up to early adulthood. This condition is suspected when a shadow persists on a chest radiograph. Confirmatory diagnosis requires angiography or computed tomography (CT) angiogram. Treatment of choice remains surgical removal; however, embolisation of the feeder artery presents a recent advance. We present a case of pulmonary sequesteration presenting as empyema.*

Introduction

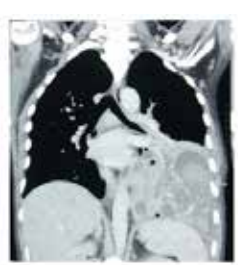
Pulmonary sequestration is a rare congenital abnormality, with an overall incidence of 0.15 to 6.4% of all congenital pulmonary malformations. It is characterized by a mass of nonfunctioning, embryonic, cystic pulmonary tissue that receives its blood supply from the systemic circulation [1] and has no connection with the bronchial tree. It preferentially affects the lower lobes, predominantly the left lower lobe. Both intralobar and extralobar sequestrations arise through the same pathoembryologic mechanism as a remnant of a diverticular outgrowth of the foregut. Gastric or pancreatic tissue may be found within the sequestration [2]. The presentation is variable, ranging from no symptoms to hemoptysis.The age of presentation is dependent on the type of sequestration and this, in turn, determines the clinical presentation. ELS more commonly presents in newborns, whereas ILS presents in late childhood or adolescence with recurrent pulmonary infections. The two types of sequestration are similar in their relationship to the bronchial tree and arterial supply but differ in their venous drainage and the relationship to the pleura.

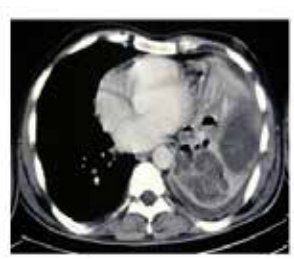
In Intralobar sequestrations venous drainage commonly occurs via the pulmonary veins, but can occur through the azygous/hemi-azygous system, portal vein, right atrium or the IVC. closely connected to the adjacent normal lung and do not have a separate pleura. In extralobar sequestrations venous drainage through the systemic veins into the right atrium.separate from any surrounding lung with its own pleura.We hereby present a case of the rarer variety presenting as empyema.

Case report :

A 35 yr old male was admitted with complaints of high grade , intermittent fever with chills , cough with expectoration and haemoptysis since the last 10 days. The patient gave history of recurrent episodes of fever and cough since childhood.Physical examination revealed a healthy appearing, well nourished man. On auscultation, there were decreased breath sounds on the left lower zones.

Total leucocyte count was raised and all other routine investigations were within normal limits. Chest X-ray showed an ill-defined , homogenous opacity, occupying the left lower zone with obliteration of the CP angle. Ultrasound of the thorax revealed moderate pleural effusion. Diagnostic tap showed frank pus which was drained with ICD. After removal of ICD patient had an episode of massive haemoptysis. Subsequent contrast enhanced CT showed heterogenous enhancing cystic mass lesion in the left lower lobe. A small arterial branch from the abdominal aorta supplying the mass lesion was visualized. Given the history and imaging features characteristic of intra lobar sequestration, the patient was reffered to thoracic surgeon.





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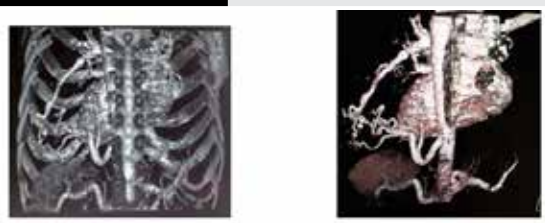

CT Angiography with 3D reconstruction

Discussion

Pulmonary sequestration represents a segment of pulmonary tissue with no developmental connection to the tracheobronchial tree or pulmonary arterial circulation. Sequestrations are subdivided according to their relationship with the pleura into

1. intralobar type, and
2. extralobar type.

Intralobar sequestrations have no separate pleural envelope, whereas the extralobar sequestrations are completely enclosed by pleura and lie outside the boundary formed by the pleural layer that surrounds the rest of the lung. The intralobar variety is much more common [3]. They are part of the spectrum of bronchopulmonary foregut malformations, and it is therefore not surprising that both varieties occasionally communicate with the gastrointestinal tract. The arterial supply is usually a branch of the descending aorta, arising above or below the diaphragm. In this case, it was below the diaphragm. The venous drainage can be either to the pulmonary or to the systemic venous circulation. Intralobar sequestrations usually drain into pulmonary veins; extralobar sequestrations usually drain into the azygos system [4].Clinically, pulmonary sequestration is latent until infection leads to symptoms. Recurrent pneumonitis of the sequestrated segment, purulent sputum and haemoptysis are the prevailing symptoms [5]. Pulmonary sequestration can be present clinically at all ages, but most lesions tend to develop these infective complications at school age and adolescence. However, symptoms may also occur in infancy and preschool age group. A symptomatic adult has also been described [6]. Many a times, it is discovered incidentally on a chest radiograph taken for another reason, as in this case. About two-thirds of all pulmonary sequestrations are found in the posterior basal segment of the left lower lobe [7]. On radiograph, the initial impression is usually one of pneumonia, though the lesion may appear as air- or fluid-filled cysts, single or multiple. Till recently, aortography, with selective angiography, was usually necessary to diagnose sequestration and demonstrate its blood supply. CT scanning and recently spiral CT

angiography offer less invasive means of demonstrating the anomalous vascular supply [8]. Surgical excision is usually curative; it should be conservative, sparing the normal lung parenchyma [9].

Some authors advocate embolisation of the aberrant systemic artery at the time of initial catheterisation, which may result in complete radiological resolution of mass [10],[11].

Conclusion :

The diagnosis of sequestration can be easily missed in adults as many of the symptoms overlap with other pulmonary processes. The constellation of recurrent pneumonia and cystic lower lobe mass fed by an anamalous systemic arterial vessel are hallmarks of an intralobar bronchopulmonary sequestration.

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