LUNG SEQUESTRATION - A RARE CASE OF NON-RESOLVING PNEUMONIA

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ABSTRACT

BACKGROUND
Bronchopulmonary sequestration (BPS) is a congenital malformation of the lower respiratory tract with a prevalence of about 0.15 to 6.4 percent of all congenital pulmonary malformations. The sequestration is classified anatomically into intralobar and extralobar sequestration.3

Intralobar sequestration, which is the more common of the two types, is contained within the substance of normal lung tissue that completely surrounds it. It accounts for 75% of all sequestration usually seen in adolescents.4 In the extralobar form, the abnormal lung tissue although lying close to normal lung is situated outside the pleural coverings of the lung and is indeed invested by its own separate pleural membranes. The gender incidence is said to be equal for intralobar sequestration, while the extralobar form occurs four times more commonly in males than females. Both forms occur more commonly in the left hemithorax; however, the intralobar variety occurs on this side in 60% of cases, in the extralobar variety over 90% are left-sided.5,6

We present a case of intralobar pulmonary sequestration that presented in an adult female, and brief review of clinical features, diagnostic strategies and management option.

CASE REPORT
A 28-year-old female, presented to us with chief complaints of chest pain and abdominal pain with cough and expectoration and on and off from five years with acute worsening for past 10 days. Vitals were as follows: Her resting pulse rate was 102/min, blood pressure - 112/74 mmHg, respiratory rate - 26/min, saturation 97% on room air. General examination revealed no significant abnormality. Her respiratory system examination revealed coarse crepitations over the basal part of the left hemithorax and chest X-ray revealed heterogeneous infiltrates on the left lower zone which were persistent in serial radiographs.

Her blood examination showed normal haemogram. The result of her tuberculin skin test was negative. Her sputum was negative for Acid-fast bacilli (AFB) on three consecutive days. During hospital stay, the patient improved clinically after appropriate course of antibiotics, but opacity in the left lower zone persisted. She was further investigated, and her bronchoscopy; CECT chest and aortography was done. Bronchoscopy visualised left lower lobe inflamed mucosa, BAL fluid revealed growth of Pseudomonas.

Contrast-enhanced computed tomography of chest suggests posteromedialbasal segments of left lower lobe were perfused via a single feeding vessel originating from descending thoracic aorta. Her selective angiography revealed an arterial supply from descending thoracic aorta, and venous drainage occurred via pulmonary veins. Hence, a diagnosis of intralobar pulmonary sequestration was established.


KEYWORDS
Lung sequestration, Aortogram, Extralobar.

The sequestration is classified anatomically into intralobar and extralobar sequestration.2

Figure 1. Chest X-ray PA View Reveals Left Lower Lobe Haziness
Figure 2. Chest X-ray Lateral View Suggests Heterogeneous Opacity at Left Lower Lobe

Figure 3. CECT CHEST showing a homogenous opacity at the left lung base

Figure 4. CECT Chest Suggests Left Lower Lobe Consolidation

Figure 5. Lateral CT Chest suggesting Separate Blood Supply to the sequestered segment

Figure 6. Coronal CT Revealing the homogenous opacity at the left lung base
DISCUSSION

The term pulmonary sequestration was first used by Pryce in 1946. Pulmonary sequestration develops as an accessory lung bud arises distally from the ventral aspect of the primitive foregut. It develops during 4th week of gestation. Size of sequestration is determined by the amount of primitive respiratory mesenchyme investing it. Pulmonary sequestration mostly occurs on left side. The posterior basal segment of either lower lobe is the common site for intralobar sequestration. An upper lobe may be involved but this is rare. Both types of sequestration drive arterial supply from descending aorta or one of its branches, either above or below the diaphragm. The venous drainage in intralobar sequestrations is usually into the pulmonary venous circulation, whereas extralobar sequestrations usually drain into azygos system of veins.

About half of all patients with extralobar sequestration have other congenital abnormalities so they are usually diagnosed during first year of life, while congenital abnormalities in intralobar sequestration are rare, so usually diagnosed after 20.

Patients of pulmonary sequestration mostly present with non-specific symptoms of lower respiratory tract infection or with recurrent pneumonic episodes, characterised by cough, sputum production and occasionally haemoptysis, which may be massive. These complications may arise because there is a tendency for a sequestrated segment to become distended by mucous secretions which, in the absence of a foregut communication, are unable to drain away so that surrounding normal lung tissue becomes compressed and liable to infection through pores of Kohn. Extralobar sequestrations may be less liable to infection as they are entirely separate from the normal lung. Signs of pneumonic consolidation may be present but features of pleurisy and pleural effusion are said to be unusual.

The diagnosis is confirmed by CT chest and aortography, which demonstrates one or more feeding arteries that usually arise from the descending aorta just above or below the diaphragm. Histologically both intralobar and extralobar sequestrations typically contain dilated ciliated bronchi together with focal development of alveolated tissue.

CONCLUSION

Lung Sequestration is an rare congenital anomaly which may present with hemoptysis, chronic cough & recurrent febrile episodes. Diagnosis needs CT Aortography & treatment is surgical excision.

REFERENCES