Case Report

Bronchoscopic findings in lung sequestration – Case Report

[1]Jayalakshmi TK, [2]Sindhu Kamath, [3]Aparna Iyer, [4]Bhumika Madhav

[1]Professor & Head, [2]Ex-resident [3]Assistant Professor, [4]Third year resident, Department of Pulmonary Medicine, D. Y. Patil Hospital and Research Centre, Mumbai, Maharashtra

Abstract

25 year old man came with chest x-ray showing a lesion in left lower zone detected on a pre-employment check-up .CT thorax showed intralobar sequestration. Bronchoscopy showed abnormally narrowed segmental openings in the left lower lobe.

Keywords: Bronchoscopy, Congenital Malformation, Sequestration

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Introduction

Sequestration is a rare cause of consolidation usually seen in children and young adults and is more common on the left. It should be thought of as a differential diagnosis for lower lobe bronchiectasis, non resolving pneumonia, left lower lobe collapse or lung masses in asymptomatic patients. Ultra-fast spiral CT with contrast documents the aberrant systemic blood supply from the aorta. Although radiology findings are well known, bronchoscopic findings of sequestration have not been well documented in literature.

Case Report

25year old asymptomatic male came with chest x ray showing lesion in left lower zone on routine pre-employment check-up with no significant past illness. There was no history of tuberculosis in his family. Routine blood investigations were normal. Pulmonary function test was normal**.** HRCT thorax with contrast was suggestive of sub segmental area of consolidation and bronchiectasis in posterior basal segment of left lower lobe. A prominent systemic vessel was seen supplying it arising from the infra diaphragmatic aorta. Venous drainage was into the left atrium via the left inferior pulmonary vein which is suggestive of intralobar sequestration in left lung (Figure 1). Bronchoscopy showed narrowed apical and posterior segments of left lower lobe (Figure 2).

Discussion

Pulmonary sequestration is an embryonic mass of lung tissue with no identifiable bronchial communication and is classified into extra lobar or intralobar sequestration. Blood supply is from one or more anomalous systemic arteries. Recent theory suggests that during lung development and insult to the pulmonary arterial blood supply it results in retention and proliferation of nascent systemic capillary network. Sequestration represents approximately 6% of all congenital pulmonary malformations.[1] Intralobar sequestration usually involves visceral pleura and does not communicate with the tracheobronchial tree. 98% of intralobar sequestrations occur in lower lobes commonly involving posterior basal segments of the left lung. 10% cases may be associated with other congenital anomalies e.g.: bronchogenic cyst. They usually drain through the pulmonary

Corresponding Author: Dr. Jayalakshmi T. K., B 405, Jasmine, Neelkanth Garden, S P Jain Marg, Deonar, Govandi (E) – 400088, Maharashtra. Email: jaiclinic@gmail.com

veins. Most cases of intrapulmonary sequestration are diagnosed in adulthood[2] when complications such as recurrent infections or hemoptysis occur. They may be picked up during routine health check-ups. Neonates and infants are usually asymptomatic.

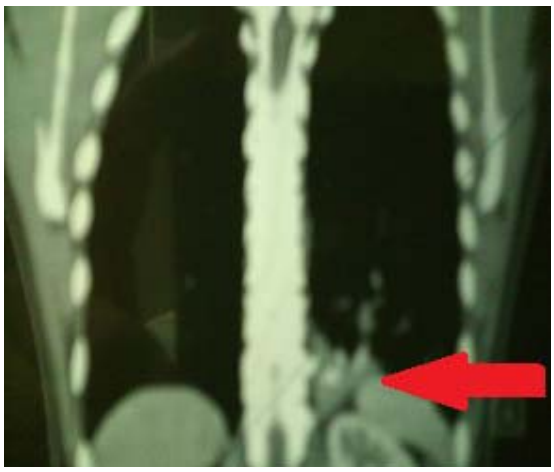

Figure 1. A prominent systemic vessel is seen arising from the infra diaphragmatic aorta. Venous drainage was into the left atrium via the left inferior pulmonary vein which is suggestive of intralobar sequestration in left lung

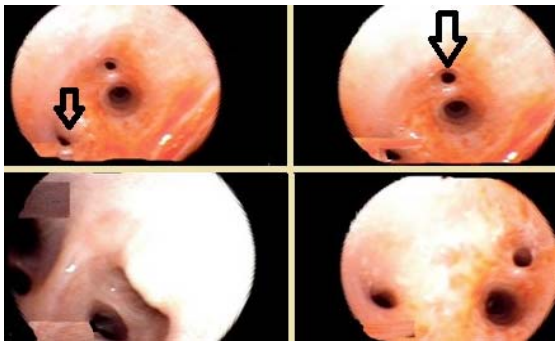

Figure 2. Bronchoscopy showed narrowed apical and posterior segments of left lower lobe

Extralobar sequestration has its own pleural sac and does not communicate with tracheobronchial tree. Systemic veins drain the extralobar sequestration. It communicates with the foregut and is associated with diaphragmatic hernia. Extralobar sequestrations commonly occur on the left and 75% are found in the costophrenic sulcus on the left side.[3] They may be found in the mediastinal, pericardium or around the diaphragm. Most of extralobar sequestrations are diagnosed in infants due to association with other malformations such as congenital diaphragmatic hernias, congenital pulmonary airway malformation (CPAM), type 2 (hybrid lesion) and congenital heart disease.[4]

Respiratory system examination may reveal signs of consolidation, a systolic bruit or continuous murmur over affected areas due to blood flow within large systemic artery. Chest x-ray reveals dense opacity in the posterior basal segment of lower lobe when it is not complicated by infection.[5] A cystic appearance may be observed. Spiral CT with contrast is a sensitive modality of diagnosing pulmonary sequestration and shows homogenous or heterogeneous mass in the basal region occasionally associated with cystic changes.[6,7] MR angiogram and contrast enhanced MRA is ideal for demonstrating a systemic blood supply especially from aorta to the basal lung mass and also demonstrates the venous drainage of the mass hence avoiding a more invasive investigation like angiography for the same. Histopathology shows no communication with the bronchial tree and appears to have loose spongy tissue with numerous small cystic spaces containing clear mucous. Structures resembling bronchi are present near epicenter. Dilated sub pleural lymphatics may be present.

Bronchoscopy has been done in patients with sequestration and recurrent bleeding or infections. In series of 27 cases common findings included secretions in the segments and bleeding. Normal tracheobronchial tree is often seen even in patients with complication.[8,9] Findings of narrowed segmental openings as seen in our case are rare. These narrowed openings may form a nidus for future infections due to

retained secretions. Asymptomatic pulmonary sequestration is topic of controversy in regards to their management. However experts advocate resection of these lesions because of risks of recurrent lung infection and hemorrhage from arterio-venous anastomoses.

Conclusion

Our patient was an asymptomatic male patient with left lower lobe consolidation. High index of suspicion is necessary not to misclassify these patients as pulmonary tuberculosis or pneumonia and to avoid unnecessary treatment. We have documented narrowed segmental bronchi in the lower lobe in this patient which is a rare finding as other series or reports have mentioned normal tracheobronchial tree, retained secretions and bleeding as their commonest findings.

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