

Pulmonary Sequestration: A Rare Case of Repeated Respiratory Tract Infection in Newborn and Adolescence

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Abstract: Bronchopulmonary sequestration is a rare congenital anomaly which involves the lower respiratory tract in which there is a formation of aberrant lung tissue which has no communication with the bronchial tree or pulmonary arteries. It receives its blood supply from the systemic circulation i.e. the thoracic and abdominal aorta in majority of the cases and from the subclavian, intercostal, internal mammary, celiac, splenic or renal arteries in the remainder. Bronchopulmonary sequestration is cause of recurrent respiratory tract infection in newborn or adolescence. It has been broadly classified into intralobar and extralobar sequestration based on its relationship to the pleura, arterial supply and venous drainage. Here we present a 6 year old child with recurrent episode of respiratory tract infection. On imaging the chest X-ray showed a patch of consolidation in left paracardiac area and the patient was treated for pneumonia however on follow up the opacity persisted, then a CT scan was advised which clinched the diagnosis of intralobar sequestration and was operated thereby. **History:** A 6 yr old male child came with complaints of cough with expectoration since few months. No history of hemoptysis or any other congenital abnormality was present. Chest X-ray showed opacity in left paracardiac area and the patient was treated for pneumonia however on follow up the opacity persisted, and then a CT scan was advised.

Keywords: Sequestration, intralobar, extralobar, respiratory tract infection.

1. Imaging

Chest Radiograph

Plain X-Ray of the chest revealed an alveolar consolidation in the left paracardiac region (Figure 1).

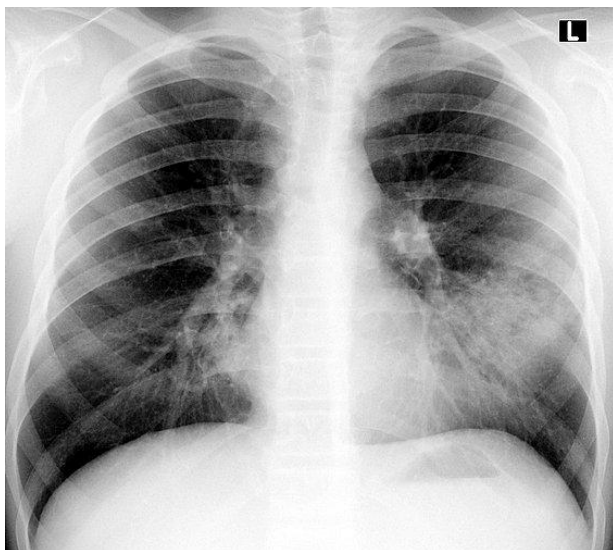


Figure 1

clearly shows the aberrant artery arising from the celiac artery. Venous phase shows the venous drainage into the pulmonary veins



Figure 2

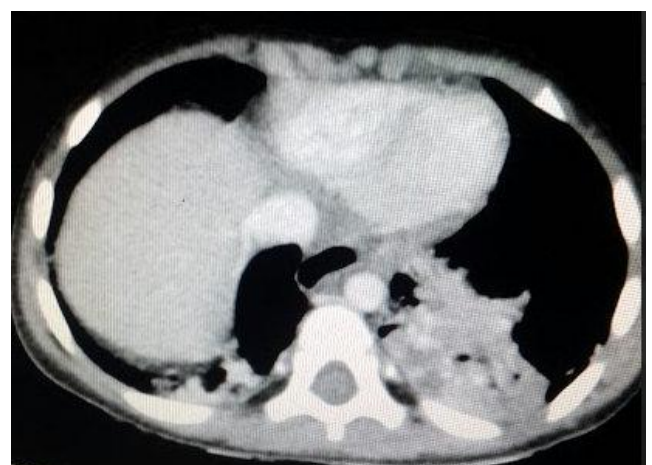


Figure 3

2. Computed Tomography

CT scan showed a heterogeneously enhancing mass lesion in the postero-basal segment of left lower lobe (Figure 2 & 3). Coronal section shows an aberrant artery (red arrow) seen arising from the celiac artery and supplying the heterogenous mass and the venous drainage into the pulmonary vein (blue arrow) (Figure 4) which suggest the intralobar nature of the mass. Volume rendered image

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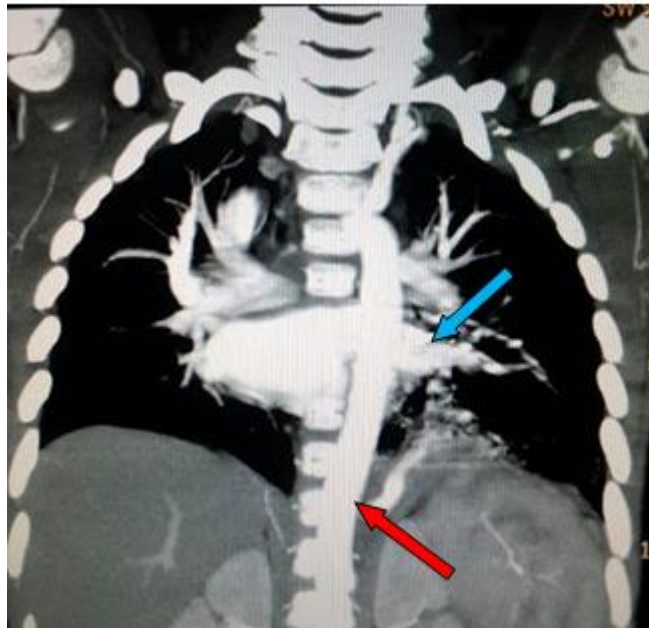


Figure 4

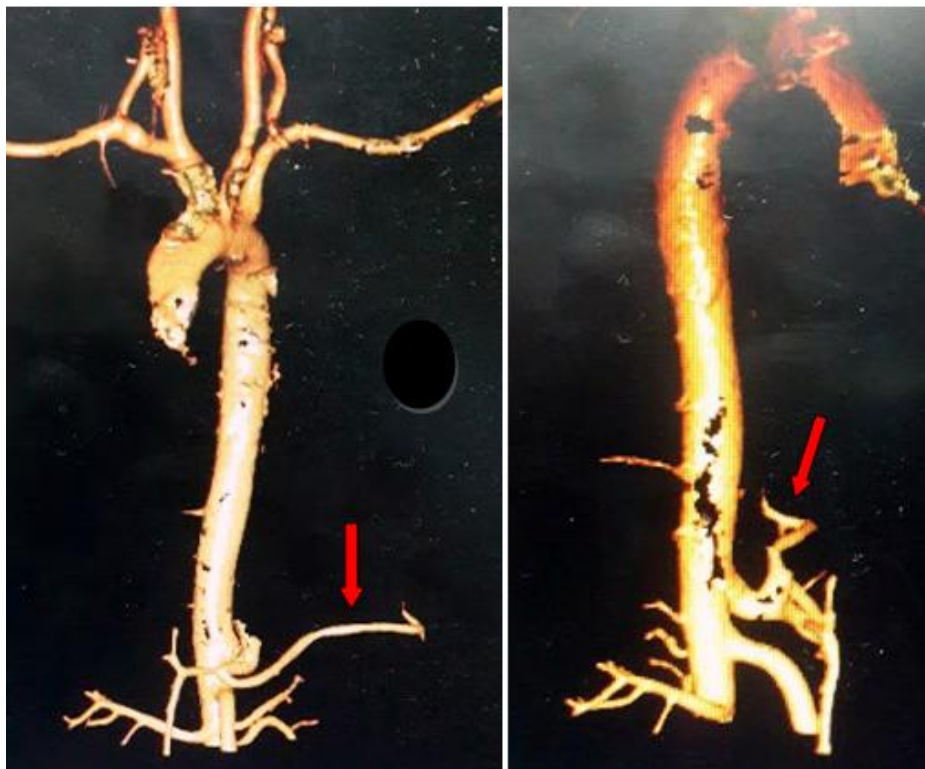


Figure 5 & 6: VRT images showing the aberrant artery (red arrow) arising from the celiac artery and coursing above diaphragm to supply the mass in left lower lobe

3. Diagnosis

Intralobar Broncho-pulmonary sequestration which was the cause of recurrent respiratory tract infection. The mass was surgically excised and the child's symptoms resolved.

4. Discussion

Bronchopulmonary sequestration is a rare congenital anomaly which constitutes 0.15-6.4% of all congenital pulmonary malformations[1]. It involves the lower respiratory tract in which there is a formation of aberrant

lung tissue which has no communication with the bronchial tree or pulmonary arteries. It receives its blood supply from the systemic circulation [2] i.e. the thoracic and abdominal aorta in majority of the cases and from the subclavian, intercostal, internal mammary, celiac, splenic or renal arteries in the remainder. In the year 1946 Pyrcce coined the term Sequestration [3]. It has been broadly classified into intralobar (ILS) and extralobar (ELS) sequestration based on its relationship to the pleura, arterial supply and venous drainage. Intralobar sequestration is common and constitutes approximately 75% of all sequestrations, presents in later childhood with recurrent infection [4 5 6] most commonly

involves the left lower lung, lacks its own visceral pleura and receives blood supply from upper abdominal aorta, celiac and splenic artery [1]. In 95% of cases the venous drainage is to the left atrium via the pulmonary veins as it was in our case. Extralobar sequestration constitutes for remaining 25% of sequestration [4 5 6] presents neonatal period with respiratory distress, cyanosis and/or infection. The venous drainage is through the systemic veins (i.e. azygos, hemizygos and inferior vena cava) into the right atrium, occasionally through pulmonary veins. The arterial supply mostly from the thoracic/abdominal aorta. So it is the venous drainage that determines the type of sequestration. Surgical resection is the treatment of choice.

5. Conclusion

Thus bronchopulmonary sequestration though rare should always be considered as one of the differential in a child with recurrent respiratory tract infection. CT is essential in diagnosing the type of sequestration. Arterial and venous phase of CT scan helps in knowing the arterial & venous drainage thus helping in diagnosing the type of sequestration.

6. Acknowledgments

My sincere thanks to my teacher Dr. Burzin Moris and Dr. Priya Hira for guiding me and my colleagues Dr. Kushal and Dr. Ashwita for helping me in writing this article.

7. Conflicts of Interest

I hereby state that all the content and pictures used in this article are genuine and every author has contributed equally in writing this article. There are no conflicts of interest including any research funding, other financial support, and material support.

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