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Case report

Role of endovascular embolization in improving the quality of life in a patient suffering from complicated intralobar pulmonary sequestration – A case report

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ABSTRACT

Intralobar pulmonary sequestration is a rare congenital malformation characterized by the presence of nonfunctional parenchymal lung tissue, receiving systemic arterial blood supply and lacking normal communication with tracheobronchial tree. Recurrent pneumonia and massive hemoptysis are life threatening complications associated with it. Delay in the diagnosis and management can be fatal. We report here a case of intralobar pulmonary sequestration in a 18 year old female who presented with recurrent severe episodes of pneumonia and hemoptysis forcing her to drop out of school. The diagnosis was confirmed by CECT Thorax and CT Angiography. The patient was managed by minimally invasive endovascular treatment in the form of feeding artery embolization. She made a full recovery with satisfactory outcome. On subsequent follow up, there was no recurrence of symptoms and she is doing well socially and academically. The aim of this case report is to show feasibility and safety of embolization as a less-invasive management option for adult pulmonary sequestration complicated with hemoptysis and LRTIs and emphasize the importance of such minimally invasive technique to enhance the quality of life in such patients.

1. Introduction

Pulmonary sequestration is defined as the presence of an area of non-functioning lung parenchyma without any connection to the tracheobronchial tree and the pulmonary arteries. It receives its vascular supply from a separate systemic artery. Pulmonary sequestration is classified as intralobar or extralobar types. Intralobar pulmonary sequestration is surrounded by the visceral pleura of adjacent normal lung, whereas extralobar pulmonary sequestration is surrounded by its own pleura. The venous drainage of intralobar pulmonary sequestration is commonly via the pulmonary veins, extralobar type usually having systemic venous return. Intralobar sequestrations occur almost exclusively in the lower lobes, slightly more frequently on the left. The lesion is often heterogeneous due to acute and chronic inflammation and bronchopneumonia with resultant bronchiectasis, fibrosis and cystic changes. Hemoptysis is a major complication and in this report we discuss how a minimally invasive technique plays a big role in management of such complication.

2. Case report

An 18 year old female presented at our hospital out patient department with recurrent hemoptysis and recurrent episodes of severe respiratory tract infections since childhood. Her deteriorating health resulted in decreased school attendance and negatively affected her scholastic performance ultimately forcing her to drop out of school. She had no other medical illnesses including no history of bleeding tendencies, arthralgia or skin rashes. Other past, medical, surgical, drug and family histories were unremarkable.

Upon examination, the patient had stable vitals. Her chest exam revealed normal expansion with equal air entry and vesicular breathing. Other physical findings were unremarkable. The routine hematological tests, ECG and echocardiography were normal. Chest X-ray showed a well defined consolidated area in the medial and basal portion of left lung (Fig. 1). On the basis of

Abbreviations: CECT, contrast enhanced CT scan; LRTI, lower respiratory tract infections; DSA, digital subtraction angiography.

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her symptoms and X-ray findings, she was prescribed a course of anti-tubercular drugs despite having negative sputum test results.

There was no improvement in her condition after the anti-tubercular treatment and the episodes of hemoptysis continued. A contrast CT with CT Angiography revealed the presence of a smooth bordered consolidation in the left posterior basal para-vertebral region. (Figs. 2 and 3). A systemic feeding artery originating from left posterior lateral wall of the descending aorta was revealed. (Fig. 4, Fig. 5a and b). The consolidated segment did not have any obvious communication with the tracheobronchial tree, thus confirming the presence of intralobar pulmonary sequestration.

Fig. 1. Chest X-ray shows a triangular opacified area posterior medially in left lung.

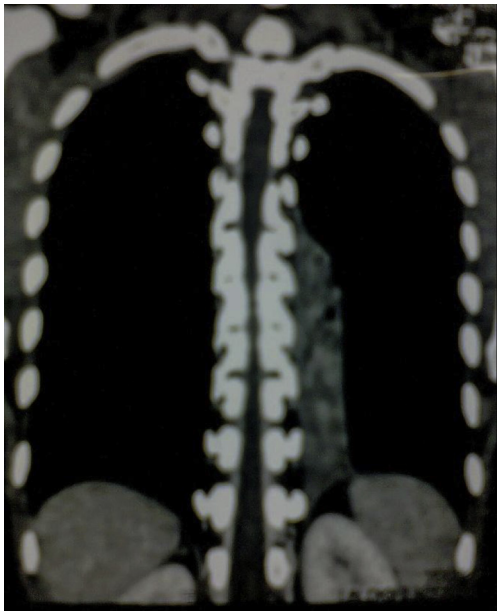

Fig. 2. CT (mediastinal window, coronal) showing presence of a smooth bordered consolidation in the left posterior basal para-vertebral region.

We decided to embolize the feeding artery through the right common femoral artery. She was admitted to our hospital for this endovascular procedure. Digital Subtraction Angiography (DSA) confirmed the presence of a feeding artery detected earlier by the CT Angiography (Fig. 6). Endovascular embolization was done using a 5 Fr left coronary catheter and 500 microns size PVA particle under fluoroscopic guidance.

Post embolization DSA revealed marked reduction of the abnormal vascular blush and occlusion of the feeding artery. (Figs. 7 and 8). There were no significant post embolization complications except for mild pain which subsided with administration of a simple analgesic. The patient was discharged 48 h after the procedure. The follow up CT done 3 months after the procedure showed persistent occlusion of the vascular supply. However only a small regression in the size of sequestered lung tissue was noted (Fig. 9). At 6 month follow up, there have been no recurrences of symptoms and no episodes of hemoptysis. She ws able to return to school and describes currently a good social and academic life.

Fig. 3. CT (lung window, sagittal) showing the sequestrated segment.

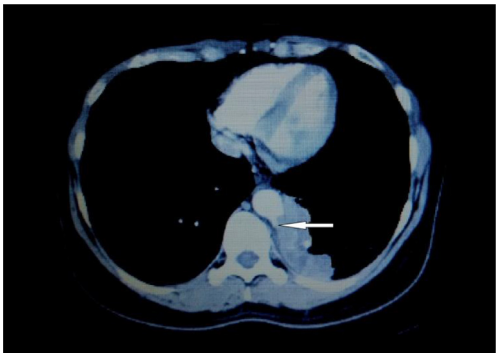

Fig. 4. CT angiogram showing systemic feeding artery originating from left posterior lateral wall of descending aorta.