

CASE REPORT

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Unsuspected wooden foreign body of lung parenchyma masquerading pulmonary tuberculosis: A rare surgical entity

Mohammad Sadik Akhtar, Mohammad Hanif Beg, Manoj Khurana

ABSTRACT

Introduction: Parenchymal foreign bodies after chest trauma are rare. These foreign bodies have no specific sign and symptoms and X-rays are unhelpful. The detection of wood is especially important because it may serve as a nidus for infection and masquerade pulmonary tuberculosis. **Case Report:** We report a rare case of retained wooden foreign body in the lung parenchyma that was suspected on computed tomography after prolonged treatment and repeated X-rays. Thoracotomy was performed and two wooden pieces were removed. Review of literature shows that presence of wooden foreign bodies in the lung parenchyma is quite rare and may present with a wide variety of symptoms. **Conclusion:** We conclude that foreign body should be considered in the differential diagnosis when patient presents with a history of trauma and patient fails to improve despite continued treatment, and it must be removed on an urgent basis due to the risk of recurrent infection.

Keywords: Foreign body, Lung, Wood, Parenchyma, Tuberculosis, Pulmonary disease

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INTRODUCTION

Pulmonary parenchymal foreign bodies are a rare cause of chronic lung disease and infrequently considered in a differential diagnosis of pulmonary opacities on the chest radiographs [1]. Foreign bodies can penetrate soft tissues through open wounds and lacerations during trauma or by direct impact [2]. Such wounds harboring foreign bodies may appear to be deceptively minor and may not be accompanied by any major symptoms. However, if these foreign bodies are left undetected in the tissues they can result in serious sequelae like abscess, fistula formation [3] and hemoptysis [4, 5, 6], days, months or even years after the initial trauma. Although wooden foreign body is very common in soft tissue and orbital traumas [7], pulmonary parenchyma foreign bodies are a rare cause of pulmonary disease and are a rare differential diagnosis of lung opacity on the chest radiographs [8]. Only a limited number of case reports about retained pulmonary foreign body have been published in medical journals so far [9, 10]. The purpose of reporting this unusual case of recurrent pneumonia and hemoptysis caused by a retained wooden foreign body is to highlight the difficulties in detection of foreign bodies and need for their prompt removal as they are always a cause for recurrent chest infection. We report a rare case of a pulmonary parenchymal wooden foreign body diagnosed five years after the chest trauma. In our

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opinion, wooden foreign body must be kept in differential diagnosis of chest trauma when patient fails to improve after prolonged treatment and removed as soon as possible.

CASE REPORT

A 12-year-old boy (from a rural area) was presented to our hospital with shortness of breath, cough, purulent sputum and hemoptysis. He had a history of recurrent respiratory tract infections that were resolved with antibiotics. He had a history of chest trauma, after falling from a tree five years back (Figure 1). His treatment was done in a private hospital at the time of trauma and chest drainage tube was placed and improved. But patient had episodes of recurrent fever, purulent sputum and later on hemoptysis. Repeated chest X-rays showed opacity in right lower lung fields (Figure 2). He was given multiple courses of antibiotics but failed to improve. He was then started on ATT suspecting pulmonary tuberculosis. But he had recurrent infections and hemoptysis despite anti tubercular treatment. Patient was referred to cardiothoracic unit of our institute for further management. He was investigated and repeat chest X-rays revealed an area of hyperdensity in right lower lobe lung fields. CECT Thorax was done which was suggestive of consolidation with multiple cavities formation in right lower lobe with right sided pleural collection with single linear hyper-dense focus with CT value of 190 HU(bony fragment/foreign body) with adjacent pleural thickening (Figure 3). A thoracotomy with removal of two wooden foreign bodies was done. Peroperatively two wooden foreign bodies were removed—one from anterior basal and another from posterior basal segment of right lower lobe, each measuring 4x2 cm (Figures 4–6). The lung parenchyma



Figure 1: Clinical photograph show puckered scar on lateral aspect of right chest.



Figure 2: X-ray chest showing haziness right mid and lower zone.

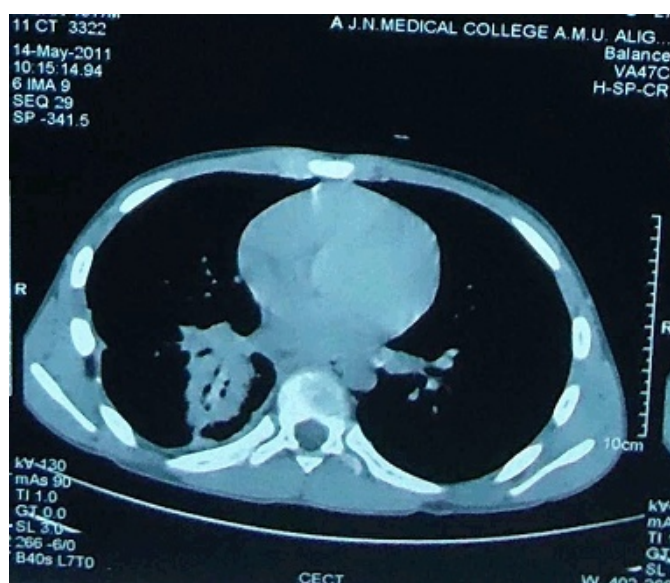


Figure 3: CT scan chest reveals cavitary lesion containing foreign body.

was having two pieces of wood, which were enveloped in granulation tissue and fibrosis although CECT reported only a single foreign body. Postoperatively patient improved uneventfully and discharged. He was doing well till the time of last follow up.

DISCUSSION

Although aspiration of a wooden foreign body into the tracheobronchial tree is not uncommon, [11] pulmonary parenchymal wooden foreign bodies are

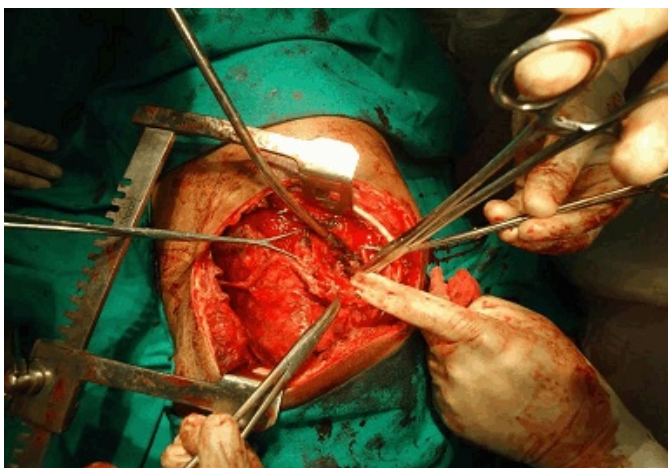


Figure 4: Operative photograph while removing first wooden foreign body from posterior basal segment of right lower lobe.



Figure 6: Wooden foreign bodies, each measuring 4x2 cms.

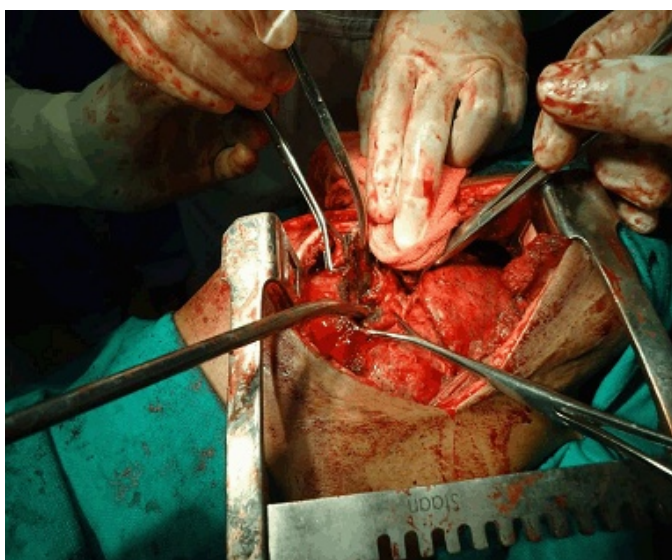


Figure 5: Operative photograph while removing first wooden foreign body from anterior basal segment.

quite rare. Most parenchymal wooden foreign bodies are a result of trauma, and the diagnosis is made on the basis of the history and physical examination at the time of presentation [2]. Pulmonary wooden parenchymal foreign bodies are a rare cause of chronic lung disease and infrequently are considered in a differential diagnosis of pulmonary opacities on chest radiographs [1]. Despite advances in imaging techniques, the detection of retained wooden foreign bodies remains a difficult and challenging task [12]. The detection of wood is especially important because it may serve as an unrecognized nidus for infection [8]. Wood, with its porous consistency and organic nature, is an excellent medium for microorganisms. The retained foreign bodies may result in abscess, fistula formation [3] and hemoptysis [4, 5, 6]. Our patient was unaware of his pulmonary wooden foreign body and the treating physicians also failed to keep a possibility of a foreign body in the chest even when the patient did not improve

after prolonged treatment including anti-tubercular therapy until the CECT was done five years after the trauma. The injury most likely occurred while the patient fell from a tree on the ground and a wooden fragment impaled her chest. In patients with recurrent uni-focal pneumonia, an underlying problem such as a foreign body should be considered [8]. Wooden fragments account for the largest proportion of retained foreign bodies after trauma to the human body [13]. Radiographs have been reported to reveal a wooden foreign body in only 15% of patients [13]. CECT scan showed that the abnormality had consistency which could be a single piece of bone or foreign body. CT scan has been proved to be useful in the evaluation of suspected wooden matter. Brewer and Leonard [14] stated that CT scans are the most sensitive tool available for the detection of wooden foreign bodies in lacerations on puncture wounds. The attenuation of a retained wooden foreign body varies in relation to the content of air and fluid in the interstices of the wood. Within approximately one week, the wood absorbs blood products and exudates and increases its attenuation [15]. Dry wood, with high air content, has been reported to mimic a gas collection [7]. Bodne et al. [16] cited three cases of wooden foreign bodies with various attenuation values, ranging from close to air in acute cases to high (near to calcium) in chronic cases. In our case, the attenuation value of the wood particle was 190 HU, which is a high density near to calcification.

CONCLUSION

In our opinion, pulmonary wooden foreign bodies must not be treated conservatively and operated as soon

as possible because they can serve as a nidus for recurrent infection. Also one should look for multiple foreign bodies although CT scan may report just single foreign body.

Author Contributions

Mohammad Sadik Akhtar – Substantial contributions to conception and design, Acquisition of data, Drafting the article, revising it critically for important intellectual content, Final approval of the version to be published

Mohammad Hanif Beg – Substantial contributions to conception and design, Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

Manoj Khurana – Substantial contributions to conception and design, Drafting the article, revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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