



THORACOSCOPIC REMOVAL OF A RETAINED FOREIGN BODY IN LUNG AFTER PENETRATING TRAUMA

Surgery

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ABSTRACT

Trauma has been the leading cause of morbidity and mortality in the young population. Thoracic trauma contributes to 25% of trauma related deaths. Thoracic trauma, especially, the penetrating one, can be devastating as it can injure major vessels, lung, esophagus, heart, lungs and diaphragm. Thoracotomy is the standard approach for exploration after penetrating thoracic trauma. Though thoracoscopy is routinely being used for decortication, lobectomies, trachea-esophageal fistula repair, diaphragmatic hernia repair and many others, its role in trauma setting is limited. Literature review shows increasing trend towards using thoracoscopy in trauma. We present one such case of a retained foreign body in the right lung, which was managed by thoracoscopy successfully.

KEYWORDS

Thoracic trauma, thoracoscopy, foreign body

INTRODUCTION:

Patients often present with penetrating injuries to the chest. These penetrating objects leave behind broken pieces within in the lung parenchyma which are retained after removal. Thoracotomy has been long considered as the standard method for exploration and retrieval of foreign bodies.

Recently there has been an increasing trend in thoracoscopic removal of foreign bodies. Thoracoscopy avoids the large thoracotomy incision, minimizes blood loss, offers better visualization of the lung, and easy retrieval of foreign bodies.

We present a penetrating chest injury case with retained foreign body within the lung removed by thoracoscopy.

CASE REPORT:

A 22-year-old industry worker presented to the emergency room with complaint of penetrating chest injury. The patient came with a sharp object that has penetrated the right chest anteriorly. Patient was in a stable condition; penetrating object was removed and emergency X-ray chest was obtained. X-ray showed hydro/hemo-pneumo thorax and a foreign body in the right upper lobe. Intercostal tube (ICDT) was inserted for the drainage of pneumo-hemothorax. IV antibiotics and analgesics were started. A non-contrast CT of chest was obtained, which revealed a 2x1x0.2 cm foreign body in the posterolateral part of right upper lobe. Patient was electively posted for thoracoscopy to remove foreign body.

Double lumen single lung ventilation of left lung was done to assist thoracoscopy. Patient was placed in left lateral decubitus position with right arm fully adducted and flexed, exposing right side chest. ICDT thoracostomy (5th space, mid-axillary line) was used to insert 10mm port for camera; a 5 mm port was inserted in 6th space, along mid-clavicular line and another 5 mm port in 7th space along posterior axillary line. Hematoma and pus flakes were found in the costophrenic recess. Right lung was probed for foreign body. Confirming the CT findings, the foreign body was found in the posterolateral part of upper lobe. It was retrieved from lung and delivered through a port incision site. ICDT was inserted and procedure was concluded. Patient recovery was uneventful post-operatively.

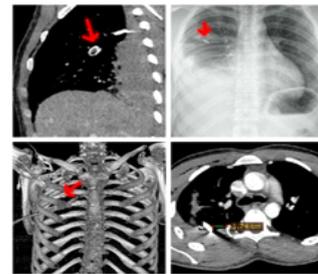


Figure 1. CT image showing foreign body within the right lung upper lobe

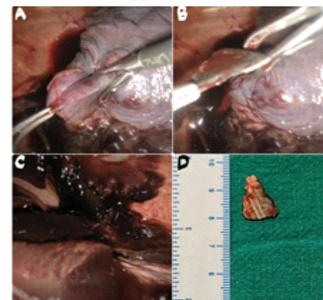


Figure 2. a) Foreign body lodged within the lung b) foreign body removed from the lung c) hematoma due to trauma d) retrieved foreign body

DISCUSSION:

Trauma is the leading cause of morbidity and mortality, with chest trauma accounting for 20-60% of trauma related deaths (1). Chest trauma, especially penetrating ones are associated with higher risk due to injuries to major vessels at the thoracic inlet, injury to lung- causing hemo/pneumo-thorax, and injuries to heart-leading to hemo-pericardium, pericardial tamponade and cardiac muscular injuries.

Thoracotomy has been the standard approach for exploration post-penetrating trauma. Large incision, blood loss, possibility of missing

retained foreign bodies and post-operative discomfort are the disadvantages. Branco et al proposed the role of thoracoscopy in penetrating trauma (3). Smith et al described the use of thoracoscopy in acute trauma (4). Yu PS and Liu YW (5, 6) published a series of cases where foreign bodies were retrieved thoracoscopically. Individual case reports were published by several authors^(8,9,10).

Thoracoscopy found its role in decortication, lobectomy, mediastinal and diaphragmatic diseases like trachea-esophageal atresia, diaphragmatic hernia for many years. Literature search on thoracoscopy use in trauma setting shows how rarely it used in these scenarios.

Thoracoscopy comes with advantages of being diagnostic & therapeutic, easy to operate, minimal blood loss, ability to do additional procedures like lobectomy, biopsies, ligation of bleeders, less post-operative pain, lesser need for post-op chest rehabilitation and quicker recovery.

With a radiologist to provide image guidance and anesthesiologist able to provide single lung ventilation, thoracoscopy can become a standard practice in cases of penetrating chest trauma.

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