

Case Report


Thoracoscopic removal of unusual migrated K-wire from thorax: A case report

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Abstract

Migration of orthopedic fixation pins into the thoracic cavity can result in perforation of pulmonary vasculature, aorta, bronchus, atrium, or ventricle. Prompt diagnosis and treatment is of paramount in preventing devastating consequences. A patient who had fixation of a right humerus fracture weeks later had intra thoracic migration of a fixation pin, found on radiographic examination. Patient was attempted and the K Wire was removed by VATS thoracoscopic procedure. The foreign body was retrieved successfully without intra operative or postoperative complication.

Key words

Intra thoracic migration, K-wire, Thoracoscopy, Video-assisted thoracoscopic surgery (VATS).

Introduction

Migration of orthopedic fixation pins is uncommon, but when it occurs, there can be devastating consequences [1, 2]. Thus, prompt

recognition and immediate retrieval of the implant is of paramount to avert those complications. We have described here a case in which a K wire, previously placed into the

shoulder, migrated into the thoracic cavity and was successfully retrieved using VATS.

Case report

A 80 years old woman presented to the OPD with 1 month history of dyspnoea and right-sided chest pain. The pain was initially acute in onset, sharp in nature, worse on deep inspiration, did not radiate, and was not reproducible with palpation. There was no associated fever, cough, haemoptysis, or calf pain. Patient gave history of fall on right side after which she started complaining of breathlessness for which she didn't seek for any prompt medical advice. Her further past medical history included a fracture right humerus sustained due to fall few months back that required open reduction.

On presentation, the patient was in mild respiratory distress with a respiratory rate of 28 breaths/min, a heart rate of 90 beats/min, and an oxygen saturation measured via pulse oximetry of 93% while breathing room air. A respiratory examination revealed the right-sided findings of reduced chest expansion, and reduced apical air entry.

CBC count and biochemistry measurements were within normal limits. The ECG was unremarkable. Chest X-ray showed K-wire in right lung parenchyma without any evidence of hemothorax or pneumothorax (**Figure - 1**). CT Chest confirmed its position in the right hemithorax. Subsequently an attempt to remove the K Wire thoracoscopically was planned.

The patient was intubated with a double-lumen endotracheal tube and was placed in a left lateral decubitus position. Single-lung ventilation was begun and 10 mm thoracoscopy port was inserted into the right chest through the sixth inter costal space in the mid axillary line. The foreign body was lodged in the superior segment of the right lower lobe but did not enter the mediastinum (**Figure - 2**). Subsequently, another 10 mm thoracoscopic port was placed into the right chest directly over the pin. The pin was grasped and

slowly withdrawn from the lung parenchyma (**Figure - 3**). Once removed (**Figure - 4**), the lung re-expanded without difficulty. As a precaution, a 28 F chest tube was placed under direct vision. The patient tolerated the procedure well and was extubated in the operating room without difficulty. There was no air leak or bleeding from the chest tube postoperatively.

Figure – 1: X- ray showing K wire in lung parenchyma without any evidence of hemothorax or pneumothorax.



Figure – 2: Showing VATS.



Figure – 3: Thoracoscopically retrieval.



Figure – 4: Removed K-wire.



Discussion

The K-wire is in common use in current orthopedic practice. Migration is a rare but resultant complication of intra-thoracic pins range from minor irritation to death from perforation of vital structures. A number of theories to explain the tendency of pins and wires to migrate from the shoulder region to the thorax have been proposed. These include respiratory excursion, capillary action, electrolysis, muscular activity, and the greater range of movement of the upper limb.

We chose a thoracoscopic approach in this case for several reasons. This patient was older age, not much symptomatic, and the pin appeared to be confined to the lung. There has been increased success with thoracoscopy for a variety of intra-

thoracic procedures [3], and previous reports of successful laparoscopic retrieval of intra-pelvic or intra-abdominal pins supported our attempt to approach removal in a less invasive manner [4].

However, we were prepared for conversion to immediate thoracotomy if initial thoracoscopy reveals that the foreign body has traversed the mediastinum or if extraction produced bleeding or significant air leak. Our approach was successful and we removed the pin without any uneventful incident and saved the patient from associated morbidity of a thoracotomy. In summary, we propose that thoracoscopic removal of intra thoracic foreign bodies can be retrieved safely if the object can be withdrawn through a port site, if it has not traverse the mediastinum, and if the patient can tolerate single-lung ventilation.

Conclusion

Migration of Kirschner wire from the proximal humerus into the thoracic cavity is a rare complication that can lead to fatal complications. If the wire is used for fixation its terminal ends should be bent to avoid its migration. Though few cases are reported in medical literature not much data is present regarding VATS assisted removal. We have hereby reported a case of successful removal of K Wire thoracoscopically.

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