

Case Report

A rare case of migration of clavicular Kirschner nail turned into foreign body of the neck

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Received: 19 January 2026

Revised: 18 May 2026

Accepted: 01 July 2026

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ABSTRACT

Kirschner wire (K-wire) fixation done for orthopedic fixation of fractures of shoulder girdles and clavicles show rare migration into the neck surrounding tissues and sometimes spinal canal. We present a unique case of a 40-year-old male with a rare migration of clavicular K-nail turned into foreign body of the neck. The patient presented with the chief complaint of pain in the left side of neck while coughing for 10 days. Imaging revealed a metallic shadow in the left deep neck space which was surgically removed via neck exploration under general anesthesia. Successful and timely removal of the nail can prevent life threatening complications. This case report highlights a rare instance of clavicular K-nail migration and its potential risks, if the smooth nail migrates into the neck. Therefore, it is imperative to choose implants with utmost care and timely explant, once the fractures have healed.

Keywords: Clavicular K-nail, Migration, Foreign body removal

INTRODUCTION

Kirschner wire fixation is generally done for orthopedic fixation of fractures of shoulder girdle and clavicle. They are cheap, versatile and minimally invasive in stabilizing bone fragments migration of nails or wires of shoulder/clavicular fracture fixation is a rare but serious complication. A few cases of such migration from the clavicle to surrounding tissues and around cervical spine canal have been reported.¹⁻⁴

This case report aims to discuss a unique case involving a 40-year-old male who presented with the pain over left side of neck while coughing for 10 days. Radiological examination revealed a notable finding. This case sheds light on the emphasis of early diagnosis and management of such a case to avoid probable fatal complications.

CASE REPORT

A 40-year-old male resident of Dhar district presented to the ENT OPD with chief complaint of pain in left side of neck while coughing for 10 days. The patient was apparently alright 10 days back then he started complaining of left-sided neck pain which was insidious in onset and gradually progressive. There was no history of difficulty in breathing, chest pain, and rapid breathing. There is no significant past medical history, but the patient had undergone Kirschner nail (K-nail) fixation for left clavicular fracture which he had in the year 2023 following a road traffic accident. The patient was conscious, oriented to time place and person. The oxygen saturation of the patient was 98% on room air with the respiratory rate of 24 breaths per minute. The chest was symmetrical, all parts moving equally with respiration. There were no signs of distress and bilateral air entry was

positive. Routine ear, nose, throat (ENT) examination was unremarkable.

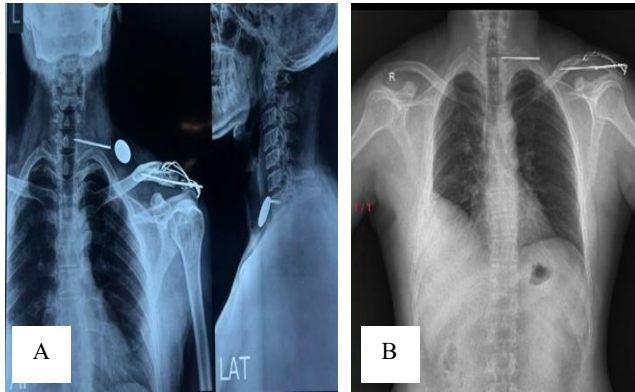


Figure 1 (A and B): X-ray neck AP/lateral view and chest AP view.

Ultrasonography of the neck showed evidence of hyperechoic liner shadow noted at left neck region to the left thyroid gland and left common carotid artery? foreign body. X-ray (Figure 1 and 2) of the neck and chest were done in antero-posterior and lateral views which showed a metallic nail/K wire noted at the left clavicle, part of this implant approx. 5.2 mm noted 2.7 mm away from trachea.

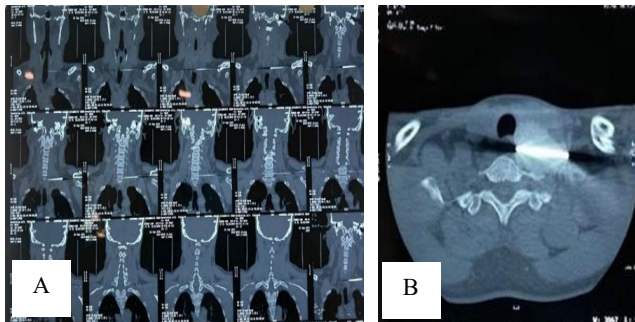


Figure 2 (A and B): CT neck.

A CT neck scan was also performed which showed evidence of a long linear metallic artefact in the left deep neck space, just posterior to left carotid artery and internal jugular vein with its tip reaching lateral to left peri-esophageal region. The Common carotid artery, carotid bulb and bifurcation appear normal. The Internal carotid artery and external carotid artery appear normal in course and caliber and rest of the lung parenchyma appeared normal (Figure 3).

Plan

All these findings proved the migration of the K-wire as a foreign body in the left neck deep space. Therefore, a treatment plan was made C- Arm guided- foreign body removal via anterior neck exploration under general anesthesia.

Surgical technique

Patient was kept supine and general anaesthesia was achieved.

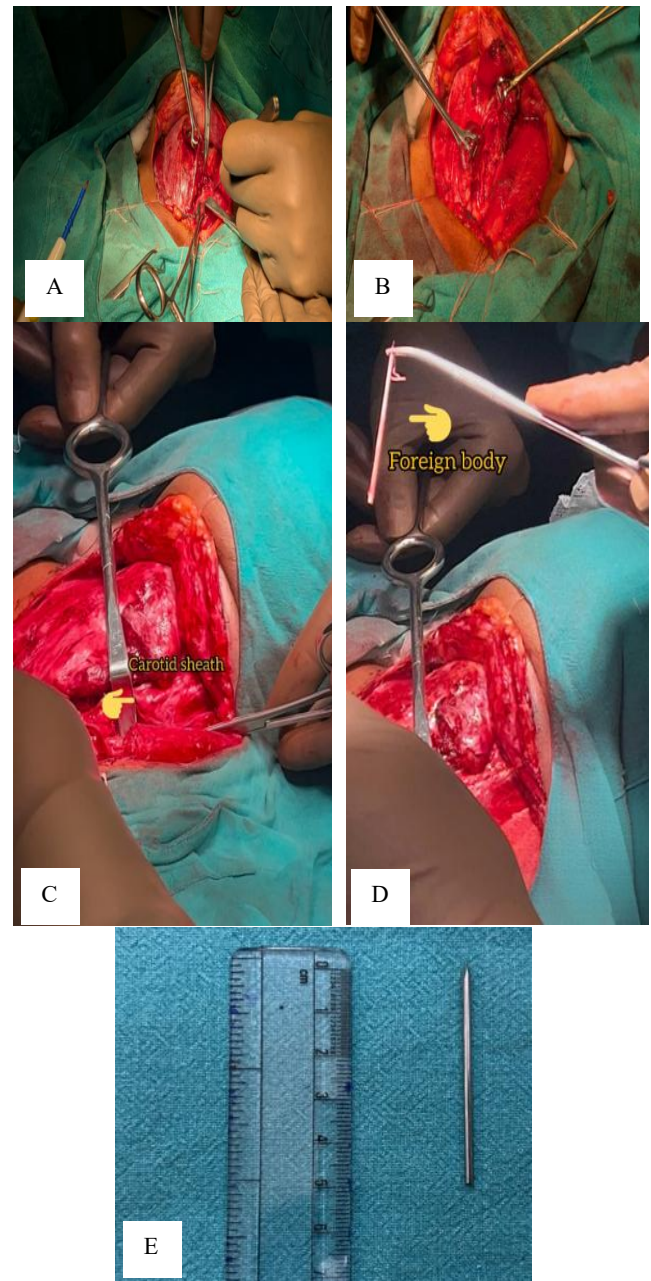


Figure 3 (A-E): Intraoperative images: 5 cm K-nail.

Tumescent infiltration was given over anterior aspect of neck. Painting and draping were done. Kocher's incision was given from one sternocleidomastoid to the other, 2 cms above the supra-sternal notch. Subplatysmal flaps elevated up to the hyoid bone above and up to the supra-sternal notch below. Left dissected was sternocleidomastoid. Midline raphe identified, strap muscles were dissected and cut on the left side. The position of the K-nail was gauged with the help of C-arm. The carotid sheath was identified and carefully preserved

along with the left recurrent laryngeal nerve. Pre-vertebral fascia identified, and further dissection was done, the position of the K-nail was confirmed by C-arm, and the nail was carefully removed.

A gush of pus was visualized from the implant site which was sent for pus culture and sensitivity. Suction drain was kept, hemostasis achieved. Wound closure was done in layers. Pressure dressing was done. Post operatively the patient stood the procedure well.

Follow up

On post operative day 10, sutures were removed with no wound dehiscence over suture site. Post-op Xray (Figure 4).



Figure 4: Post operative X-ray.

DISCUSSION

Proper placement and timely removal of clavicular Kirschner nails (K-nails) are essential to minimize the risk of implant migration, a rare but potentially life-threatening complication. Regular clinical follow-up, supplemented by serial radiographic evaluations, is critical for early detection of nail displacement and for determining the optimal timing for removal.

Therefore, clinicians must maintain a high index of suspicion in patients with a history of clavicular K-nail fixation who develop new or unexplained symptoms.

In a case report described by Mankowski et al, a 34-year-old white man of Central European descent with Kirschner wire migration and perforation of his vertebral foramen.¹ He underwent acromioclavicular joint repair surgery 7 years ago, presented with a painful sensation around the area of his left clavicle and left side of his neck after a motorcycle accident. No neurological deficit was detected. Robbe Van Dyck et al reported a case of a patient who presented with left thoracic discomfort and an intermittent non-productive cough.² Chest X-ray showed a broken clavicular pin with the distal half inside the left chest. The pin was extracted from the lung

parenchyma using a left 3-port video-assisted thoracoscopic approach. In another case report by Ryogo Furuhashi et al a 68-year-old male patient had a history of surgical infection after cardiovascular surgery seven years before and had undergone surgical debridement and sternum fixation with two K-wires out of which one K-wire had broken, and part of it migrated upward.³ Using an anterior approach, the tip of K-wire is below the left sternocleidomastoid muscle. The K-wire was cut into 1 to 2-cm pieces and removed piece by piece.

A similar study by Ljubodrag Minić et al showed a 30-year-old male who had suffered a right clavicle fracture in a motorcycle accident was treated with 2 K-wires presented with short-term pain in his back, numbness in all 04 extremities.⁴ Computerized tomography showed the wire positioned in front of the spinal cord. Surgery for wire extraction was performed with the patient under general anesthesia, and he experienced relief of the symptoms immediately after surgery. Our case study is first of its kind to be reported as the foreign body was intercepted right before it could have caused some serious damage to the patient's neck, lung parenchyma or spinal cord.

CONCLUSION

Kirschner wire fixation is generally done for orthopedic fixation of fractures of shoulder girdle and clavicle. Migration of nails or wires of shoulder/clavicular fracture fixation is a rare but serious complication. A few cases of such migration from the clavicle to surrounding tissues and around cervical spine canal have been reported. Hence, it has been suggested to avoid the use of smooth K-wires in the fixation of clavicular fractures and if used, its timely removal becomes imperative to steer clear of fatal complications, like carotid blow, internal jugular injury and entry into the spinal canal.

ACKNOWLEDGEMENTS

The authors extend immense gratitude towards the institution for providing comprehensive care to the patients reaching the institute. They would also like to thank the wonderful multidisciplinary team and dedicated health care professionals involved in the management of the case.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Ansari S, Surana P, Jhavar M, Munjal VR. A rare case of migration of clavicular Kirschner nail turned into foreign body of the neck. *Int J Otorhinolaryngol Head Neck Surg* 2026;12:675-8.