

# A Case Report on Migrated Kirschner Wires to Posterior Pharyngeal Wall

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## Abstract

Percutaneous Kirschner wires ("K" wire) fixation is the most commonly done procedure in any of the orthopedicians career. Clavicular fractures can be treated surgically with pins and wires or with plates. The wires, usually, follow a retrograde path, protruding near the entry point. When they migrate in the opposite direction, serious problems may occur. The migration of metallic devices such as K-wires from the shoulder to a variety of anatomical proximal and distal locations is well-documented. We report a rare case of migrated "K" wire to posterior pharyngeal wall, which was applied for distal clavicle fracture.

**Keywords:** Ante grade migration, Early retrieval, Kirschner wires

## INTRODUCTION

There are several reports of post-operative pin migration from the shoulder girdle region (proximal humerus, clavicle, acromioclavicular joint, shoulder joint, and sternoclavicular joint) to various intra thoracic sites including the heart, subclavian artery, ascending aorta, pulmonary artery, subarachnoid space, spinal cord, mediastinum, trachea, abdomen, orbit, and lung. These migrations can result in devastating complications and be associated with catastrophic cardiovascular events. Migration from the lower extremity and regions other than the shoulder has been rarely reported. Kirschner wires ("K" wire) migration to posterior pharyngeal wall is, usually, very rare. Migration of "K" wire to various site well away from the site of its initial application has been reported.<sup>1-3</sup> We report one such case of migrated "K" wire to posterior pharyngeal wall who presented with throat discomfort.

## CASE REPORT

A 64-year-old male presented with throat discomfort on and off for 6 months associated with pain for a week. He also had a fever with erythematous rash for 2 days. Patient had

sustained trauma 1½ year back for which he was diagnosed to have a fracture of lateral third right clavicle. He had undergone percutaneous "K" wire with tension band wiring for the same at an outside hospital. Patient is also a known case of previously treated Hansen and presently on regular treatment for diabetes and hypertension.

On examination, there was a surgical scar seen in the anterior aspect of right shoulder, on palpating his right shoulder tip of the implant could be felt without any bony tenderness. His range of motion of right shoulder was normal (Figures 1 and 2).

Routine blood investigation showed elevated white blood cell count, elevated serum cortisol, elevated erythrocyte sedimentation rate level. Urine routine albumin 1+, microscopy showed red blood cells 15-20 cells and other blood and urine investigation showed normal. Blood culture shows sterile and sputum culture shows normal flora, Throat swab culture showed Gram-positive rods for which appropriate antibiotics were administered.

ENT opinion was obtained. Endoscopy examination showed tip of the metal object jetting at the inferior



Figure 1: Surgical scar present over the right shoulder



Figure 3: Tip of metal object jetting at the inferior oropharynx at the posterior pharyngeal wall and also noted pus around the foreign body



Figure 2: Active range of motions



Figure 4: Tension band wiring with screw fixation in right shoulder and tip of a metal object at the neck level

oropharynx at the posterior pharyngeal wall and also noted pus around the foreign body (Figure 3).

His routine chest X-ray showed tension band wiring with screw fixation in right shoulder and tip of the metal object at the neck level (Figure 4). We further evaluated with C spine X-ray which showed a metal object, a K-wire probably at the surface of posterior pharyngeal wall (Figures 5 and 6).

It was decided to retrieve the metal object with the help of ENT team, but ultimately foreign body was self-expelled

by the patient himself while violent coughing episode. C spine X-ray taken after self-expellation of the metal object showed no evidence of foreign body (Figure 7). On routine follow-up at 6 months, patient was comfortable without any residual throat discomfort.

## DISCUSSION

The migration of K-wires has been a well-known complication since the first report in 1943.<sup>1</sup> “K” wire



Figure 5: X-ray Ap view showing metal object in the neck region



Figure 7: No evidence of foreign body-foreign body was self-expelled by the patient himself while violent coughing episode



Figure 6: X-ray lat view showing metal object, a Kirschner wire probably at the surface of posterior pharyngeal wall

implants have been used by orthopaedic surgeons from the time it invented for various orthopaedic procedures. It has been a widely accepted implant of choice as mostly

in percutaneous techniques. Such wires are, usually, bent and left outside the skin or kept buried underneath the skin for future removal as advocated. These wires if left in place for a long time even after the fracture heals, have a tendency to migrate. Such migrations are, usually, back out of “K” wire in the opposite direction to that of primary insertion that are totally harmless in contrary. Most of the migration originates from the region of the shoulder girdle including the proximal humerus, clavicle, the acromioclavicular joints, and sternoclavicular joints. When they migrate from the shoulder region, wires most commonly traverse the chest wall and invade the thorax, and from there ending up in the pleural space, pulmonary parenchyma, mediastinum, oesophagus, cardiac ascending aortic wall, or pulmonary artery, thorax, spleen and other potentially less dangerous areas like hip, shoulder, sternum etc., Such migration can produce serious complications, including lethal cardiovascular events.<sup>2</sup>

K-wire can migrate from the shoulder into the abdomen can compromise various areas like spleen, abdominal aortic lumen, neck, spine, cavities, the pericardial space, and subclavian artery.<sup>3</sup>

The reason these wires migrate is that, they are non-threaded and muscular movements tend to propel them which makes

the wires travel along the path of least resistance. Antegrade migration is rarely reported; this complication is avoided by bending the free end of wire.<sup>4</sup>

Pre- and post-operatively, surgeons must carefully instruct patients about the importance of periodic review for follow-up evaluation and the removal of “K” wires. Patients must be warned to restrict activity and joint motion post-operatively, and carefully confirm the position of implants with serial biplane radiographs.<sup>5</sup> If a temporary fixation at the level of the acromioclavicular joint region is performed using wires, the pins should be removed after bone union or ligament healing, and arm movement should be restricted to elevation up to only 90.<sup>6</sup> In addition, the external tip of the implanted wire should be bent enough to prevent its migration.

The migration of orthopedic pins and rods placed around the shoulders into the thoracic cavity has been little reported, but it is a well-known complication since it was first described in 1943. Some authors have published literature reviews, such as Rockwood and Lyons, in 1990 (47 cases) and Freund *et al.* in 2007 (68 cases), showing that the number of cases of this complication is growing around the world.<sup>7,8</sup>

In our case, the wire initially used 1½ years back for stabilizing the lateral third clavicle fracture, was left unattended till his visit to our institute with throat discomfort. The wire was found to migrated to posterior pharyngeal wall, which caused his throat discomfort. Though planned for implant retrieval by ENT surgeon, foreign body was self-expelled by the patient him-self

while violent coughing episode. The patient recovered immediately and uneventful.

## CONCLUSION

K-wires are still a common means of fixation in the orthopedic reduction stabilization. They can be mandatory when fragments are small and unamenable to other methods. The significant risk of migration has to be taken into account always and almost. The risk of severe complications can be avoided by regular follow-up and removal of the implants at the earliest once the fracture consolidated.

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