

## INTRATHORACIC MIGRATION OF A KIRSCHNER WIRE\* Kirschner telinin intratorasik migrasyonu

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**Özet:** Kirchner telinin intratorasik migrasyonu ciddi bir komplikasyon olarak bilinir. Akromio-klavikulo-sternal kemiklerin tesbit edilmesinde kullanılan telin migrasyonu vital organlarda hasara yol açarak fatal sonuçlar doğurabilir. Sol omuzdan toraksa göç eden bir Kirschner teli vakası yayınlıyoruz. Tellerin serbest uçlarını kıvrıyarak, mümkün olan en kısa zamanda osteosentez materyalini çıkararak ve hastayı uzun süre hem klinik hem de radyolojik olarak izleyerek bu komplikasyondan sakınmalıdır. Migrasyon vakasında telin derhal çıkarılması gereklidir.

**Anahtar Kelimeler:** Intratorasik migrasyon, Kirchner teli

**Summary:** Intrathoracic migration of a Kirschner wire is described as a serious complication. It may result fatal outcomes. It may cause injury to vital organs by migrated pins used for stabilization of the acromio-claviculo-sternal skeleton. We describe a case in which the Kirschner wire migrated from the left shoulder to the thorax. This complication must be avoided by bending the free end of the wire, removing the osteosynthesis material as soon as possible and following up the patient both clinically and radiographically for a long period. Removal of the wire is immediately necessary in the case of migration.

**Key Words:** Intrathoracic migration, Kirschner wire

Pins and wires are used extensively for internal fixation of bones and joints. Some of these appliances have a tendency to migrate. Serious complications such as pin migration are extremely rare. The explanation for the propensity of pins to migrate from the region about the shoulder remains obscure. Various theories have been proposed, including muscular activity, respiratory excursion, capillary action, electrolysis, regional resorption of bone, gravitational forces, and the great freedom of motion of the upper extremity.

### CASE REPORT

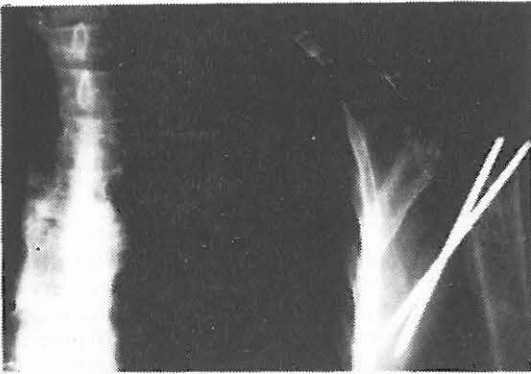
A 45-year-old male patient had an operation for bi-

lateral subcapital humerus fracture. For fixing the fractures 5 Kirschner wires were used (Figure-1). Three of them that were inserted to the right shoulder were removed in the first control examination. When the patient came for the second follow-up, chest x-ray showed that one of the wires had migrated into the left thoracic cavity, and the other was within the subcutaneous tissue in the thoracic wall, but there was no evidence of a pneumothorax (Figure-2,3,4). The latter was removed with local anesthesia (Figure-3,4), but due to intrathoracic migrated wire, the patient underwent an operation. A left posterolateral thoracotomy through the fifth intercostal space was performed. The wire within the intrapleural cavity was in the front of the lower lung lobe and sharp end down position. There was no damage in the lung. The wire was removed and the thoracotomy was closed and closed drainage was left for 36 hours. The patient made a rapid and uncomplicated recovery and was discharged on the ninth postoperative day. Chest x-ray was normal (Figure-5 and 6). There were 2 months between two surgical intervention.

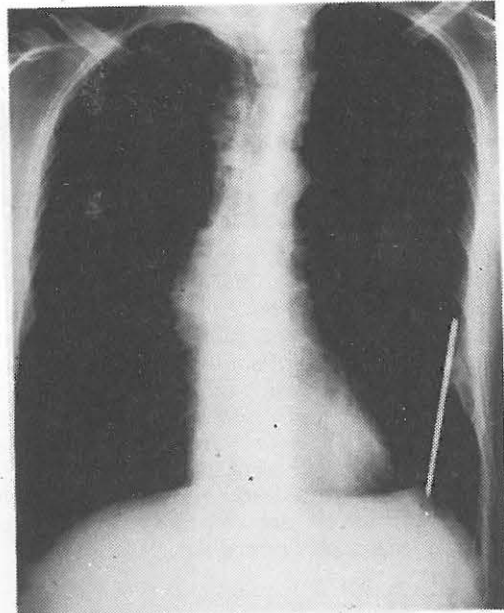
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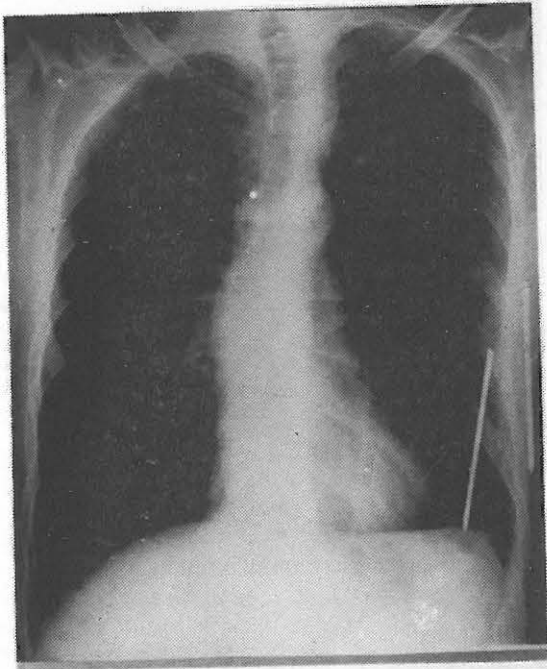
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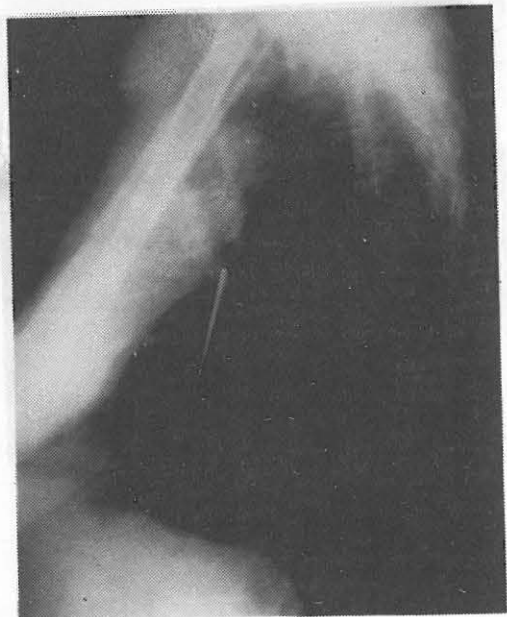
**Figure 1.** Fracture in the left shoulder stabilized with two Kirschner wire



**Figure 3.** Posteroanterior roentgenogram after removing the wire within the subcutaneous tissue



**Figure 2.** Two months later, one of the Kirschner wires is within the left hemithorax, the other is within the subcutaneous tissue



**Figure 4.** Lateral roentgenogram after removing the wire within the subcutaneous tissue

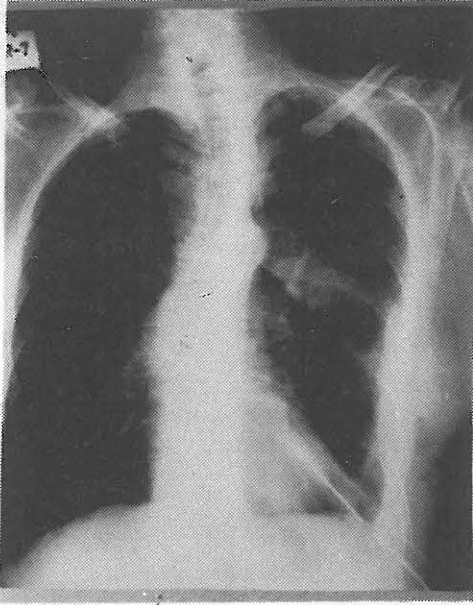


Figure 5. Roentgenogram on the first postoperative day

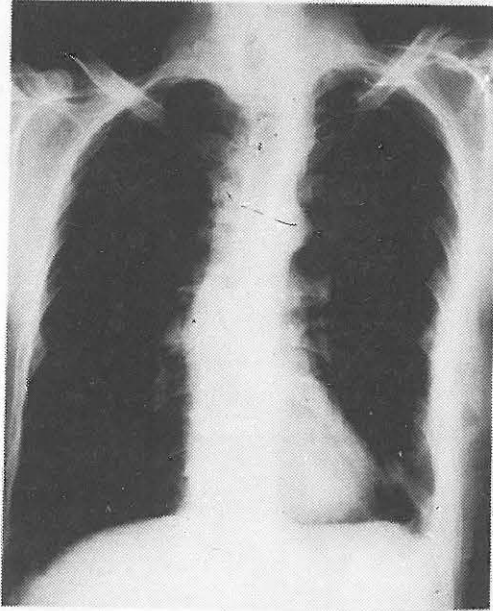


Figure 6. Roentgenogram on the ninth postoperative day

## DISCUSSION

A review of the literature takes us back to 1943, when Mazet published the first two cases (5). Sporadic case reports have subsequently recorded remarkable journeys of wires from the shoulder region, for example, to the spinal canal (1,4), to the trachea (4), to the spleen (8, 9), into the pulmonary artery (4), into the ascending (4, 7) and abdominal aorta (6), into the heart (4), into the mediastinum (3, 4), into the lung (2, 4, 5) and to the subclavian artery (4, 11). In the case was reported by Richon, one of the wires had broken and migrated within the lung then through the mediastinum into the opposite lung (10).

In the cited reports, the patients repeatedly failed to return for follow-up examination and the pins were not removed when the desired therapeutic effect had been attained (4). In some cases it has been reported that the physician did not have a record of the number of pins that had been inserted at the index of operation and thus did not recognize that one pin was missing (4). Outcome may be fatal in the cases which the pin was not removed after migration into the thoracic cavity, so such patients must be operated urgently (3, 10).

According to the reviewed reports on migration of wires after operations on the shoulder, the physicians must pay greatest attention on the following procedures (2, 3, 4, 7, 8):

1. Wires must be used with the extreme caution especially in the shoulder girdle.
2. The ends of the wires must be bent.
3. The patient should be followed-up both clinically and radiographically until all the wires are removed.
4. If follow-up radiographs show any migration of a pin or wire, it must be removed as a matter of urgency, regardless of a lack of symptoms.

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