

# What do Head and Neck Surgery and Orthopedics have in Common? An Unusual Case of Metallic Foreign Body

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## Abstract

**Introduction:** Foreign bodies in ear, nose, throat or neck are common otolaryngologic emergencies. Removal of foreign bodies from the neck usually needs surgery. Reports of foreign bodies in the neck are caused by extraluminal migration of the foreign bodies from the upper aerodigestive tract, external traumas or iatrogenic factors. In the present report; we describe an unusual foreign body: "a Schanz screw" in the neck due to orthopedic surgery performed for traumatic fragmental clavicle fracture.

**Case report:** 51-year-old male patient who was wounded in a car crash presented to an orthopedics clinic with a right fragmental clavicle fracture. There were no pathological findings in other system examinations. He had undergone surgery where his right clavicle had been fixated with a Schanz screw. After 3 months later the x-ray showed that the screw fixed the right clavicle had been displaced to the paravertebral space. Extraction was successful by unscrewing the screw along the direction of the skin of the shoulder with no immediate squeal.

**Conclusion:** This case is not only informative for the orthopaedists performing surgery for clavicle fractures but also highlights the importance of imaging and planning external approach for otorhinolaryngologists, considering extracting a metallic foreign body deep in the soft tissue of the neck.

**Keywords:** Anesthesiology; Orthopaedists; Otolaryngologic emergencies

## Introduction

Foreign bodies in ear, nose, throat or neck are common otolaryngologic emergencies. Removal of foreign bodies from the neck usually needs surgery. Reports of foreign bodies in the neck are caused by extraluminal migration of the foreign bodies from the upper aerodigestive tract, external traumas or iatrogenic factors [1]. Either penetrated or extraluminal migration of foreign bodies may cause severe vascular and suppurative complications, even death.

In the present report, we describe an unusual foreign body: "a Schanz screw" in the neck due to orthopedic surgery performed for traumatic fragmental clavicle fracture.

## Case Report

A 51-year-old male patient who was wounded in a car crash presented to an orthopedics clinic with a right fragmental clavicle fracture. There were no pathological findings in other system examinations. He had undergone surgery where his right clavicle had been fixated with a Schanz screw. In healing period no complications had occurred.

Three months later after surgery during the physical therapy, the patient complained of pain and restricted movements of the shoulder. He told that lifting his right arm up, "a sudden pain like an electric shock" had hit him. The x-ray graph showed that the screw that fixed the right clavicle had been displaced to the paravertebral space (Figure 1). Computed Tomography (CT) of the neck is reported as: 'the image of a Schanz screw is seen from clavicle to the corpus of Thoracic (T1) vertebra' (Figure 2). Screw was detected behind the main vascular structures. Fortunately, there were no major vein injuries. There were also neither neurological deficits nor hematoma in the neck due to migration of the screw. As soon as the displacement of the screw was detected, the patient was advised to restrict shoulder movements and neck was stabilised with a neck brace.

For surgical removal, we adopted a right lateral approach, and superior and inferior platysmal flaps were developed. The patient's carotid sheath was opened by retracting the sternocleidomastoid muscle posteriorly. After vagal nerve was medialised, we identified the screw in the deep cervical fascia just above the supraclavicular fossa. Extraction was successful by unscrewing the screw along the direction of the skin of the shoulder with no immediate squeal (Figure 3). The wound healed well during follow up.

## Discussion

Fractures of the clavicle are common injuries accounting for between 2.6 and 4% of adult fractures. It is most common in young adults in the second and third decades.

Clavicular injuries can grossly involve into three distinct anatomical sites; the medial clavicle, shaft and lateral end. Mid-shaft clavicle fractures are most common, with an incidence of up to 82% of all clavicle fractures. The location and pattern of injury are of considerable importance when formulating a management plan. The majority of clavicle fractures are treated non-operatively with good outcomes [1-4]. Recently there has been a trend towards an increased rate of operative intervention, particularly in lateral-shaft fractures as in our case.

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Figure 1: Computed tomography images of foreign body.



Figure 2: The foreign body (Schanz screw) is taken out of the neck.

There exist various technical challenges for the operating surgeon and variable clinical results for different kind of treatment methods. For the intramedullary fixation of the clavicle Knowles pins, Rockwood pins, Hagie pins or titanium elastic nails have been used [5-8]. In the present report, clavicular fracture was treated with intramedullary fixation using a Schanz screw.

Because of the sigmoid shape of the clavicle, intramedullary fixation of fractures has been described as 'traditionally difficult' in literature. Due to wide range of devices for intramedullary fixation of the clavicle including pins and nails, clinical results of intramedullary fixation have been varied. However, complications such as hardware breaks, nerve injury and skin breakdown have been reported as well as hardware migration. Injury of infraclavicular structures such as subclavian artery laceration due to migration of Hagie pin has been reported [9]. To our knowledge, this is the first case of injury to supraclavicular structures. Fortunately, there was no nerve injury or vein damage in our case.

Migrating foreign bodies into the soft tissue of the neck may remain quiescent or may cause life threatening suppurative or vascular complications such as retropharyngeal and parapharyngeal abscess, carotid rupture, penetration of facial artery. Foreign bodies can

be found in the neck as a result of ingestion, trauma and iatrogenic interventions [1]. The mechanisms of migration include extraluminal migration and direct penetration.

Management involves exploration and removal of the migrated foreign body of the neck via an external approach to prevent life threatening complications. A preoperative CT scan of the neck with fine 1 mm cuts must be done to predict the exact location of the foreign body [10]. However, it should be kept in mind that the position of the neck during CT scan and surgery may not be the same because soft tissues of the neck are mobile in relation to the bony and cartilaginous structures so as the position of the foreign body. In our case because of the neck was extended during surgery, the foreign body was found deeper than what was seen on CT scan [11]. Exploration of the neck to locate the foreign body can sometimes be a frustrating experience for the surgeon as was completely true in this case. The surrounding soft tissues of the screw, the localization of major veins, arteries and nerves should carefully be discussed before surgery. In our case fortunately no major veins, arteries or nerve damage occurred.

## Conclusion

A migrating foreign body can be found anywhere in the neck. Regarding the aetiology surgeons always should be careful about the procedure to be performed. A careful and systematic approach during exploration of the neck is needed. The anatomical relationship of the nerves, major veins, carotid sheath and prevertebral spaces has to be kept in mind to prevent postoperative complications. This case is not only informative for the orthopaedists performing surgery for clavicle fractures but also highlights the importance of imaging and planning external approach for otorhinolaryngologists, considering extracting a metallic foreign body deep in the soft tissue of the neck.



Figure 3: Extraction was successful by unscrewing the screw along the direction of the skin of the shoulder with no immediate squeal.

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