A Rare Case Report of Impacted Foreign Body (Sewing Needle) in Upper Neck

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Abstract

The Rationale: A 19-year-old female presented to the Otorhinolaryngology Department. **Patient Concerns:** Pain over the right side of the neck below the angle of the mandible following a fall on a pin cushion after a fight with her brother. She reported that the wound might have been caused by a sewing needle lodged in the pin cushion. **Diagnosis:** X-ray soft-tissue neck lateral view revealed a radiopaque linear shadow on the right side of the neck at the level of the C1-C2 vertebrae. On contrast-enhanced computed tomography, a linear (needle-like) foreign body at the level of C1-C2 was approximately 1.6 cm deep from the skin. The internal jugular vein seemed to be compressed between the needle and vertebrae. **Treatment:** Foreign body was explored and removed under general anaesthesia by an open lateral cervical approach. **Outcomes:** The patient's postoperative recovery was uneventful. **Take-away Lesson:** Due to early diagnosis, management, and a team of experienced surgeons, anaesthesiologists, and support staff, any morbidity or mortality was avoided.

Keywords: Cervical vertebra, foreign body, internal jugular vein, lateral cervical approach

Introduction

The range of trauma mechanisms includes direct penetration, inhalation, and swallowing.[1,2] Penetrating neck injuries require emergency treatment. Foreign body injuries carry a risk of acute and potentially life-threatening complications such as bleeding, airway compromise, and neurovascular injury.[3] A sharp foreign body in the neck produces diagnostic and therapeutic challenges as it may have penetrated deep near vital structures in the neck. Dense materials such as metal, glass, or stone are clearly depicted in x-rays. Furthermore, a three-dimensional computed tomography (CT) database can be used with intraoperative navigation systems to facilitate surgical removal.[4] We present a case report of a foreign body (sewing needle) that was found at a potentially dangerous site compressing the internal jugular vein (IJV), with a relevant review of the literature.

Case Report

A 19-year-old female was brought to the otorhinolaryngology department of our hospital.

Patient concerns

The patient had a history of pain over the right side of the neck below the angle of the mandible following a fall on a pin cushion after a fight with her brother 1 day back. She could not describe the details of this injury but reported that the wound might have been caused by a sewing needle lodged in the pin cushion. The patient had no significant past medical history. On examination, the patient was conscious and orientated to time, place, and person. She was haemodynamically stable, without any focal neurological involvement. Clinical examination revealed an abrasion (4 mm × 3 mm) about 2 cm below the mandibular body margin at the anterior border of the sternocleidomastoid muscle [Figure 1]. Clinically, tenderness was present around the wound site.

Diagnostic acquired immunodeficiency syndrome

A plain radiograph neck lateral view showed a radiopaque linear shadow on the right side of the neck at the level of the C1-C2 vertebrae. The two marker pins with heads are the artifacts in the radiograph [Figure 2a]. Contrast-enhanced CT

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scan neck showed a linear (needle-like) radiopaque shadow at the level of C1-C2 cervical vertebrae with craniomedial angulation approximately 1.6 cm deep from the skin. It was seen traversing just anterior to the sternocleidomastoid muscle and probably piercing through/posterior to the deep lobe of the parotid gland, involving the posterior belly of the digastric muscle. At the level of the tip of the right transverse process of C1, it was crossing anterior to the IJV and compressing the IJV between the needle and the vertebrae. There was no evidence of haematoma and carotid vessels appeared normal [Figure 2b].

Treatment

The patient was admitted to the ward preemptive of an urgent surgical exploration of the foreign body under general anaesthesia by an open lateral cervical approach. Multiple C-arm X-rays were done to locate and confirm the site of the foreign body intraoperatively [Figure 2c]. An approximate 3 cm incision was made 2 finger-widths below the angle of the mandible at the level of the anterior margin of the sternocleidomastoid muscle on the right side, after confirming with the C-arm X-ray [Figure 3]. Skin and subcutaneous tissues were dissected and retracted. The sternocleidomastoid muscle was retracted posterolaterally and the posterior belly of digastric muscle superiorly. Digital palpation was done to ensure the correct site of impaction. There was no haematoma collection at the operative site. The foreign body (sewing needle) was found to be embedded in the soft-tissue approximately 1.6 cm deep to the skin lying in juxtaposition with the IJV, piercing its adventitia, though the lumen was not entered [Figure 4]. There was no damage to any vascular structures. The foreign body was removed carefully [Figure 5]. A small corrugated drain was kept in position. The neck wound was closed in layers.

Figure 1: Abrasion wound of 4 mm × 3 mm (black arrow)

Outcomes

The patient's postoperative recovery was uneventful. Sutures were removed after 1 week of antibiotic treatment and the patient was discharged.

Follow-Up

The patient followed up one week after discharge from the hospital in the outpatient department. She had a healthy incision site, no pain or tenderness at the incision site.

Discussion

Anatomically, the neck can be divided into three major zones; Zone I (below the level of cricoid cartilage), Zone II (area between the cricoid cartilage and angle of mandible), and Zone III (area above the level of the angle of mandible). Among these, injuries to anatomic Zone II are the most common, constituting about 42% of the neck injuries. This zone contains the internal and external carotid arteries, jugular veins, pharynx, larynx, oesophagus, recurrent laryngeal nerve, spinal cord, trachea, thyroid, and parathyroid.

In our present case, there was an injury in anatomic Zone II. The foreign body (sewing needle) was embedded at the level of the C1 and C2 cervical vertebrae with close proximity to IJV, piercing its adventitia but leaving the lumen intact. There was no damage to the internal carotid artery lying just anterior to the transverse process of the C1 and C2 vertebrae. There were no signs of injury to cranial nerves IX, X, and XI, lying in front of the C1 and C2 vertebrae. During dissection, the hypoglossal nerve was identified medial to the posterior belly of the digastric muscle.

The diagnosis of foreign bodies is challenging, especially in cases where the object is embedded in the soft tissue. A detailed medical history and clinical examination are important. This is particularly important for small foreign bodies, for which soft-tissue examination is essential for the detection and removal of the object.

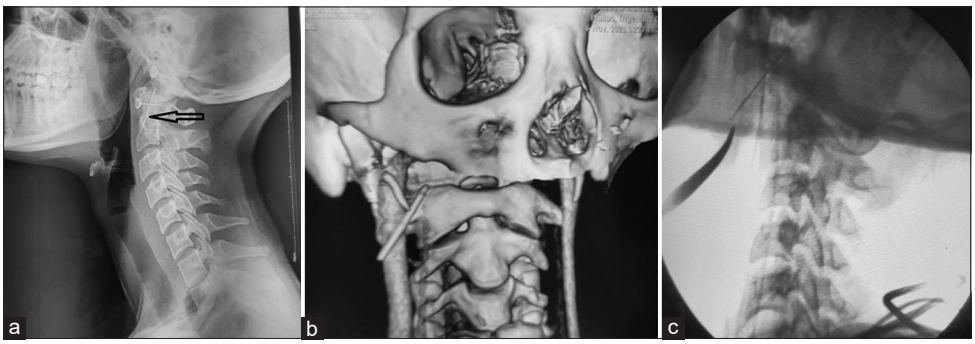

Figure 2: (a) Plain radiograph neck lateral view showing radiopaque linear shadow at C1-C2 vertebra level (black arrow), (b) Contrast-enhanced CT scan neck (3D reconstruction) showing close proximity of vital structures to the radiopaque linear foreign body, (c) C-arm X-ray confirms the site of foreign body intraoperatively

Figure 3: Intraoperative marking of anatomical landmarks

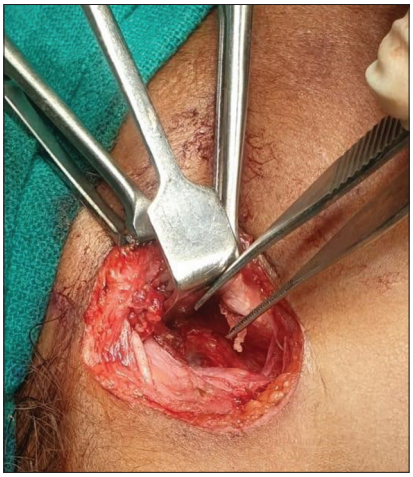

Figure 4: Neck dissection under GA to remove the foreign body

Figure 5: A 2.8 cm long needle removed after dissection

Foreign objects are generally hyperechoic; reverberation artifacts may therefore provide further clues about their presence and can be enhanced with Doppler imaging.[5] In superficial wounds, ultrasound scans offer a favourable alternative to plain radiographs.[6] Because ferromagnetic materials (primarily iron and steel alloys) are invariably radiopaque, it is advisable to perform X-ray or CT imaging before magnetic resonance imaging to rule out the occurrence of metallic foreign bodies.[7]

In penetrating injuries, severe complications are rare; although morbidity and mortality have been reported. Carotid artery damage, neurological sequelae due to thrombosis, airway obstructions, sepsis, shock, cervical emphysema, and pneumothorax are severe potential complications.

Conclusion

A rare case of foreign body in the upper neck has been described. Although the radiological examination is useful in localising the foreign body, difficulty may arise in removing the foreign body when it is not palpable or embedded deep into vital structures. The exact location of the foreign body and the damage caused to surrounding structures in such cases can be decided only by an open approach. An open surgical approach in such cases can be life-threatening with high morbidity due to the extensive dissection and the proximity to vital structures.

In this case, although the foreign body was impacted deep into the neck, no vital structures were damaged. Due to early diagnosis, management, and a team of experienced surgeons, anaesthesiologists, and support staff, morbidity or mortality was avoided.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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