

## Penetrating foreign body in the neck with traversing up to spinous process: An unusual case report

**Harendra Kumar Gautam**

From Department of Otorhinolaryngology (ENT), GSVM Medical College, Kanpur, Uttar Pradesh, India

**Correspondence to:** Harendra Kumar Gautam, GSVM Medical College, Kanpur, Uttar Pradesh, India.

E-mail: harendragautam34@yahoo.in

Received - 03 July 2017

Initial Review - 28 September 2017

Published Online - 31 October 2017

### ABSTRACT

Penetrating neck injuries are potentially dangerous and necessitate emergency treatment. Early diagnosis and removal of a foreign body is imperative to prevent further complications. We report a case of an 11-year-old male who presented to the otolaryngology department with the history of penetrating neck injury with a metallic wire. On examination, a foreign body in the left side of the neck at the level of hyoid bone was found. On contrast-enhanced computed tomography, a metallic linear foreign body in the left side of the neck was seen passing obliquely at the level of hyoid bone into muscle plane and was traversing up to posterior spinous process. The foreign body was explored and removed under general anesthesia by an open lateral cervical approach. The patient's post-operative recovery was uneventful. An open surgical approach in cases of sharp metallic foreign bodies impacted deep in the neck can be life-threatening with high morbidity due to the extensive dissection required and the proximity to vital structures.

**Key words:** *Foreign body, Spinous process, lateral cervical approach*

Penetrating neck injuries are potentially dangerous and necessitate emergency treatment. The overall mortality of penetrating neck injuries is at the rate of 9% [1]. Early diagnosis and removal of a foreign body is imperative to prevent further complications. A sharp foreign body in the neck poses diagnostic and therapeutic challenges when it has penetrated deep near the vital structures in the neck. We present a case report of a metallic foreign body that was found to be present lateral to the carotid sheath, with the relevant review of the literature.

### CASE REPORT

An 11-year-old male was brought to the otolaryngology department of our hospital (a tertiary care center in Kanpur) with the history of metallic foreign body (wire) and pain around foreign body in the left side of the neck. The patient had no significant past medical history. On examination, the patient was conscious and orientated to time, place, and person. He was hemodynamically stable, without any focal neurological involvement. Clinical examination revealed metallic wire penetrating in the left side of the neck at the level of hyoid bone approximate 2.5 cm below the angle of the mandible and just lateral to anterior margin of sternocleidomastoid muscle. Clinically, tenderness was present around the foreign body (Fig. 1). A plain radiograph showed a foreign body in the left side of the neck at the level of hyoid reaching up to spinous process (Fig. 2).

Contrast-enhanced CT scan showed a metallic linear foreign body in the left side of neck passing obliquely at the level of

hyoid bone into muscle plane and was traversing up to posterior spinous process. The distance between metallic rod and carotid space was approximately 11 mm. The involved muscles were left sternocleidomastoid, levator scapulae and selenium capitis (Figs. 3-5). A rigid Hopkins endoscopy showed congestion in the region of the vallecula, with no foreign body (FB) visible in the pharyngeal wall.

The patient was admitted to the ward preemptive of an urgent surgical exploration of the foreign body under general anesthesia by an open lateral cervical approach. An approximate 5 cm oblique incision was made from the hyoid bone to the lateral-to-anterior margin of the sternocleidomastoid muscle and below approximate 2.5 cm of the left side of the lower margin of the mandible. Skin and subcutaneous tissues were cut and retracted to either side. Sternocleidomastoid muscle retracted laterally and the lateral pharyngeal wall was exposed. On neck exploration, the foreign body (a metallic wire) was found to be embedded in the soft tissue just lateral to the carotid sheath and was reaching up to the posterior spinous process of cervical vertebra (Fig. 6). There was no damage to any vascular structures. A 10 cm segment of a metallic wire was successfully retrieved (Fig. 7). The neck wound was closed in layers. The patient's post-operative recovery was uneventful.

### DISCUSSION

Anatomically, the neck can be divided into three major zones; Zone I (below the level of cricoid cartilage), Zone II (the area



Figure 1: Clinical photograph of foreign body (metallic wire)

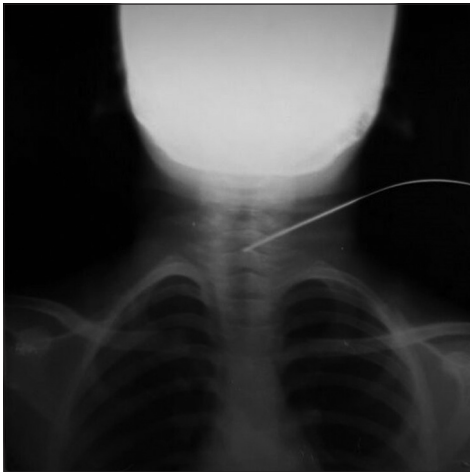


Figure 2: Radiograph showing metallic wire in the neck



Figure 3: CT image showing foreign body in the neck

between the cricoid cartilage and angle of the mandible), and Zone III (area above the level of angle of mandible). Of these, injuries to anatomic Zone II are the most frequently occurring, representing about 42% of the neck injuries [2]. This zone contains the internal and external carotid arteries, jugular veins, pharynx, larynx, esophagus, recurrent laryngeal nerve, spinal cord, trachea, thyroid, and parathyroid.



Figure 4: CT (Coronal) metallic wire in the left side of neck



Figure 5: CT (Axial) foreign body traversing up to spinous process



Figure 6: Intraoperative photograph

In penetrating injuries, severe complications are rare; although morbidity and mortality have resulted in some cases [3]. Carotid artery damage, neurological sequelae due to thrombosis, airway obstructions, sepsis, shock, cervical emphysema, and pneumothorax are severe potential complications [4,5]. Soft tissue injuries to the head and neck are very common presentation. Despite the high prevalence of soft tissue trauma in the UK,

penetrating injuries resulting in the impaction of foreign bodies in this region appear to be very uncommon [6]. When they occur, it is usually secondary to a gunshot or knife wound. Hersman et al., [1] in a retrospective study reported an overall mortality rate of 9% for the penetrating injury of the neck. They highlighted the difficulties in accurate evaluation of penetrating neck injuries, particularly in the presence of the other associated injuries.

The request for further investigation is obviously dependent on clinical observations and history given by the patient. In practice, a significant number of patients have variable levels of consciousness, and therefore, the history provided is often unavailable or unreliable in these cases, and greater emphasis is placed on the physical signs. The most commonly used tool for the foreign body identification is radiography of the soft tissues of the neck. However, images of the foreign body and calcified cartilage of the upper airway may overlap, making location of the foreign body difficult. Thus, radiographs lack sensitivity in diagnosis [7]. CT scan of the neck with fine 1 mm cuts is the investigation of choice to predict the exact location of the foreign body and its relationship to the vital structures in the neck [8]. Direct laryngoscopy may be done for confirmation. A finding of edema, laceration, or ulceration on direct laryngoscopy should raise the level of suspicion of a penetrating foreign body. Penetrating neck wounds are potentially dangerous and require emergency management because of the presence of vital structures in the neck. Organic foreign bodies further carry a risk of wound infection. Fogelman and Stewart [9] reported a mortality rate of 6% with prompt exploration compared to 35% in cases with delayed or omitted operation.

## CONCLUSION

An unusual case of metallic foreign body in the neck has been described. Although radiological examination is useful in localizing

the foreign body, difficulty may arise in retrieving the foreign body when it is not palpable or embedded deep into the vital structure. An open surgical approach in cases of sharp metallic foreign bodies impacted deep in the neck can be life-threatening with high morbidity due to the extensive dissection required and the proximity to vital structures. An experienced team of otolaryngologists, anesthetists, and support staff is essential for these cases.

## REFERENCES

1. Hersman G, Barker P, Bowley DM, Boffard KD. The management of penetrating neck injuries. *Int Surg.* 2001;86(2):82-9.
2. Wood J, Fabian TC, Mangiante EC. Penetrating neck injuries: Recommendation for selective management. *J Trauma.* 1989;29(5):602-5.
3. Kosaki H, Nakamura N, Toriyama Y. Penetrating injuries to the oropharynx. *J Laryngol Otol.* 1992;106(9):813-6.
4. Patel N, McVeigh K, Sharma P, Parmer S. An impalement injury to the oropharynx in a paediatric patient-A case report. *Br J Oral Maxillofac Surg.* 2011;49(5):e12-3.
5. Sasaki T, Toriumi S, Asakage T, Kaga K, Yamaguchi D, Yahagi N. The toothbrush: A rare but potentially life-threatening cause of penetrating oropharyngeal trauma in children. *Pediatrics.* 2006;118(4):e1284-6.
6. Khan MS, Kirkland PM, Kumar R. Migrating foreign body in the tracheobronchial tree: An unusual case of firework penetrating neck injury. *J Laryngol Otol.* 2002;116(2):148-9.
7. Sreetharan SS, Prepageran N, Satwant S. Unusual migratory foreign body in the neck. *Singapore Med J.* 2004;45(10):487-8.
8. Chung SM, Kim HS, Park EH. Migrating pharyngeal foreign bodies: A series of four cases of saw-toothed fish bones. *Eur Arch Otorhinolaryngol.* 2008;265(9):1125-9.
9. Fogelman MJ, Stewart RD. Penetrating wound of the neck. *Am J Surg* 1956;91:581.

*Funding: None; Conflict of Interest: None Stated.*

**How to cite this article:** Gautam HK. Penetrating foreign body in the neck with traversing up to spinous process: An unusual case report. *Indian J Case Reports.* 2017;3(4):255-257.