

Unusual Penetrating Flying Foreign Body (Iron Piece)-A Case Report



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Abstract

Penetrating neck injuries constitute 5-10% of all injuries with high morbidity and mortality. The presence of numerous vital structures like blood vessels, trachea, oesophagus and nerves enclosed by muscle layers and cartilages makes it a vulnerable region to injury with dire consequences. Here we presented a case report of penetrating flying foreign body into the neck while working with stones in a 32year old male.

Keywords: Laryngeal trauma; Thyroid; Sternothyroid; Cricoid

Introduction

Laryngeal traumas are classified into blunt or penetrating neck injury. Blunt trauma has features of laryngeal edema, hematoma, and mucosal tears whereas penetrating injury have cartilage fracture, dislocation or laryngotracheal separation. Prompt and

immediate care should be provided for stabilizing the airway, cervical spine and to prevent late complications like stenosis. It is very rare for the foreign body to pierce the structures and embed over vascular organs (Figure 1).



Figure 1: Showing external entry point of the foreign body between the lower border of thyroid cartilage (blue line) and lower border of the cricoid cartilage (red line); black line denotes anterior border of the sternocleidomastoid.

Case History

A 32-year-old male with no known comorbidities referred from an outside hospital to our Institute with a one-day history of foreign body neck on the right side. He is working as a labourer (stone sculptor). He gave the history of the entry of small iron piece into the right side of the neck while working. There was a history of bleeding from the entry site and minimal pain during swallowing. There were no complaints of hoarseness, dysphagia

or dyspnea. The patient was not having stridor at the time of examination. On examination, a pinpoint entry site of size 0.5*0.5 cm was noted on the lower third of the right side of the neck at the level of the cricoid cartilage. Tenderness and redness were present but there was no obvious swelling at that site. Chest X-ray and X-ray Soft tissue neck showed a radio dense foreign body on the right-side lateral to the trachea (Figure 2a & 2b). Non-contrast computed tomography showed a hyper intense foreign body at the level of the thyroid gland on the right side.

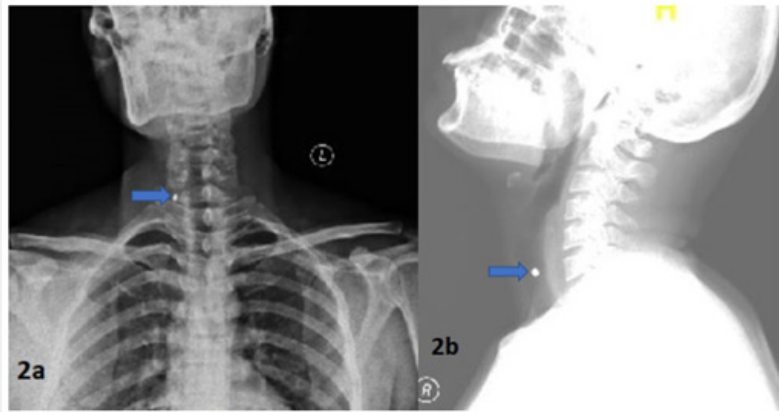


Figure 2: Showing radio dense foreign body (blue arrowhead) on chest X ray anterior view in right paratracheal region (a) and X ray soft tissue neck lateral view (b).

The patient was planned for neck exploration under general anaesthesia. A horizontal incision was made along with the entry site from midline till the anterior border of the sternocleidomastoid on the right side. Layers dissected and retracted. Sternohyoid followed by sternothyroid were retracted

laterally. The laryngotracheal framework was delineated from thyroid cartilage to trachea. A foreign body was found embedded at the level of the superior pole of the thyroid gland and removed (Figure 3) Haemostasis achieved. Wound closed in two layers with a neck drain. The postoperative period was uneventful.

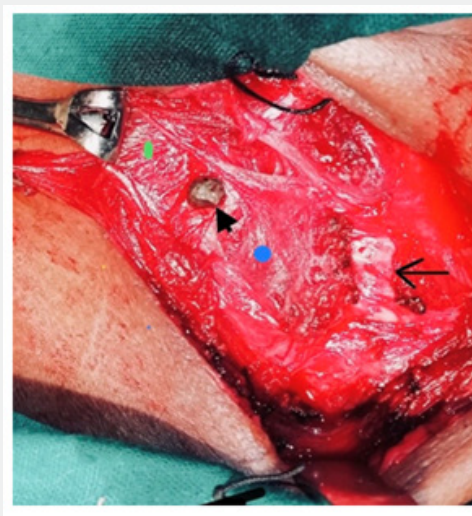


Figure 3: Showing foreign body (black arrow-headed) at the level of the superior pole of the thyroid gland on right side (blue dot) after retracting sternothyroid muscle (green dot); trachea in the midline (black arrow).

Discussion

Foreign body aero digestive tract is commonly encountered by Otolaryngologists. But the accidental entry of foreign bodies into the neck while working is not so common. It was common during wartimes with shrapnel, iron filings and projectiles [1]. Nowadays, it is more common during accidents, medical implants, ingestion or migrating foreign bodies. For the penetrating neck injuries, the foreign body must pierce the skin, subcutaneous tissue, platysma, strap muscles to get embedded over the thyroid gland, trachea, or vascular structures. Assessment of the site and size of the foreign body is very important in deciding the approach for removal of the foreign body.

The neck is divided into three anatomical zones [2]:

- a. Zone 1-between the sternal notch and the cricoid cartilage.
- b. Zone 2-between the cricoid cartilage and the mandibular angle.
- c. Zone 3-between the mandibular angle and the skull base.

Zone 2 injuries are common accounting for 48% of neck injuries that require emergency neck exploration. Our patient also had the injury at zone 2.

As the neck has specific anatomy with important vascular and visceral structures, surgery is an emergency procedure [3]. Emergency neck exploration is needed as it may migrate into the airway, vascular structures or esophagus leading into an abscess or life-threatening complications. X-ray soft tissue neck may show the foreign body, but the exact location cannot be made. Computed tomography with thin cuts is the investigation of choice [4]. But it also has its drawbacks. The reason behind this is due to the mobility of soft tissues with bony and cartilaginous structures. So, at the time of surgery, the location of a foreign body may be at different sites [5]. Also, there may be overlapping images of calcified cartilages of the upper airway and foreign body [6]. Intraoperative radiographs may be useful in case of a foreign body getting embedded into the muscles [7].

The location of the foreign body during surgery may be at different sites as in our case. This is because soft tissues of the neck are mobile and neck extension during surgery. So, it may be found at either higher or lower level [7]. So, during surgery, the entire laryngotracheal framework should be delineated for the

proper location of the foreign body. Dissection should be done meticulously to avoid injury to nerves and vessels. If a foreign body is left untreated, it may pierce through muscles and enter into the Carotid or Internal jugular vein resulting in a carotid blow out or rupture or complications like aorto-esophageal or innominate artery fistula [8]; the oesophageal entry may lead into perioesophagitis or perforation; it may lead to suppurations complications like thyroid abscess, parapharyngeal or retropharyngeal abscess and mediastinitis [9].

Conclusion

Penetrating foreign bodies of the neck should be given utmost importance because of its inadvertent entry resulting in complications. A careful and systematic approach is needed for neck exploration via an external approach to avoid unsuccessful exploration.

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