CASE REPORT

Wooden foreign body neck: A diagnostic dilemma

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INTRODUCTION

There are various modes of foreign bodies in the body. It can be inhaled, ingested, and inserted into the body. The same can be inside the body by iatrogenic cause or traumatic injury. The penetrating foreign bodies in the neck have special circumstances due to vital structures.[1,2] The wooden foreign bodies present difficulty in both diagnosis and management. Difficulty in diagnosis may be due to its non-visibility in the initial computerized tomography scan and its easy fragility and infectious nature cause challenges in the management.[3] The early wound exploration and debridement with proper antimicrobial coverage are the mainstay in curtailing morbidity and mortality. However, the overall mortality is very low ranging from 0 to 11%.[5]

CASE REPORT

A 26-year-old male patient was referred to the outpatient department with two discharging sinuses with mild pain, one below chin and one below the left infra-auricular region for 4 months. He had a history of road traffic accident 4 months back with small lacerated wound below chin, for which he was being treated conservatively without any improvement. On neck exploration, 6.5 cm long wooden piece was removed carefully due to close proximity to major vessels at its lateral end without any intraoperative complication. This case is described here because strong suspicion is must to rule out neglected foreign body if there is a history of road traffic accident.

KEY WORDS: Penetrating injury, road traffic accident, wooden foreign body

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hard and firmly adhered to deeper structure which was removed [Figures 3 and 4]. During the removal of submandibular gland, a horizontally placed 6.5 cm long wooden piece was felt which was removed carefully due to close proximity to major vessels at its lateral end without any intraoperative complication [Figure 5]. Post-operative and 1-month follow-up period were uneventful [Figure 6].

**DISCUSSION**

Foreign bodies in the neck pose a threat the life of a patient and the severity depends on the type, size, and location of the foreign body in the neck and very important is the trajectory of the foreign body. Penetrating injury of the neck with wooden stick as the foreign body poses a diagnostic and therapeutic dilemma.

Anatomy of neck is very complex and it contains so much vital structures. The aggregation of vital structures located in a small area make them more vulnerable for damage, leading to serious and life-threatening consequences in any penetrating injury. Thorough knowledge of neck anatomy, physical assessment and current recommendations for diagnostic and therapeutic interventions are necessary for appropriate management. In the present case, as there was no radiological evidence of any major vascular injury nor any structural damage in the neck and thorax so we proceeded with the exploration of the neck. There was fibrosis of submandibular gland; thus, the gland was removed. Medical line of treatment included intravenous antibiotic coverage of Gram-positive and negative as well as anaerobic bacteria along with anti-inflammatory drugs and prophylaxis of tetanus.
Applied Anatomy of the Neck

Neck is anatomically divided into three zones, running from the inferior to the superior. Zone I is the horizontal area between the suprasternal notch and the cricoid cartilage. The proximal common carotid, vertebral, and subclavian arteries and the trachea, esophagus, thoracic duct, and thymus are located in Zone I. Zone II is the area between the cricoid cartilage and angle of the mandible. It contains the internal and external carotid arteries, jugular veins, pharynx, larynx, esophagus, recurrent laryngeal nerve, spinal cord, thyroid parathyroid glands, and trachea. Zone III is the area between angle of mandible and base of skull. It contains distal extracranial carotid and the vertebral arteries and the uppermost segments of the jugular veins.[7] In this case, the injuries were confined between the angle of mandible and cricoid cartilage, Zone II without damaging major vessels as well as the aerodigestive tract.

Pathophysiology of Penetrating Neck Injuries

The depth and nature of the injury are determined by the kinetic energy delivered by object itself or by the subject. In most of the cases, metal, broken glass was the common object causing penetrating foreign body in the neck. Though a number of cases have been reported on the penetration injury by a wooden piece in the head and neck region but in the present case, the foreign body (wooden piece) penetrated in the neck during road traffic accident and the patient was unaware of this. The direction of kinetic force and the axis of weight transmission during impact are the major factors in determining the manner of foreign body transmission and the amount of tissue damage.[7]

Features of Wooden Foreign Body

The wooden foreign bodies are dirty and infectious because the organic material provides good culture conditions for Gram-positive and Gram-negative bacteria to grow, which may cause abscess formation. The vascular injuries are easily determined by hard signs, such as absent pulses, arterial bleeding, expanding hematomas, vascular thrills, bruist or frank ischemic changes which are present. Arterial angiography and color Doppler are an important tool in diagnosing vascular injury in the case of penetrating neck injury. Other diagnostic modalities such as contrast-enhanced CT scan, color Doppler ultrasonography, and magnetic resonance angiography can also help us in providing valuable information regarding injury to the vital structures like major vessels.[9] The particular challenge faced in case of wooden foreign bodies in neck is the evaluation in the depth and amount of tissue trauma. These wooden foreign bodies present a hypodense image mimicking air bubbles on CT scan as it was seen in the present case and leads to a diagnostic dilemma. This later at 3 months appeared much denser on CT due to absorption of water from the surrounding tissue.[9]

Prognosis

Vascular injury accounts for 25% of the complications with a mortality rate of around 50%. Tracheobronchial injuries cause a mortality rate as high as 20% and are observed in <20% of cases. The present case is interesting because it was treated as infected sinus tract. The wooden stick penetrated in the neck during road traffic accident and was not visible. It crossed the neck without damaging mandible and other vital structures of the neck including major vessels as was detected by the CT of the neck. An early exploration of the wound is essential to prevent various complications, thereby reducing the morbidity.

CONCLUSION

The presence of many vital structures in the neck makes penetrating foreign body in the neck a potentially life-threatening condition and may suddenly lead to crises.

Timely intervention helps in minimizing mortality and morbidity by the help of different modality of treatment. However, close evaluation of the patient is foremost and helps in deciding the modality of treatment from diverse management protocols available. Clinician should strongly suspect neglected foreign bodies in all cases of road traffic accidents. Wooden foreign bodies require early exploration and removal, which also reduce the chances of wound infection.

REFERENCES

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