



A Rare and Challenging Case : Trident Injury to the Neck

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ABSTRACT

Introduction

Penetrating neck trauma though rare (5-10 % of all trauma cases) carries a high degree of morbidity and mortality. They not only pose a challenge to the surgical team but also to the anesthesia team with respect to securing the airway and induction of general anesthesia.

Case Report

We report a case of a 9 year old male child who presented with penetrating neck trauma with a metallic trident. Clinically the child was stable and had no signs and symptoms of potential neurovascular injury. X-ray examination of the neck in antero-posterior and lateral views revealed that the trident had missed the vascular structures of the neck and the spine. Surgical removal of the metallic trident was planned after proper informed consent. Patient was intubated in lateral decubitus and the metallic trident was successfully removed from the neck in retrograde manner along the path of entry after incising along the entry wound to dislodge the foreign body from the submuscular plane.

Conclusion

Exclusion of neurovascular injury in penetrating neck trauma is of utmost importance in selection of imaging modality for the specific case. Multi-disciplinary team approach is desirable in selected cases with an experienced anesthesia team well versed in lateral decubitus intubation, videolaryngoscopy and flexible fiberoptic bronchoscopic intubation.

Keywords

Penetrating Neck Trauma; Foreign Body; General Anesthesia

Among all trauma cases, 5-10% are constituted by penetrating neck injuries.¹ Injury by different penetrating foreign bodies to the head neck region are rare and carries a high degree of morbidity and mortality.^{2,3} The neck is a vital region of the human body as a large number of neurovascular structures are concentrated in a limit space. Penetrating trauma to the neck not only pose challenge to the surgical team with respect to the structures involved but also to the anesthesia team with respect to securing the airway and induction of general anesthesia.

Case Report

A 9 year old boy attended the trauma centre with history of alleged accidental penetrating trauma to the posterior aspect of the neck with a metallic trident (Trishul) (Figure 1).

On arrival, patient's vital signs were stable and the child was conscious, alert and co-operative with complaint of neck pain. Physical examination revealed that 1 metallic spike of the trident had passed through and through the posterior aspect of the neck of the patient, clinically through the subcutaneous and submuscular plane in a right to left direction of trajectory. No sensory or motor neurodeficit was found and there was no active bleeding noted from the entry and exit wound. X-ray examination was done in antero-posterior (AP) and Lateral view and

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Fig. 1. Metallic trident lodged in the posterior aspect of the neck with trajectory from right to left direction

it was found that the metallic trident had narrowly missed the vascular corridor of the neck as well as the spine (Figure 2 & 3).

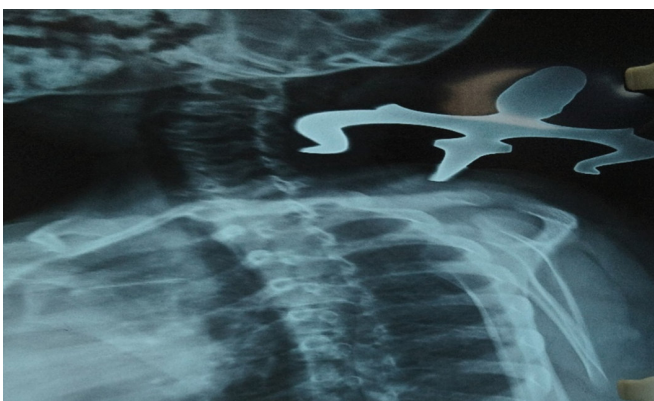
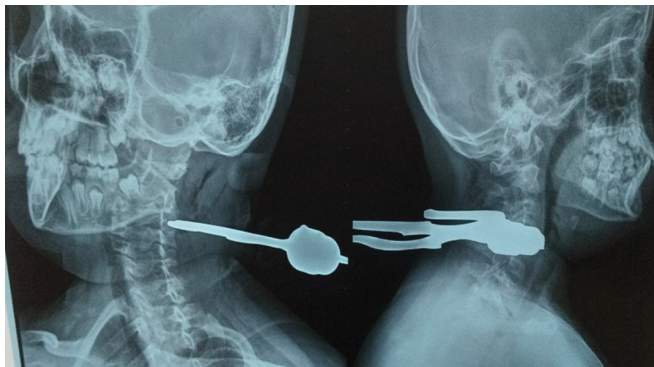


Fig. 2 & 3. Radiographs in anteroposterior and lateral views demonstrating the position of the metallic trident

The child was posted for surgery for removal of the metallic trident under General Anesthesia (GA) after Informed Consent. A Difficult Airway Cart was kept ready along with a Laryngeal Mask Airway, Videolaryngoscope and Fibre-optic bronchoscope. Intubation of the child was done in lateral decubitus after positioning the head on a head rim with proper shoulder support with roller bandage while an assistant was keeping the head and the trident in steady position with a Macintosh Laryngoscope (Figure 4).



Fig. 4. Intubation done in lateral decubitus with adequate support to head, neck and torso



Fig. 5 & 6. Entry wound just before closure after placement of corrugated rubber drain and the metallic trident after removal

Incision was made at the entry wound along the path of the trajectory to dislodge the metallic foreign body. After sufficient dislodgement the metallic object could be

successfully removed in a retrograde manner along the path of entry itself (Figure 5 & 6).

Soft tissue repair was done with 2-0 absorbable polygalactin suture and skin was sutured with 2-0 non-absorbable monofilament polyamide suture after placing of corrugated rubber drain. Child was successfully extubated and post-operative recovery was uneventful. The patient was discharged after 7 days.

Discussion

Neck injury by penetrating metallic foreign body should be done in a systematic manner comprising of Clinical, radiological and anaesthetic assessment. Vascular injury to be assessed at the earliest. The physical findings of vascular injury are pulse deficit, active bleeding, expanding hematoma, bruit, murmur, neuralgic deficit or hypotension.⁴ If vascular injury is suspected, CT Angiography forms an essential part of pre-operative assessment.⁵ In our case, no red flag signs of neurovascular injury was found and so X ray examination was the only investigation done considering the cost-benefit ratio. Induction of GA was a challenging task on part of the anesthetist team as the patient couldn't be positioned in supine position on the operating table considering the site of injury. Intubation in lateral decubitus is a very effective method to secure the airway and induction and maintenance of anesthesia in such situations.⁶

Conclusion

Penetrating Neck trauma is not so common in day to day practice but can have devastating consequences. Early

diagnosis of neurovascular injury is of utmost importance in proper planning of selection of imaging modality for the specific patients. Surgical intervention to be done in a multi-disciplinary approach and vascular surgeons, neurosurgeons should be included in the team as back up if indicated to avoid on table catastrophe. Anesthesia team should be well versed with intubation in lateral decubitus and other methods like videolaryngoscopy, flexible fibreoptic bronchoscopy for such cases of penetrating neck trauma where neck movement is restricted and patient positioning is difficult.

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