An unusual location of metallic foreign body in the submandibular gland from penetrating Neck injury: Case report

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Abstract

Penetrating injuries caused by sharp metallic objects constitutes a major proportions of all lacerations observed in the emergency department. All penetrating neck injuries are potentially dangerous and necessitate emergency treatment. Early diagnosis and removal of foreign body is imperative to prevent further complications. We report a rare case of metallic foreign body implanted deep in the submandibular gland caused by penetrating neck injury. The unusual location and difficulties in diagnosis and retrieval of these small foreign bodies in the neck merits discussion.

Key words: metallic foreign body, submandibular gland, neck injury

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Introduction

Penetrating injuries caused by sharp metallic objects constitutes a major proportions of all lacerations observed in the emergency department.[1] Detection and retrieval of metallic foreign body from the neck may be challenging especially when the size of the fragment is small and digitally not palpable. Detection of foreign metallic objects may be facilitated by various investigative techniques, which includes plain radiography, xerography, ultrasonography, computed tomography, and metal detectors.[2,3] Early diagnosis and management is important, because these retained foreign bodies can later on present with various complications like submandibular gland infections and parapharyngeal abscess. Retrieval of foreign body conventionally follows

meticulous surgical exploration of the lacerated site.

We report a rare case, of penetrating neck injury by broken metallic fragment. The fragment entered and implanted deep into the submandibular gland substance. The submandibular gland was excised along with foreign body under general anaesthesia.

Case report

A 27 year- old male patient presented to our emergency department with a history of accidental penetrating injury on the left upper side of neck. He was working with a metallic instrument in a marble factory, when a fragment broke and hit him on left upper side of neck.

On general examination, patient was conscious and well oriented. Patient was haemodynamically stable and did not have any neurological deficit. Local examination revealed approximately 1x1 cm wound of entry on the left submandibular triangle, just 1 cm above the hyoid bone. No active bleeding was noted from the wound. There was surrounding neck swelling and tenderness present. Metallic fragment was not digitally palpable.

An X-ray of the neck was taken in anteroposterior and lateral view, which revealed radio opaque foreign body just above the hyoid bone. **(Fig. 1a & 1b)**

Figure 1(a) X-ray Lateral view showing foreign body just above the hyoid bone

Figure 1(b) X-ray AP view showing metallic foreign body on left side

The patient was planned for surgical exploration under general anesthesia. A preoperative consent was taken regarding injury to marginal mandibular nerve, excision of submandibular gland and scar mark. A horizontal incision was taken along the wound of entry and neck was explored. Initial attempts to

locate the foreign body with digital palpation failed. Wound was further explored to locate the foreign body, but failed. Then taking a clue from the entry wound, which was going into the submandibular gland substance, the decision to excise the submandibular gland was taken. After excision of the gland, the track was identified and followed; metallic foreign body was found, embedded deep in the submandibular gland substance. **(Fig. 2)** Homeostasis was achieved and wound was closed in layers. Postoperative course was uneventful.

Figure 2 Retrieved metallic foreign body, along with removed submandibular gland

Discussion

Penetrating neck injuries constitute 5-10% of all the trauma cases.[4] In the neck multiple vital structures are vulnerable to injury within a small unprotected anatomical area.[5]

Detailed examination should be done to assess the site and severity of the wound. Vascular injury should always be ruled out. Radiological examinations are frequently needed and are essential to correctly identify the site and size of radio opaque objects. Preoperative imaging in the form of radiographs, CT scans and MRI scans help to locate the site of injury and its relation to the surrounding structures which further helps in surgical management. MRI scans are especially useful in localizing the non- metallic foreign bodies.[6]

In our case preoperative plain radiographs both antero-posterior and lateral view, helped us in localizing the foreign body. Although plain radiographs were useful in localizing the foreign body, it does not give clue to the relation of foreign body to the surrounding anatomical areas, like in our case. CT scans and MRI scan may be more useful to localize the foreign body to surrounding structures.

Retrieval of metallic foreign bodies conventionally follows meticulous surgical exploration of lacerated site. Retrieval of metallic foreign bodies

poses a great challenge when the fragments are small and multiple.

Chin JTH et al.[7] reported a case metallic foreign body in the lower neck, located in the deeper subcutaneous tissue and was not readily palpable. After surgical exploration, the metallic fragment was retrieved with the help of earth magnet.

The metallic fragment in our case was not digitally palpable and was embedded deeply in the submandibular gland substance, so the decision of gland excision was taken. The entry point in the submandibular gland may give an important clue regarding the further localizing of the foreign body. Preoperative consent regarding gland excision, nerve injury is important, as was taken in our case.

Although foreign bodies in the submandibular gland from intraoral route have been reported, but foreign body impacted in the submandibular gland substance from penetrating neck injury has not been reported.

Early diagnosis and management is important, because these retained foreign bodies can later on present with various complications like submandibular gland infections and parapharyngeal abscess.

Conclusion

An unusual case of metallic foreign body in the submandibular gland substance 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. Following the entry point or track of foreign body into the tissue may give additional information regarding the location of foreign body.

References

1. Singer A, Hollander JE, Quinn JV. Current concepts: evaluation and management of traumatic lacerations. N Engl J Med 1997;**337**:1142–8.

2. Ginsburg MJ, Ellis GL, Flom LL. Detection of soft tissue foreign bodies by plain radiography, xerography, computed tomography and ultrasonography. Ann Emerg Med 1990; 19:701–3.

3. Abe K, Nakarnatsu K, Beppu K, *et ak.* Use of intraoperative ultrasonography to detect a small foreign body in the soft tissues of the upper lip. Br Dent J 1994;**177**:292–4.

4. Gulia J, Yadav S, Singh K, Khaowas A. Penetrating Neck Injury: Report Of Two Cases. The Internet Journal of Emergency Medicine, 2009;6(1).

5. Robert H. Maisel, David B. Hom, Penetrating Neck injuries , Chapter 9 Cummings C.W. et al. Otolaryngology Head & neck surgery, Mosby, 2005;3.

6. Imokawa H, Tazawa T, Sugiura N, Oyake D, Yosino K. Penetrating neck injuries involving wooden foreign bodies: the role of MRI and the misinterpretation of CT images, Auris Nasus Larynx, 2003;30(Suppl):145–147

7. Chin JTH, Davis SJ, Sandler JP. Retrieval of a metallic foreign body in the neck with a rare earth magnet. J Accid Emerg Med 2000;17:383-387

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