Unusual Foreign Bodies in the Head and Neck Region – A Case Series

https://doi.org/10.47210/bjohns.2022.v30i2.781

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ABSTRACT

Introduction

Injuries in the Head Neck region due to impacted or penetrating foreign bodies are not uncommon in ENT ER or OPD. These injuries carry the risk of retained foreign bodies with dramatic consequences if remain untreated. Therefore, it is mandatory to detect any foreign body during clinical workup. The objective of our study is to evaluate the location of foreign bodies and to plan concerned surgical approach.

Method

A Case Series of 9 patients, presenting with foreign body injury in the Head and Neck region in the Outpatient Department or Emergency of Department of Otorhinolaryngology and Head and Neck Surgery of a tertiary care hospital in Kolkata in a span of 3years, has been presented.

Results

All the foreign objects were retrieved successfully without any surgical complication.

Conclusion

History taking and clinical examinations are the crucial steps in Investigation. Imaging studies can significantly increase the chance of detecting a foreign body.

Keywords

Foreign Bodies; Head & Neck

Injuries in the Head Neck region due to impacted or penetrating foreign bodies is not uncommon in ENT ER or OPD. The penetrating foreign body in the neck has a special apprehension because of the constellations of vital structures in the neck.[1]

Impaction or penetration of foreign bodies may happen due to fall Injury, blast Injury, traffic accidents and physical assault etc. These injuries carry the risk of retained foreign bodies with dramatic consequences if remain untreated. Therefore, it is mandatory to detect any foreign body during clinical workup.[2]

History taking and clinical examinations are the crucial steps in Investigation. Mode of injury and nature of object as well as fall surface are to be noted. Imaging studies can significantly increase the chance of detecting a foreign body.[3] Roentgenograms (X-Rays), Ultrasound (USG), Computed Tomography (CT), Magnetic Resonance Imaging (MRI) etc. are important imaging modalities which aid in surgical planning by precisely determining the anatomical location of the foreign object and its spatial relation to neighboring structures, thereby reducing the risk of collateral damage.[4]

However, in some cases foreign bodies may not be clinically apparent or visible in imaging studies and in these

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cases, the surgeon should be judicious while exploring near the important anatomical structures to avoid any potential risk.

In this case series, we have documented few unusual cases of foreign bodies in neck spaces and their management.

Table I : Patients presenting with foreign body injuries in head neck region and their management at a glance

AGE/SEX	FOREIGN	LOCATION	MODE OF INJURY	INVESTIGATION	SURGICAL APPROACH	COMPLICATION
3yrs/M	Metallic Wire	Right Peritonsillar Space	Accidental	CT Scan and X-ray	Intra-oral Approach	Uneventful
4yrs/F	Toothbrush	Left Parapharyngeal Space	Accidental	CT Scan	Intra-oral Approach	Uneventful
11yrs/M	Wood Piece	Left Submandibular Space	Accidental	USG	Trans-cervical Approach	Uneventful
15yrs/F	Toothbrush	Left Masseteric Space	Accidental	CT Scan	Intra-oral Approach	Uneventful
18yrs/F	Toothbrush	Left Submandibular Space	Accidental	CT Scan	Trans-cervical Approach	Uneventful
26yrs/M	Metallic Neck Chain	Right Carotid Space	Physical Assault	CT Scan	Trans-cervical Approach	Covid related complications leading to death
36yrs/M	Stone Pellet	Right Parapharyngeal Space	Physical Assault	-	Trans-cervical Approach	Uneventful
49yrs/M	Unerupted Pre-molar Tooth	Left Submandibular Space	Incidental finding	CT Scan and USG	Trans-cervical Approach	Uneventful
56yrs/M	Wood Piece	Right Submandibular Space	Accidental	CT Scan and USG	Trans-cervical Approach	Uneventful

Materials and Methods

Patients presenting, with features of foreign body injury in Head and Neck spaces (like penetrating trauma, chronic discharging sinus etc), in the Department of Otorhinolaryngology and Head Neck Surgery, within the period of last 3yrs, from October 2019 to September 2022, were taken into this study. No age limit was imposed.

History and clinical examination findings were corroborated with imaging study findings to verify our clinical diagnosis. Most patients were advocated for NCCT Scan while USG Scan and X-Rays were performed too in few cases. Surgical approaches to retrieve the foreign bodies were planned according to these pre-operative findings. A total of 9 cases were included in this study and emphasized regarding their presenting complaints, location of foreign bodies, imaging features and surgical planning with special mention of dilemmas in diagnosis and management in some cases.

Discussion

An overview of all the cases has been summarised in Table I, along with, in short, the patient profile and treatment offered. The Foreign bodies were found mostly in Submandibular space (4), 2 in Parapharyngeal space, 1 each in Peritonsillar space, Masseteric space and Carotid space. Though we found 2 cases with metallic foreign bodies, mostly the foreign bodies were non-metallic like toothbrush, wooden piece or stone pellet while in one case of submandibular gland excision there was an incidental discovery of an un-erupted pre-molar tooth. Mode of injury was accidental in most cases, while 2 cases reported of physical assault.

The youngest patient we encountered was a 3yrs old boy presenting in our ER with a metallic wire stuck inside his oral cavity (Fig. 1) while playing. An X-Ray (Fig 2) and subsequent NCCT Scan were performed and coiled end of the wire was seen to be in Right Peritonsillar space away from the facial artery. So intra-oral approach was the choice for removal of the wire and post-operative period was uneventful. There was another case of metallic foreign body due to alleged physical assault by some sharp object in the neck resulting in intrusion of a metallic chain in the victim's neck into Right Carotid space (Fig 3) which was seen in NCCT Scan of neck (Fig 4). The foreign object was removed without any per-operative complication but the patient succumbed to death few days later due to COVID related complications in ICU.

Fig. 1

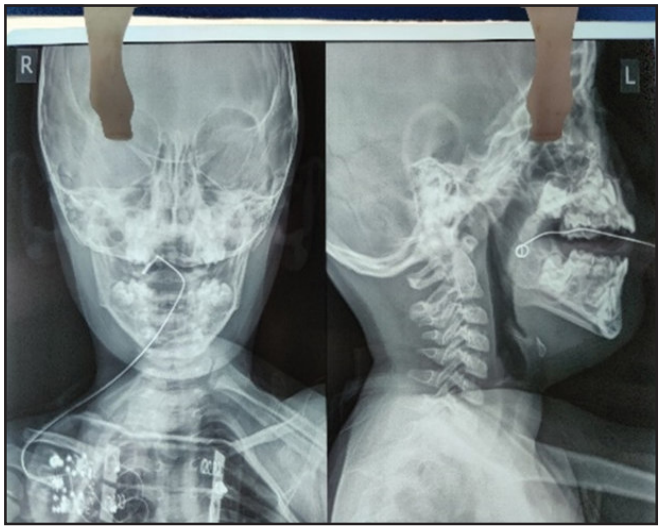

Fig. 2

Fig. 3

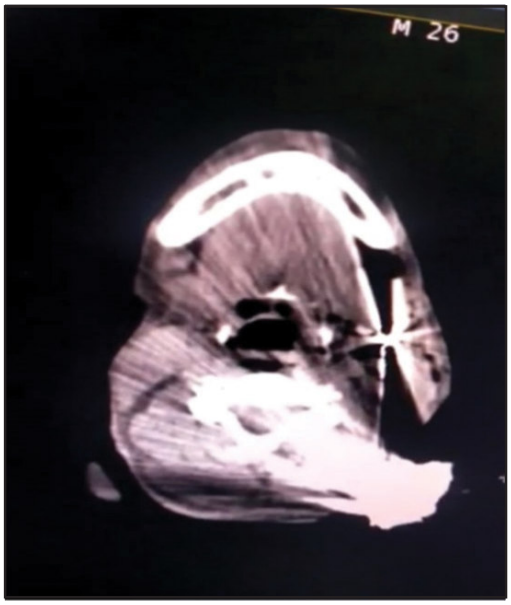

Fig. 4

The oldest patient was a 56yrs old male, farmer by occupation, with a history of chronic discharging sinus in the Right Submandibular region (Fig. 5) for past 6months. Considering occupational hazards, Tuberculosis and Actinomycosis were ruled out first by microbiological tests. Then a dubious history of fall in the field was obtained, which occurred 7-8months back. NCCT Scan was performed but it was not much of help. A trans-cervical exploration of the site was planned then and few wooden chips retrieved (Fig. 6) from the Right Submandibular space. Another similar case was seen in an 11yrs old boy who too presented with a history of fall and chronic discharging sinus (Fig. 7) at the left angle of mandible for past 3 months. In this case, an echogenic linear structure (35 mm) was seen in relation to the Left Submandibular gland with a sinus tract from skin up to the strap muscles. Here the help of C-arm guidance (Fig. 8) was sought during a trans-cervical approach to avoid any potential injury to facial vessels in a child. So, in cases of suspected wooden foreign bodies, history and clinical examination are of equal importance as imaging studies.

Fig. 5

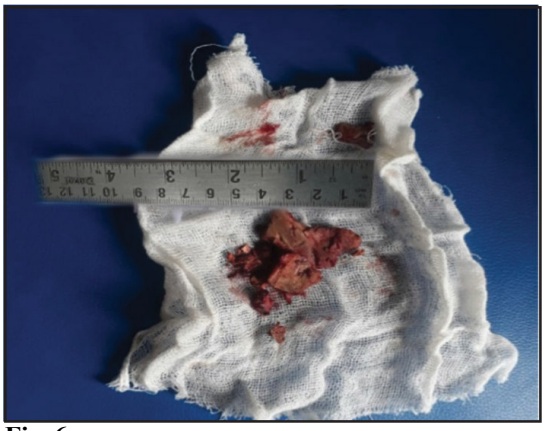

Fig. 6

Fig. 7

Fig. 8

Fig. 9

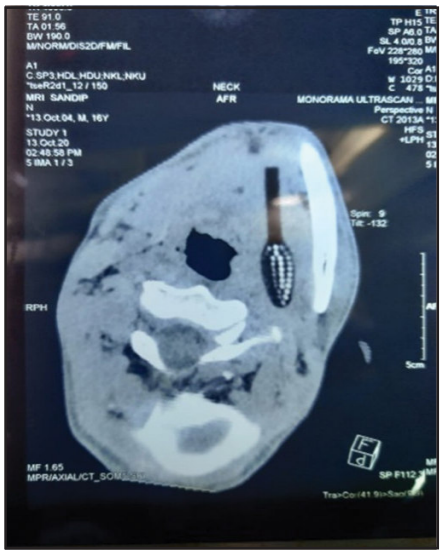

Fig. 10

There were 3 cases of penetrating injury by toothbrush (Fig 9), while all were of accidental cause, in 2 cases intra-oral approach was preferred due to the location of those foreign bodies and the extent of injuries as evident from NCCT Scans (Fig. 10), in 1 case Trans-cervical approach was preferred as the toothbrush was seen penetrating through the floor of mouth coming out from Left Submandibular space. In the case of 15yrs old girl, there was post-operative Facial Nerve palsy on the affected side which was evident beyond 24 hours of surgery but subsided gradually with oral Prednisolone ruling out any iatrogenic trauma.

One interesting case has been included in our study where a 36 yrs old male bleeding profusely from right side of the neck presented in our ER with an alleged gunshot injury. On table right internal jugular vein found severed and ligated to secure haemostasis and a stone pellet (1.5cm x 1.5cm) was found (Fig.11). After recovery when the patient was enquired again about the mode of injury, a history of concomitant bomb blast was found in proximity which directs to our provisional diagnosis of

Fig. 11A

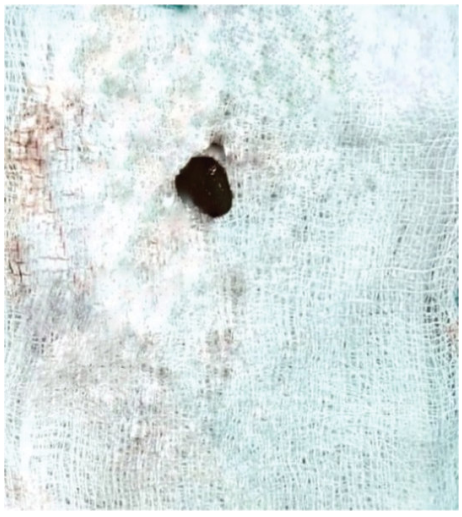

Fig. 11B

bomb blast injury. Due to severity of the situation no investigation could be done at the time of admission. So the importance of proper history taking comes into play in these kind of situations.

Another unusual case of un-erupted pre-molar tooth was found when a 49yrs old male diagnosed as a case of Left Submandibular Sialadenitis with Sialolithiasis was taken for Left Submandibulectomy (Fig. 12). Per-operatively no stone was found in the left submandibular gland, on further exploration an un-erupted pre-molar tooth

Fig. 12

Fig. 13 A

was found in that space (Fig. 13) which was probably appearing as the stone in CT scan and USG. So we have to keep in our mind that sometimes pre-operative diagnosis may not corroborate with per-operative findings.

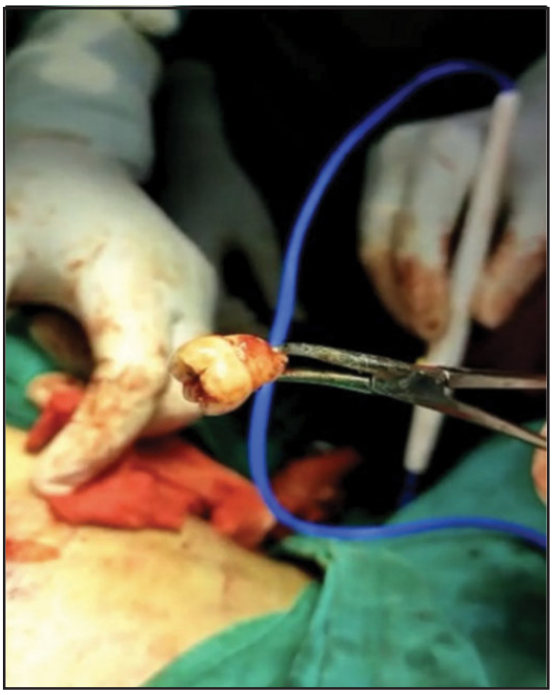

Fig. 13 B

In general, injuries of the head and neck are potentially life-threatening depending on the location and extent of penetration of the foreign body.[5] From our patient population, all but one were discharged without any complication.

Old foreign body injuries usually present with a chronic discharging sinus or fistula, neglected or incomplete wound management while recent injuries usually present with bleeding following a trauma, sometimes even as a life-threatening emergency.

Various imaging modalities have strength and limitations based on their physical principles. X-ray imaging can provide a low-radiation alternative to CT when the presumed foreign object is known to be radiopaque (e.g. metal, glass or stone), whereas ultrasound may be considered in superficial injuries. MRI should be used in inconclusive situations including the possible presence of a non-radiopaque object, persisting wound healing disorders or the involvement of the orbital cavity after excluding ferromagnetic foreign bodies.[2]

Conclusion

From our experience we must not rely on history alone as often patients give incomplete information leading to confounding revelations. Detailed clinical as well as laboratory and radiological examinations are both crucial for diagnosis of foreign bodies in head and neck region.

Special attention should be paid to injuries caused by destructive weapons and explosives.[6]

We have to choose investigation modalities judiciously to locate the foreign bodies and plan accordingly, to approach and retrieve those, with least number of complications.

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