CASE REPORT ASIAN JOURNAL OF MEDICAL SCIENCES

An unusual case of penetrating head injury following road traffic accident

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Submitted: 18-01-2015 Revised: 16-03-2015 Published: 01-05-2015

ABSTRACT

A 35 year old male was presented with discharging sinus at left frontozygomatic region with trismus for last one month. The patient had a past history of penetrating trauma in the vicinity of the left frontozygomatic area following road traffic accident six months back. 3D-CT skull was showed a linear dense radiolucent foreign body obliquely placed in the left temporal and infratemporal fossa. Trismus due to trauma usually follows road accidents leading to massive faciomaxillary injury. But in this case an initial minor penetrating injury was presented trismus in delayed fashion. The aero digestive tract is the commonest site involved in foreign body lodgement in head and neck region. However the lodgement of foreign-body in an area of infratemporal fossa with unusual symptoms of trismus is quite rare and only few cases have been reported in the literature so far following a road traffic accident.

Key words: Trismus; infratemporal fossa; 3D-CT skull; temporomandibular joint; Penetrating foreign bodies.

Access this article online

Website: http://nepjol.info/index.php/AJMS

DOI: 10.3126/ajms.v6i5.12329

INTRODUCTION

Penetrating foreign bodies in the head and neck region are uncommon.[1] Foreign bodies are sometimes encountered in the maxillofacial region posing a great diagnostic dilemma. Despite a history of assault or trauma foreign bodies may not be suspected clinically leading to delay in diagnosis.[2]

Trismus following road accidents is usually due to the fracture of mandible, foreign body lodging in the temporomandibular joint.[3] There are a number of reports of trismus due to a foreign body lodging in the infra temporal fossa in the literature.[1] Foreign bodies may be accidental, iatrogenic, or in more bizarre cases it may be deliberate as well.[4]

Only few cases have been reported following road traffic accident.[3] Occasionally, foreign bodies may be retained for prolonged period causing persistent and distressing symptoms.[2]

This type of foreign bodies should be removed as early as possible to avoid foreign body reaction and ankylosis of the temporomandibular joint subsequently.[3]

CASE REPORT

A 35 yrs old male patient had road traffic accident during motor bike driving six months back and got a penetrating wound in the vicinity of the left fronto-zygomatic area by some sharp object. He does not remember the nature of sharp object as he was under influence of alcohol. At that time the wound was stitched out by local doctor. Patient wound was healed and doing well for 5 months.

For last 1 month he was presented with discharging sinus at left fronto-zygomatic region with progressive trismus (Figure1 a and b).

The conventional radiography and plain CT scan brain does not revealed anything. 3D-CT skull was showed a linear dense radiolucent foreign body obliquely placed in the left temporal and infratemporal fossa (Figure 1c). Patient was prepared for surgery and exploration of left infratemporal fossa was done (Figure 2a). A single piece of wooden material was removed. After this procedure the patient draining sinus was healed with improvement of trismus (Figure 2 b and c).

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Figure 1:(a,b) Clinical photograph of patient was showed a discharging skin sinus at left fronto-zygomatic region, with trismus. (c) 3D-CT scan skull- The arrow showed a linear dense radiolucent foreign body obliquely placed in the left temporal and infra-temporal fossa.

Figure 2: (a) Peroperative photograph was showed exploration of left infratemporal fossa with removal of wooden material. (b,c) The post-op clinical photograph was showing healed discharging sinus and increased mouth opening

DISCUSSION

The presence of an embedded foreign body in the oral and maxillofacial region is not unusual.[5] However the lodgment of foreign-body in an area like infratemporal fossa is quite rare and only few cases have been reported in the literature so far.[6]

The mouth is opened by the lateral pterygoid and sometimes helped by the suprahyoid muscles. The temporomandibular joint is the only joint involved in the process of mouth opening. The restricted mouth opening can be due to either the involvement of this joint or pathology of muscles which are responsible for mouth opening. The aetiology of trismus can be, hence, divided as extra capsular or intra capsular. The causes in both include trauma, infection or malignancy. The patient usually complains of difficulty in opening the mouth or sometimes difficulty in eating, speech or pain.[3]

Trismus was due to foreign body embedded beneath the arch which prevented forward movement of the mandibular coronoid process during mouth opening. This was resolved following foreign body retrieval and postoperative physiotherapy.[2] As in this case the foreign-body was behind the zygomatic arch, and for a long duration hence leads to some secondary reactive inflammatory changes at muscle or temporomandibular joint which explained the cause of trismus.

Deep and large foreign bodies may not be found by following an epithelised or granulating track or draining sinus.[7] The discharging sinus tract was indirect evidence in favour of the tendency of the foreign body to migrate to exterior through the initial wound tract.[1]

Wooden objects are notorious for harbouring organisms and producing abscesses and can be difficult to detect. Thorough clinical examination along with diagnostic imaging is mandatory in the detection of foreign body. Radiographic examination in the various projections [radiographs taken in several planes at right angles] and computerized tomography will assist in the exclusion or location of foreign bodies. Worth recommended plain X-ray films, two views at right angles to each other, to locate the foreign object in three dimensions.[2,8]

MRI should not be used in any patient who may have a metallic fragment but it has an important place in detecting wood, if it has not been identified on CT.[2] As in our case the foreign body may not show up on conventional radiograph. So that a 3D CT head was recommended in high suspicion of foreign body and it localises a radiolucent foreign body in infratemporal fossa.

Exploration without adequate imaging is courting disaster, as additional foreign segments and sometimes even intracranial foreign body and damage may be missed.[8] Keeping in view the other important organs like eye and brain in the immediate vicinity of the space and its potential communicating portals with these organs via the anatomical foraminas, the foreign body in such a location with its potential to cause inflammatory reaction and tendency to migrate is always a potential threat for causing serious complications like proptosis with threat to vision and various intracranial complication.[9]

Whilst some foreign bodies may be left in situ for good clinical reasons most are removed prior to the onset of complication, notably infection.[10] Indications for the

removal of foreign bodies from soft tissue are reactivity (thorns, spines, wood and other vegetative material), heavy contamination , toxicity , impingement of vital structures, impairment of mechanical function(restricted joint mobility), intra-articular location, intravascular location, persistent pain, established infection, allergic reaction, cosmesis, psychological distress.[8]

In conclusion all possible effort must be made to locate foreign bodies in all penetrating and lacerated injuries, suspected of harbouring foreign bodies. Foreign bodies may implant anywhere and may be a great distance from skin breach. A very high index of suspicion must be maintained, with any penetrating or lacerated wound in head and facial region that have been contaminated with foreign materials, specifically metal, dirty gravel, wood, and organic materials. Thoroughly searching of these wounds during the initial treatment phase and the material must be removed to prevent wound infections and delayed complications.

ACKNOWLEDGEMENT

Very much thanks to Prof. Parimal tripathy and Prof. Subhasis Ghosh for his valuable suggestions in making this manuscript.

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Authors Contribution:
MKP – Designed the study, analysed the data, drafted the manuscript, & reviewed the manuscript, guarantor; **KR –** Contributed to the study design; manuscript editing, manuscript preparation; **GC –** Reviewed the manuscript; literature search, clinical studies; **SKS-** Concept, design, reviewed the manuscript.

Source of Support: Nil, **Conflict of Interest:** None declared.