

Case Report

AN UNUSUAL CASE OF A RETAINED FOREIGN BODY IN THE PERIORBITAL AREA.

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ABSTRACT

Background: Foreign object penetrations in the craniofacial region are sometimes reported as a result of occupational or work-related accidents. This can result in serious injuries because of the presence of many fragile anatomical structures in this region.

Case presentation: A 25-year-old male working as a carpenter faced an accident when a nail gun accidentally shoots resulting in a steel nail impalement in the right side of his face, just missing the eye. His primary physician missed the diagnosis and gave him palliative treatment. For five years, the patient kept visiting different doctors for his symptoms that appeared on and off but were medicated and sent back. After five years of this incident, he visited this hospital where his CT scan was ordered which revealed the presence of a long steel nail that was completely penetrating the right side of the face, crossing the nasal cavity and maxillary sinus to reach the maxillary bone of the left side. Surgery was done for the removal of the nail and debridement of the adjacent tissues was done. The patient was prescribed an antibiotic course.

Conclusion: This is a rare case because of the time duration for which the foreign body of such a large size was retained in the skull without causing any harmful effects to the neighboring vital structures and without the patient's knowledge.

Key Words: Surgery, Palliative Treatment, Foreign body

doi: <https://doi.org/10.51127/JAMDCV4I1CR01>

How to cite this:

Sadiq F. Online Learning Era. JAMDC. 2022;4(1): 38-41

doi: <https://doi.org/10.51127/JAMDCV4I1CR01>

INTRODUCTION

Penetrating peri-orbital work-related injuries are uncommonly seen in everyday work practices. However, incidences of accidental injuries though uncommon, are still being reported from time to time, causing major disabilities and discomfort to the affectees. These accidents may involve a gunshot wound, a knife stabbing, or an industrial mishap.

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Such piercing injuries specifically in the craniofacial region are called 'Jael's syndrome' derived from a biblical reference where a nail was impaled into the temple of a sleeping person (Judas IV:21).¹ The symptoms from these embedded foreign bodies in the orbital and periorbital region can range from mildest discomfort to infections, retinal toxicity, facial disfigurement and even loss of vision or brain injuries. Imaging scans such as craniofacial radiographs and Computed Tomography (CT) play a pivotal role in the detection of such foreign objects.² Considering the delicacy of the anatomical structures residing in this region, the decision for performing surgery is made after carefully weighing the pros and cons of the surgical procedure. The treatment plan mainly relies on the site, size, and nature of the object, and the possibility of the presence

of a secondary infection or nerve compression.³ If no symptoms are being experienced, then the foreign object can be left in situ to lower the risk of inflicting an iatrogenic injury during the surgical procedure.⁴ However, if the patient is symptomatic, sometimes surgery is inevitable.⁵

This study reports a case of a patient who presented with a history of a steel nail penetration in the peri-orbital region resulting in the formation of a draining fistula.

CASE PRESENTATION

A 25-year-old Asian male presented to the Farooq Hospital Westwood, Lahore with complaints of a persistent fistula with occasional discharge, nasal blockage, and mild irritation of the infraorbital region. The patient was also experiencing episodes of mild paresthesia in the area of the distribution of the right infraorbital nerve. History revealed a work-related incident that happened five years ago (April 2017) when he was working as a carpenter in Saudi Arabia. An automatic nail-firing gun (nailer) that he was using fired off accidentally, resulting in the piercing of a steel nail through the cheekbone. Upon immediate examination by a primary physician, the patient was told that the nail fragment has been removed and he was medicated and discharged from the hospital. Later on, he went to multiple doctors who prescribed him antibiotics to treat the purulent discharge coming from the fistula. Strangely, the cause behind this persistent discharge was never investigated properly. After five years, the patient reported to Farooq Hospital (in May 2022). A detailed history showed no medical conditions or morbidities. Upon thorough clinical examination, there was a non-resolving fistula just under the right eye, but fortunately, no globe or retro-orbital abnormality or any signs of loss of vision were seen (Figure 1).

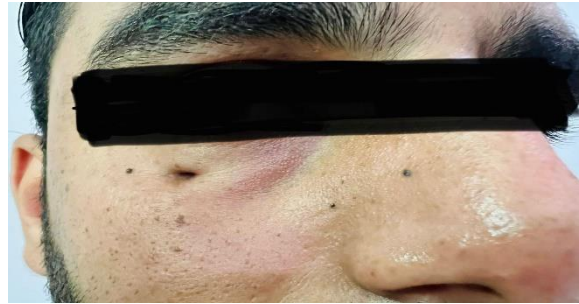


Figure-1. Preoperative clinical image showing fistula under the right eye.

The patient's vital structures like the eye and brain were not affected so luckily the delay did not produce any debilitating effects. A Computed tomography (CT) scan was done. Imaging revealed a long-curved radioopaque foreign body of a large diameter entering the infraorbital rim of the right side, passing horizontally through the maxillary sinus and into the contralateral side of the face via the nasal cavity, completely embedded in the maxillary bone of the left side. The maxillary sinus was hazy too (Figures 2a and 2b)



Figure-2a. A CT scan (coronal view) shows a radioopaque metallic object.



Figure-2b: A CT scan (axial view) showing a radioopaque foreign object.

The patient was informed and surprisingly, he had no idea about this nail that was embedded in his skull for the past five years. An informed decision for surgery was taken and surgery was performed under general anesthesia. An infraorbital approach was used for surgical exploration and extraction of the steel nail was done along the path of its insertion. The extracted foreign body was still intact when removed and its shaft was covered in black necrotic debris. It measured 6.35 cm in length and 1.27 cm in diameter (Figure 3).



Figure-3. The retrieved intact Steel nail showed necrotic debris on its shaft.

The surrounding devitalized necrotic debris was irrigated profusely and debridement was done followed by fistulectomy and closure of the wound was done with polypropylene sutures (Figure 4).



Figure-4. Postoperative image.

The right maxillary sinus was debrided via the Caldwell Luc approach through an intraoral vestibular incision and BIPP (Bismuth iodide paraffin paste) pack was placed. The patient was given Intravenous

antibiotics (1 gram Ceftriaxone and 500 mg metronidazole 8 hourly for 7 days) and analgesics, was monitored overnight, and had an uneventful discharge from the hospital the very next day. He was prescribed oral antibiotics.

DISCUSSION

Research done on multiple cases of retained foreign bodies with missed diagnoses showed that the shortest period for which a foreign object stayed in the body was of 3 days and the longest time period was 15 months.⁶ We have reported this case because of its uniqueness that in this patient, a nail was embedded in his skull for five whole years and he did not know about it. On top of it, he kept consulting doctors but no one investigated the root cause. Also, the size and trajectory of the steel nail are distinctive as it crosses the midline. Research has shown that one of the most common causes for overlooking these foreign objects were because the physicians pay more attention to the wound (point of entry) but fail to address the possibility of foreign body lodgements.⁴ Therefore, imaging scans are an absolute necessity in case of foreign object penetration because history and physical examination can prove to be inadequate.⁷ Among all the radiographic modalities, CT scans are considered the gold standard for diagnostic purposes.⁸ Nevertheless, CT scans can also produce a false-negative result if the foreign body is less than 0.5 mm in size but in our case, the CT scan demarcated the steel nail because of its large size.⁹

Different approaches have been used to extract a foreign body from the periorbital region including subsidiary, subconjunctival, subtarsal, and infraorbital approaches. The subtarsal approach is considered to be the safest approach.¹⁰ However, in this case, the infraorbital approach was used as it included the fistular opening in the line of incision thus maintaining the facial esthetics. In addition, the Caldwell Luc approach was taken to debride the maxillary sinus to prevent the extension of infection in the neighboring spaces.

CONCLUSION

CT scans are the mainstay for foreign body penetrations and their diagnoses. In the periorbital region, the extraction of foreign bodies requires the high expertise of the surgeon to avoid iatrogenic injury to the surrounding vital structures.

Consent

Written informed consent was taken from the patient for the publication of this case details and the accompanying images.

Conflict of interest

The authors declared that there was no conflict in interests.

AUTHOR'S CONTRIBUTION

SSK: Conception, case data collection and writing

WA: Primary Maxillofacial surgeon

ZSQ: Associate Surgeon

OF: Primary Physician

SW: Supervision and Editing

SF: Case data collection

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