CASE REPORT

SURGICAL RETRIEVAL OF METALLIC FRAGMENT FROM FACIAL SOFT TISSUE : A CASE REPORT

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ABSTRACT

A clinician working in the head neck region might often encounter patients with foreign bodies embedded within the hard/soft tissues of the region. The maxillofacial region is an anatomically complex region with multiple tissue types, anatomical cavities, and potential tissue spaces. Foreign body impaction due to trauma or of iatrogenic origin might cause symptoms such as pain, swelling, and suppuration. Such patients might remain unaware of the presence of such foreign bodies as a cause of their predicament for many years. Here, we describe the case of a patient with a metallic fragment lodged in the facial soft tissues secondary to an industrial accident.

KEY WORDS

Metallic shard, Foreign body, Industrial accident, Infraorbital space, Facial pain

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INTRODUCTION

The maxillofacial region possesses a highly intricate anatomy, functioning as an intersection for various physiological systems and structures. It contains numerous natural openings and potential tissue spaces that may serve as reservoirs for foreign bodies or objects[1,2]. Despite this anatomical complexity, the occurrence of foreign body impaction within this region is relatively uncommon, and nearly one-third of such cases remain undetected[3]. The nature of these foreign bodies is highly variable, encompassing both animate and inanimate objects, and their identification often presents a diagnostic challenge. Factors such as object size, composition, limited accessibility, and proximity to vital anatomical structures contribute to this difficulty[4]. Prompt recognition of foreign body impaction is essential, as retained objects may lead to chronic pain, persistent infection, suppuration, or migration into adjacent anatomical areas[4,5]. This study reports the case of a patient who presented with a peg shaped metallic fragment situated in the soft tissue of the right side of the face in the infra-orbital region, resulting in the formation of recurrent swelling and pain in that region.

CASE PRESENTATION

A 48-year-old male presented to the Department of Oral and Maxillofacial Surgery, Dr. R. Ahmed Dental College and Hospital, with complaints of swelling and pain in the right infraorbital region persisting for several days. The pain was described as dull and continuous in nature. Both the swelling and pain subsided temporarily following administration of analgesics and antibiotics but recurred periodically every few months (Figure 1).

The patient's history revealed an occupational injury that occurred in 2020 while he was operating a lathe machine to drill an iron component. During the process, the component fractured, and a fragment of the broken material struck the patient's face at high velocity. Since the incident, the patient had recurrent episodes of pain and swelling in the right infraorbital region over a period of 5 years. The patient consulted

Figure 1: Pre-operative clinical appearance. The swelling in this picture has subsided due to the prescription of antibiotics to provide relief to the clinical complaints of the patient

Figure 2: Pre-operative orthopantomograph revealing a peg-shaped radio-opaque structure located in the right infraorbital region

Figure 3: Pre-operative CBCT revealing a peg-shaped radio-opaque structure located in the right infraorbital region

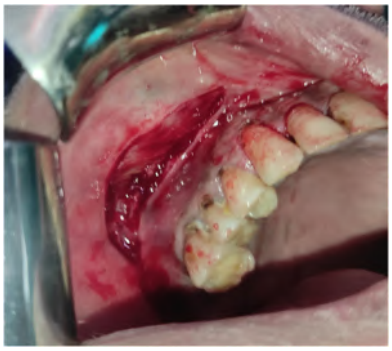

Figure 4: Buccal vestibular incision

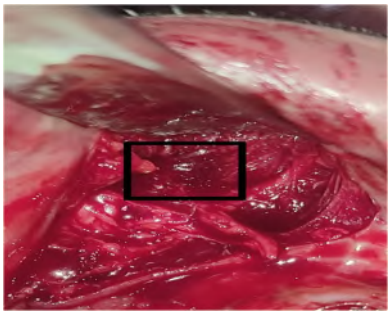

Figure 5: The end of a metallic object reflecting light

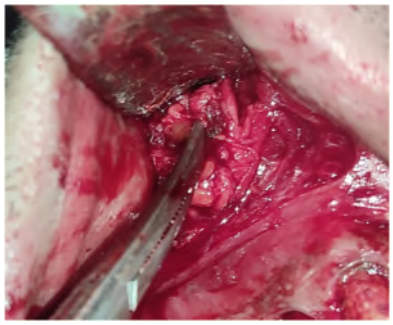

Figure 6: The encapsulated foreign body being held and retrieved using a curved haemostat

Figure 7: Closure of the wound using 3-0 silk sutures

Figure 8: Metallic shard revealed upon incision of the fibrous capsule surrounding the foreign body

multiple physicians and dental practitioners before being referred to our institution for definitive management. His medical history was otherwise non contributory, with no systemic illnesses or co-morbidities reported.

Clinical examination revealed a localized swelling in the right infraorbital region that was tender on palpation. No draining sinus or discharge was observed either extraorally or intraorally. Cone-beam computed tomography (CBCT) imaging revealed an 8-10 mm long, 1-1.5 mm wide, peg-shaped radio-opaque structure located in the right infraorbital region. The radio-opaque object was not embedded in bone and appeared to be freely situated within the soft tissue (Figures 2, 3).

The patient was notably unaware of the presence of a retained foreign body within his face and was informed of these findings, which had remained undetected for approximately five years.

Following informed consent, surgical removal of the foreign body through an intraoral approach was planned and performed under local anesthesia. A vestibular incision was placed in the upper right

buccal vestibule from the canine to second molar region (Figure 4).

Careful soft-tissue dissection was performed to locate the foreign body being careful to protect the branches of the infraorbital nerve and facial nerve. Meticulous dissection revealed the foreign body encapsulated within a fibrous capsule just below the infraorbital foramen (Figures 5, 6).

The object was successfully retrieved, and layered closure was achieved using 3-0 silk sutures (Figure 7).

Upon incision of the capsule, a black, peg-shaped metallic shard measuring approximately 9 mm in length and 1.5 mm in width was obtained (Figure 8).

Postoperatively, the patient was prescribed oral antibiotics-amoxicillin-clavulanic acid (625 mg every 8 hours) and metronidazole (400 mg every 8 hours) - along with an oral analgesic, ibuprofen (400 mg every 12 hours). The postoperative course was uneventful, and the patient was discharged on the same day in stable condition.

DISCUSSION

Previous studies involving multiple cases of retained foreign bodies with initially missed diagnoses have demonstrated that the duration of retention can range from as short as three days to as long as fifteen months[6,7]. The present case is reported for its exceptional nature - the patient harboured a fragment of industrial machinery fragment embedded within the facial soft tissue for an unprecedented five years, entirely unaware of its presence. Despite repeated medical consultations, the underlying cause of his symptoms remained undiagnosed.

Evidence suggests that one of the most frequent reasons for overlooking retained foreign bodies is the clinician's focus on the superficial wound or entry site, often without sufficient consideration of the possibility of deeper foreign body lodgement[4,8]. Consequently, radiographic evaluation is indispensable in all suspected cases of penetrating foreign body injury, as clinical history and physical examination alone are frequently inadequate [7,8].

Among imaging modalities, Computed Tomography (CT) and Cone Beam Computed Tomography (CBCT) remain the gold standard for detecting and localizing foreign bodies[8]. However, it is important to note that CT imaging may yield false-negative results when the object measures less than 0.5 mm in diameter[6]. In this instance, the CT scan successfully delineated the metallic fragment due to its relatively large size[9].

Various surgical approaches have been described for the removal of foreign bodies from the infraorbital region, including extraoral techniques-such as subciliary, subconjunctival, subtarsal, transconjunctival, and infraorbital approaches-as well as intraoral approaches. Of these, the subtarsal approach is generally regarded as the safest[6,10]. Nevertheless, in the present case, an intraoral approach via the buccal vestibule was selected for its superior accessibility and the absence of visible scarring, thereby preserving facial aesthetics.

Ultimately, the removal of neglected foreign bodies should be performed with minimal dissection and in a meticulous, a traumatic manner, particularly in the maxillofacial region where cosmetic outcomes are of paramount importance to patients.

CONCLUSION

Timely removal of impacted foreign bodies in the maxillofacial region is essential to prevent potential functional impairments, allergic reactions, and infectious complications[2]. This case report presents a distinct instance of foreign body retrieval from the maxillofacial region. Early and accurate diagnosis of such foreign bodies can be achieved through the use of various imaging modalities, including plain radiography, ultrasonography (USG), computed tomography (CT), and magnetic resonance imaging (MRI)[11,12].

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