Longstanding Retained Foreign Body in Orofacial Region: A Diagnostic Challenge

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ABSTRACT

Trauma induced orofacial injuries have chances of embedment of foreign bodies into facial tissues which may lead to the development of distressing signs and symptoms. Advancement of the diagnostic modalities have made foreign body detection easier; however, they still have limitations. So, a careful clinical examination along with proper history is mandatory before choosing any diagnostic modalities.

A 19-month-old boy suffered a month-long pus discharge from his cheek after a fall 6 months back. Despite X-rays and ultrasounds, the cause remained unclear. Based on the clinical history along with clinical assessment, retained foreign body was suspected. Surgical exploration of the site under local anesthesia resulted in to the removal of two wooden pieces of sizes approximately 3×0.6x×0.3 cm3 followed by oral antibiotics led to the uneventful healing of the wound. Detailed case history, proper examination with the aid of diagnostic modalities led to the successful removal of foreign body.

Keywords: *Antibiotics, facial injury, foreign bodies, local anesthesia, trauma, ultrasonography.*

INTRODUCTION

Trauma sustained due to fall injury, road traffic accident possesses high chances of embedment of foreign body into the orofacial region.[1] About one-third of cases of foreign body impactions go undetected during the initial examination which may become a potent source of acute or chronic infections.[1,2]

Advancement in diagnostic aids have been successfully used to detect and localize embedded foreign body.[3,4] However, small, radiolucent objects might be difficult to distinguish from body tissues on imaging tests.[5] Therefore, careful examination and understanding of the patient's history are crucial for accurate diagnosis and treatment.[6]

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Herein, a case of a 19-month-old child patient presented with embedment of wooden body on the orofacial region which was missed on routine clinical and radiographical examination is reported.

CASE REPORT

A 19-month-old male child presented to the Department of Pedodontics and Preventive Dentistry at B. P. Koirala Institute of Health Sciences (BPKIHS) with the complaint of swelling and pus discharge from left cheek region for a month. The history revealed the child to have slipped and fallen into the bushes while playing six months ago following which there was a penetrating wound to left cheek that bled profusely. Preliminary treatment of wound closure with suture was done at a nearby hospital.

Initially, the healing was uneventful until three months ago when his parent noticed a painful swelling on the same region which gradually increased in size followed by pus discharge. Blood investigation and USG reports did not reveal any impression of foreign body impaction. Incision and drainage of the abscess along with oral administration of antibiotics led to the resolution of swelling again to reoccur after two months, following which he was referred to our higher center.

Extraoral examination showed punctured wound of size approximately 0.5×0.5 cm^2 with the surrounding rim of scar puckering off the edge of the wound with sinus discharge along with diffused, ill-defined swelling on the left side of the cheek (Figure 1). Left submandibular lymph node was palpable and tender, single in number, round to oval, approximately of size 2×2cm^2 with soft to firm in consistency. Intraoral mucosae were within normal limit in color and texture.

Hematological examination showed elevated total leukocyte count (TLC) to 13400 with lymphocytic predominance (60%) and USG report revealed mild thickening of the cheek mucosa with collection of fluid size 5×5 mm^2 (Figure 2), suggestive of chronic abscess or infection of the fascial space without any evidence of foreign body. However, based on the history of incident, onset, course, progression and reoccurrence of the lesion along with its clinical presentation, the possibility of embedment of foreign body was made. Thus, a treatment plan of surgical exploration under the local anesthesia was formulated and was informed to the parents. On exploration of the lesion, two wooden pieces deep inside the soft tissue pocket of size around 0.5×2.5cm^2 were retrieved (Figure 3). Primary closure of the wound was achieved using fast absorbing 5-0 Vicryl rapide® suture (Figure 4) and the patient was put under a course of oral antibiotics (Syp. Cefadroxil-250mg/5ml-4ml-BD, Syp.Metronidazole-200mg/5ml-3ml-TDS and Syp. Paracetamol-125mg/5ml-5ml-TDS) for seven days. One week (Figure 5) and six months follow up (Figure 6) of the patient showed uneventful healing of the wound with minimal scarring.

Figure 1. Pre-operative picture showing ill-defined swelling of the left cheek and punctured wound with surrounding rim of scar causing puckering off the edge with pus discharge.

Figure 2. USG investigation report of patient showing collection of pus without evidence of foreign bodies.

Figure 3. Wooden bodies retrieved from the left cheek region (3×0.6x×0.3 cm^3).

Figure 4. Suturing of the wound after the retrieval of the wooden bodies.

Figure 5. At seven days follow up. healed sinus with little erythema around the area of incision.

Figure 6. Six months follow up showing complete healing of the wound with little scarring.

DISCUSSION

Orofacial soft tissue injuries are one of the most common injuries among young children accounting for 40-52% of all soft tissue injuries in children under the age of three with slight male predilection.[6] Due to their developing motor skills to walk, these children are more prone to falls and as they have tendency to put any objects in their mouths, increases the risk of foreign body embedment into the orofacial area among these population.[3]

Foreign body such as tooth, metals, sewing pins, wooden body, piece of glass, toothbrush heads, pencil tips embedded deeply into the oral tissues can lead to both acute complications within days or chronic complications after a month and years.[7] Acute complications typically manifest as pain, swelling, and trismus (difficulty opening the mouth), while late complications may include abscess formation, sinus discharge, granuloma formation, and even osteomyelitis (bone infection).[6,7] In case of long-standing non-healing painful wound having continuous pus discharge with the history of penetrating injury, embedment of foreign body should always be suspected.[8] In the present case, retained foreign body inside the cheek region was suspected due to the presence of chronic abscess along with sinus drainage from that area which was previously associated with penetrating trauma.

Most of the time, diagnostic dilemmas are higher in children as they cannot give accurate history of injury. Cheek is the largest aesthetic subunit of face by surface area consisting of infraorbital, preauricular and buccomandibular subunits which correlates with high frequency of injury including its underlying structures.[9] Furthermore, compared to adults, children's cheek has more loosely bound connective tissue, offering greater flexibility and space which has an ability to accommodate large foreign bodies within their fascial spaces for long time without any major symptoms.[6]

Accurate localization before removal is invariably essential to save time and to prevent further trauma or displacement of foreign bodies deeper into the fascial planes.[2] Routine radiographs, CT scan, ultrasonography (USG) and magnetic resonance imaging (MRI) can be used to confirm the presence, location, size, and shape of foreign body. [3,4] USG of cheek region was performed in this case as it is considered as a good diagnostic modality in detecting wooden bodies in the maxillofacial region.[1]

When foreign objects remain embedded in tissues for extended periods, the body reacts by forming granulation tissue around them. This creates a challenge for surgeons, as it obscures the object during surgery.[7] This might be the reason for unsuccessful retrieval of foreign body in the previous incision and drainage procedure. Additionally, ultrasound (USG) imaging, which relies on differences in tissue density, might not effectively detect the foreign body due to the similar density of granulation tissue present around the wooden bodies.[10] Furthermore, wooden body tends to adsorb water, further blurring the distinction between the foreign object and surrounding tissue, making

them even harder to detect with routine radiographs and USG. This might be the reason for unsuccessful diagnosis of the foreign body in the present case.

The treatment of choice for embedded foreign body is its removal. If it is at superficial site without contacting any major blood vessels and nerves, it can be removed under simple local anesthesia[1] Considerations for general anesthesia depends on complexities associated with procedure, depth and position of foreign body and patient compliance.[4] The wound exploration under local anesthesia, foreign body removal, copious saline irrigation and hemostasis followed by wound closure with suturing should be done.

Due to the abundance of vessels and nerves in the orofacial region, using sharp instruments for incision and drainage could worsen the condition. Therefore, the Hilton method, a non-invasive technique, is recommended.[9] Additionally, a corrugated rubber drain can be placed to remove residual fluids from the cavity. Suturing the incision and drainage wound is generally discouraged as it can lead to significant scarring. However, in this specific case, since the infection source (embedded wooden pieces) was retrieved and aesthetics was crucial for the face, wound closure with 5-0 Vicryl® sutures was performed, ensuring a large inter-knot distance to allow for drainage of any remaining exudates and fluids.

CONCLUSION

Diagnostic aids alone cannot rule out the embedment of foreign body. Due to the indistinct character of the foreign body in radiological images, contributory history of trauma and nature of injurious agent is the key to avoid future complications. In the present case, proper parental history, scrupulous clinical examination led to the clue of embedded wooden fragments which was then retrieved through surgical exploration of the site resulting in an uneventful healing of the wound.

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Conflict of Interest: None

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