

CASE REPORT

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# Broken tooth: a biological foreign body— case report



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## Abstract

**Background** Broken tooth fragments that get lodged post trauma in oral cavity lacerations should not go unnoticed during primary care of the patient. Tooth fragments can act as a biological foreign body. Unnoticed foreign bodies can give rise to granulomas, sepsis, and fistula formation.

**Aim** This article stresses on the need for all primary contact medical staff and residents to pay additional attention on patients with a loose/broken tooth and a laceration. Early removal of tooth fragment is key to avoiding granuloma formation and thus the need to excise the surrounding tissue.

**Case presentation** A 70-year-old female presented with a post traumatic upper lip swelling. A broken tooth fragment was studied on plain CT scan and removed under local anesthesia. A speedy restoration of normal anatomy was seen due to early diagnosis and removal.

**Conclusions** Dental traumas, being the commonest maxillofacial injuries, have a significant impact on the physical, cosmetic, and emotional health of the patient. Careful assessment of a patient with history of trauma and a missing/broken tooth is mandatory.

**Keywords** Tooth fragment, Upper lip, Foreign body

## Background

Mostly exogenous substances such as metallic pieces, suture material, and stone pieces have been reported to cause granuloma formation when embedded in soft tissues [1]. However, a tooth fragment can also act as a biological foreign body when embedded in soft tissues. We report a case of a 70-year-old female with history of trauma leading to a broken tooth fragment lodged in the upper lip which evoked a foreign body reaction.

## Case presentation

A 70-year-old female reported to the Otorhinolaryngology Department with complaint of a swelling over her upper lip for 1 month. She gave history of fall 1.5 months ago. This resulted in a laceration on the inner aspect of her upper lip. She took medications from the pharmacist and allowed the wound to heal by itself. The swelling appeared 15 days later and gradually progressed to a largest dimension of 2 cm.

Examination revealed a 2 × 2 cm<sup>2</sup> localized, firm, tender, fixed swelling with pus discharge over the upper lip (Fig. 1). Intraorally, mucosal scar over the upper lip was visible. The upper right incisor was chipped. There was no intraoral pus discharge.

USG of the lip demonstrated a 7-mm echogenic focus on the right side corresponding with the swelling (Fig. 2). As ultrasonography could not give the exact details of the embedded foreign body, few plain CT cuts were taken, and a radiodense lesion of HU 2456 resembling a tooth

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**Fig. 1** Preoperative photo showing the swelling over the upper lip (extra-oral)

fragment was found within the swelling (Fig. 3). These findings were suggestive of a foreign body (most likely tooth fragment) embedded in the upper lip with surrounding edema.

The wound was explored under local anesthesia, and a tooth fragment was found embedded within the soft tissue (Fig. 4). There was very minimal fibrosis surrounding it. After a thorough betadine wash, wound was closed with 4–0 vicryl sutures.

She was discharged the same day on analgesics and antibiotic ointment for local application. She had significant improvement in her first follow-up visit after a week (Fig. 5). The patient was reviewed regularly, and healing was uneventful.

**Discussion**

Dental traumas followed by soft tissue reaction are reasonably common, especially in children and adolescents [2]. The lower lip was studied to be the most common

site where the upper incisor tooth is embedded following trauma.

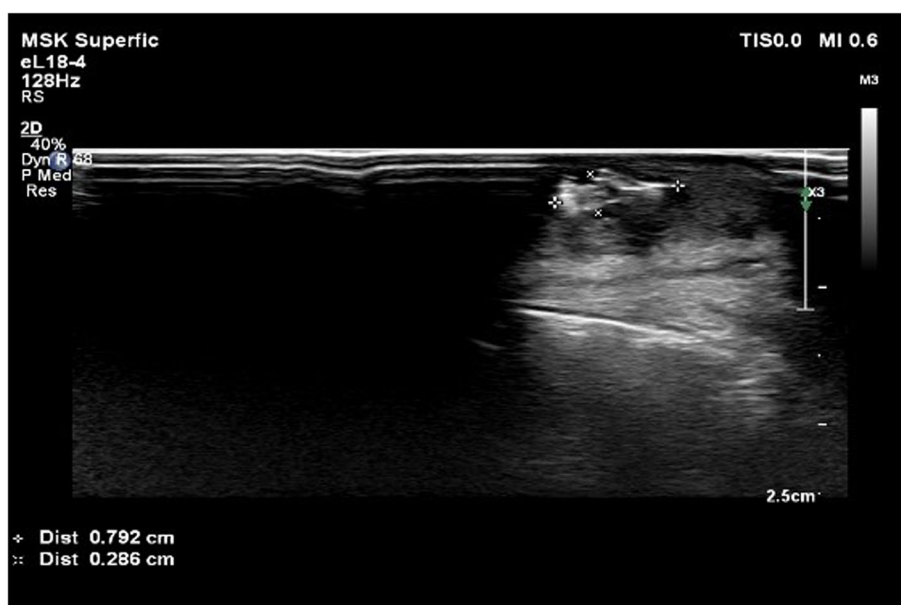
The initial attendance of patients suffering dental trauma is important, because of the physical and emotional involvement of both the patient and their family. The reason for increased vulnerability of the maxillary incisors is because of their anterior projection and the short labial lip that do not adequately protect these teeth [3].

Unnoticed foreign bodies can complicate as granulomas, secondary bacterial infection, chronic discharging sinus, fistula, and disfiguring fibrosis [4]. Besides adverse clinical outcomes, undetected foreign bodies can have medicolegal consequences if the patient takes legal action [4].

Thus, while dealing with patients of dental trauma associated with soft tissue laceration, careful attention should be paid to the whereabouts of the teeth, and all open wounds should be thoroughly assessed prior to their suturing. A thorough probing into the whereabouts of a missing tooth fragment is mandatory to prevent them from going unnoticed.

Choosing the ideal imaging modality primarily depends on the chemical composition of the suspected foreign object and on its presumed anatomical location as different objects have different radiodensities, sizes, and shapes [1, 4].

Radio-opaque objects are readily visualized on x-ray [5]. Plain CT scans of the face are ideal when dealing with objects such as tooth fragments and glass pieces, as these can get missed on radiographs and USG, due to the surrounding tissue reaction. MRI is the imaging technique for localization of plastic foreign bodies embedded in soft tissues [5, 6].



**Fig. 2** USG upper lip—7 mm echogenic shadow



**Fig. 3** Axial CT image showing embedded radio-dense foreign body in soft tissue of upper lip



**Fig. 4** Intraoperative photo—the broken tooth fragment is found embedded in the swelling. There was no surrounding fibrosis



**Fig. 5** Postoperative photo (1 week after removal of the tooth fragment)

In this case, although we used USG as the initial investigation for diagnosis, better information was obtained via CT images due to the radiodensity of the tooth fragment.

If the foreign body is diagnosed early, only mere removal is sufficient for quick restoration of the normal anatomy. As the fibrosis sets in, a thorough wash and excision of the surrounding fibrosed area is equally

important. There is no need for post procedural antibiotics.

Therefore, when dealing with wounds with missing teeth, a thorough inspection of the wound should be performed, including meticulous irrigation and curettage to try to remove any small, previously undetected fragments of foreign bodies. Even teeth fragments can pose as biological foreign bodies. The early removal of the fragment prior to development of any major tissue reactions proved to be a highly effective treatment strategy with early restoration of the normal upper lip anatomy. The wound healed rapidly due to the rich vascularity of the lips, once the foreign material was removed.

## Conclusion

Teeth can act as a foreign body. Lip injuries need to be thoroughly inspected prior to suturing. There will be complete recovery of normal anatomy if the tooth fragment is removed prior to development of fibrosis. In the event of underlying fibrosis, the fibrosed surrounding tissue will also require excision along with the removal of the foreign body to expedite recovery. CT scans will provide better image regarding the foreign body due to the densities of the different objects.

This article is extremely important for all medical staff and primary care providers and stresses on the need to pay additional attention to maxilla-facial trauma patients which can prove extremely beneficial and rewarding for the patients.

## Abbreviations

CT	Computed tomography
USG	Ultrasonography
MRI	Magnetic resonance imaging

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## Authors' contributions

KR is the author and corresponding author. PB played a major contribution in creating and editing the manuscript. The authors read and approved the final manuscript.

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## Availability of data and materials

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## Declarations

### Ethics approval and consent to participate

Ethics approval is not applicable as it was a case report. I have taken approval of the Head of Medical Division of Bhabha Atomic Research Centre on 05/09/2022 in order to publish the article. A copy of the said annexure signed by all authors is available if the journal would like to see it.

### Consent for publication

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

### Competing interests

The authors declare that they have no competing interests.

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