

Foreign body in the mandible: a case report

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Abstract: Foreign bodies are defined as any object that is foreign to a specific anatomical location. They are very common in clinical practice and every doctor ends up dealing with these cases, especially in emergency consultations. The aim of this case report is to draw dentists' attention to accidents with foreign bodies in the oral cavity that can occur in dental offices. The authors describe a case report of a 41-year-old female patient, with a dental bur lodged in her jaw, despite being asymptomatic. An expectant approach was adopted. It is important to check the entire mouth and pharynx in cases where a tooth or dental instrument is missing.

Keywords: Burs Fragment; Case Report; Foreign Body; Mandible; Mozambique.

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1. Introduction

Foreign bodies are defined as any unknown object in a specific anatomical location. They can appear accidentally, especially in children, or intentionally, particularly in adults with psychiatric issues or prisoners attempting to escape. They are quite common, and every medical practitioner ends up dealing with such cases, especially in emergency consultations. Foreign bodies are objects with the potential to cause injuries and are uncommon in a specific anatomical location [1].

In many medical and surgical specialties, foreign bodies can result from accidental causes, intentional actions, or medical procedures. Examples include foreign bodies in the rectum in general surgery, in the vagina in gynecology (due to intentional insertion for pleasure or, rarely, due to accidents or violence), in the ears, nose and airways in otolaryngology, and in the eyes in ophthalmology. In dentistry, accidents involving foreign bodies impacted in the bone or soft tissues of the oral cavity have also been reported. Dentists work daily with metallic instruments and are susceptible to instrument fractures due to poor dental technique or poor-quality materials. The question that arises is when to extract the foreign body and when to adopt an expectant approach.

Foreign bodies lodged in the oral cavity are more common in children due to the habit of placing foreign objects in their mouths. However, these cases are often underreported because they are mostly asymptomatic and are extracted by parents themselves. Cases of foreign bodies lodged in the oral soft tissues have also been reported after traffic accidents [2]. The unexpected disappearance of a tooth during an extraction should concern the dentist, as it may have become lodged in soft tissues, the maxillary sinus, or any other region of the head and neck [2]. The same applies to the disappearance of any instrument during any dental procedure, including drills, files, needles, among others.

Diagnosing the presence of a foreign body should be based on a thorough medical history and imaging examination of the suspected areas [2]. In a study conducted in the Otolaryngology Service and Emergency Department of the Central Hospital of Maputo from 1983 to 2009, foreign bodies lodged in the oral cavity represented 0.18% (9/4826) of cases, primarily of animal origin (fishbone, bone, and meat) [3]. There were more cases in adults, with the most common complications being gum laceration and abscess of the soft palate [4]. In another more recent study in the same department, with a 5-year sample, this percentage increased to 0.23% at the Central Hospital of Maputo, mainly consisting of foreign objects of plant and animal origin [5].

The purpose of this case report is to draw dentists' attention to accidents involving foreign bodies in the oral cavity that can occur in dental offices. This report addresses a rare iatrogenic complication of a common dental procedure, resulting in the presence of a foreign body in the mandible.

2. Case Report

Patient, 41 years old, female, presented at the dental clinic with a complaint of pain in the right retromolar trigone region, which had been present for 5 days. There was no fever, trismus, cervical swelling, or palpable lymph nodes, and no history of trauma. She denied having any systemic diseases. On physical examination, she had a cavitated distal carie in tooth 4.7, with pain upon vertical and horizontal percussion. No signs of a foreign body were observed in the oral cavity itself. A periapical radiograph was requested (Figure 1) to confirm the presence of the carious lesion in tooth 4.7. The radiograph revealed the presence of a foreign body distal to this tooth, prompting the request for a panoramic radiograph (Figure 2).

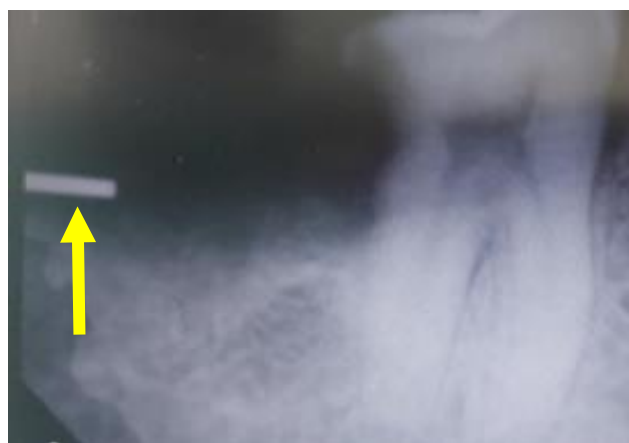


Figure 1: Periapical X-ray.



Figure 2: Orthopantomography.

Radiographic examination confirmed the presence of a foreign body in the right retromolar area, which exhibited marked radiopacity and a metallic appearance. Morphologically, it appeared elongated and narrow, measuring approximately 10 mm in length, resembling that of a dental bur. When asked about the foreign body, the patient reported having undergone the extraction of tooth 4.8 two months prior to this consultation. The patient exhibited no alterations in the region of tooth 4.8, and there were no symptoms upon palpation and percussion (Figure 3).

Endodontic treatment was performed on tooth 47 with pain improvement and it was decided to maintain an expectant attitude towards the foreign body with follow-up every 3 months. A CT scan was not requested.



Figure 3: In this image it is not possible to observe any foreign bod.

4. Discussion and conclusion

Foreign bodies resulting from dental treatment can vary in terms of their position, density, size, and potential for infection, which influences the severity of the case and possible risks to the patient [18]. It is a significant challenge to diagnose them when they are not visible during clinical examination. Therefore, it is always essential to conduct a detailed medical history and a meticulous physical examination [18]. They should be removed when suspected and detected to prevent complications. However, for asymptomatic cases, depending on the location and characteristics of the foreign object, an expectant approach without removal attempts may be adopted, with regular and sequential observation [19]. Still, the patient should be adequately informed about the risks and benefits of the surgical option versus the expectant approach. The patient should make the decision and sign an informed consent form to be included in the clinical record. There are several cases reported in the literature about accidents with foreign bodies of instrumental origin in clinical dental practice (see table 1).

Table 1: Description of cases of accidents with foreign bodies of instrumental origin in clinical dental practice.

Accident types	References
Dental Bur	(6), (7) (8)
Dental Needle	(9)
Endodontic Spreader	(10)
Dental Elevator	(11) (12)
Endodontic Files	(13)
Periodontal Probe	(14)

Amalgam	(15)
Composite Resin	(16)
Calcium Hydroxide	(17)

It was not possible to request a CT scan for a more accurate diagnosis, because, locally, no dental clinic has equipment to perform CT scans. Differential diagnosis must be made with giant cell granuloma [20] and mental nerves dysaesthesia (neurapraxia) [15] associated with amalgam material and osteosarcoma [20]. Metallic materials appear to be less reactive. The removal of foreign bodies can be challenging and depends on the size and location of the foreign body. Various techniques can be employed, including manual removal, endoscopy, and open surgical procedures. However, it is important to note that each of these procedures carries potential complications [2].

The procedure should be a priority, using a minimally invasive technique, with a hidden incision and avoiding injury to the surrounding soft tissues [21]. Occasionally, attempting to extract orthodontic instruments can damage important structures such as the inferior alveolar nerve and tooth roots, increasing the size of the hole and causing the loss of good surrounding bone, creating difficulty in locating a good site for osteosynthesis [22].

A computer-assisted navigation surgery with a customized mandible reference frame is a good method for detecting and localizing objects [21], defining the optimal approach, performing the surgical invasion strategy and reduce the operation time [16] and has been widely applied for the removal of foreign bodies in dentistry practice. In our country, we don't have this equipment. In this case, following the endodontic treatment of tooth 47, and due to the absence of symptoms, in accordance with protocol for the management of broken drills [22] we decide to conduct surveillance and monitoring every 3 months. However, the patient did not return for follow-up despite having been informed of the presence of the foreign body and the potential complications.

There are several factors that may have led to this decision, especially the lack of financial resources for a new consultation and potential extraction surgery since few patients have medical insurance. We recommend that in the future all cases with expectant management should have monthly monitoring instead of every 3 months and the patient should understand the importance of these measures and commit to collaboration and adherence. Dentists are consistently required to exercise great caution when utilizing a variety of instruments in areas with limited visibility and accessibility, such as those involving a third molar. The use of high-quality instruments and materials is recommended, and pre- and post-operative verification of the instruments used during the procedures is equally crucial [6].

The patient, who is a healthcare professional, was unaware of this iatrogenic incident, and such incidents often occur without the knowledge of medical professionals. Any incident that occurs with patients should be brought to their attention, and measures should be taken to resolve the issue to prevent future complications for both the patient and the healthcare provider. Dentists must always remember that accidents involving foreign bodies are a common phenomenon in dental offices and when faced with the absence of instruments, the mouth, oropharynx, and hypopharynx must be checked. The approach to the presence of a body requires an individualized analysis, based on the evaluation of advantages and disadvantages specific to each clinical scenario.

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Conflicts of Interest: None.

Supplementary Materials: None.

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