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Coronary fracture with insertion of the fragment in the lower lip: Case report

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ABSTRACT

INTRODUCTION: The presence of a foreign body (any object or structure that is out of its ideal location) should be considered in any injury to the head and neck region. Foreign bodies can remain dormant in soft tissues for years without causing damage, however, their presence can induce a complex acute or chronic inflammatory reaction of the foreign body type, which results in symptomatology for the patient. For a correct diagnosis and treatment plan, a detailed clinical examination is necessary, combined with imaging tests. OBJECTIVE: The objective of the present study was to report a clinical case of accidental inclusion of composite resin fragments in the lower lip mucosa and the approach adopted for this case. CASE REPORT: A female patient, who had class IV restoration in element 21, suffered a fall from her own height, resulting in the fracture of the restoration and insertion of composite resin fragments in the lower lip mucosa. The case was treated by conservative surgery to maintain lip aesthetics. Histopathological examination revealed vascularized fibrous connective tissue and amorphous material associated with the presence of epithelioid lymphocytes, confirming the diagnostic hypothesis of the presence of a foreign body. Three months after the surgery, a new extraoral X-ray of the lower lip mucosa also revealed the presence of composite resin fragments in the tissue. The patient was informed that a new surgery should be performed to remove the remaining fragments. CONCLUSION: Detailed clinical examination associated with imaging studies are essential for the correct diagnosis. Surgical removal, although often challenging, is indicated with the aim of avoiding future complications. Histopathological analysis of the removed material should always be performed as part of case management.

Keywords: Buccal mucosa, Foreign body reaction, Dental trauma.

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INTRODUCTION

The presence of a foreign body should be considered in any injury to the head and neck region (Khandelwal et al., 2018). A foreign body is any object or structure that is outside its ideal location, or any material accidentally or purposely included in the body's tissues (Morosolli et al., 2004). Common causes of the presence of traumatic foreign bodies can be accidents such as falls or car accidents, assaults and gunshot wounds (De Santana Santos et al., 2011).

The type, size, and anatomical proximity of the foreign body to vital structures and the difficulty of retrieving it can pose challenges for the dental surgeon (Khandelwal et al., 2018). For the correct diagnosis and surgical planning of foreign body removal, a detailed clinical examination is necessary, combined with imaging tests (Martorelli et al., 2020). In addition to the usual radiographic findings, such as panoramic and periapical radiography, it is often also necessary to use cone beam tomography (Martorelli et al., 2017), or even ultrasounds and magnetic resonance imaging, which are considered the gold standard for an exact three-dimensional location of the foreign body (Martorelli et al., 2020).

Foreign bodies can remain dormant in soft tissues for years without causing significant damage to adjacent structures, however, their presence can often induce a complex acute or chronic inflammatory reaction of the foreign body type, causing persistent and often distressing symptoms (Khandelwal et al., 2018; Martorelli et al., 2020).

The objective of the present study was to report a clinical case of accidental inclusion of composite resin fragments in the lower lip mucosa and the conduct adopted for this case.

CASE REPORT

A 21-year-old female patient sought dental care at the Stomatology Clinic of the Federal University of Juiz de Fora – Governador Valadares Campus (UFJF-GV) complaining of a hardened nodule and possible presence of composite resin fragments on the lower lip one month after an accidental fall from her own height with consequent class IV restoration fracture in element 21. The patient presented with photos from her personal archive (FIGURE 1 A-D) and periapical radiograph of the fractured element 21 (FIGURE 1 E). An extra and intraoral physical examination was performed, and the presence of a sessile fibrous nodule of about 1 cm, normochromic in color, and a central whitish spot firmer than the rest of the nodular tissue located deep in the labial mucosa, as well as a horizontal scar on the skin below the vermilion of the lower lip.

An extraoral radiograph of the labial mucosa was performed, showing the presence of several small fragments of composite resin (FIGURE 2A) and then the surgical removal of four fragments of composite resin associated with the soft tissue (FIGURE 2 B-E) by means of excisional biopsy, with

a conservative approach. The postoperative period was comfortable with excellent tissue repair. Histopathological examination revealed vascularized fibrous connective tissue and amorphous material associated with the presence of epithelioid lymphocytes, confirming the diagnostic hypothesis of a foreign body.

Three months after surgical removal, the patient underwent a new extraoral X-ray of the lower lip mucosa, which also revealed the presence of composite resin fragments in the tissue (FIGURE 3 A). Extra- and intraoral physical examination revealed asymmetry of the vermilion of the lip in relation to the right side (FIGURE 3 B), and the presence of a hardened nodule of about three millimeters, with a sessile base, normochromic coloration and painful on palpation (FIGURE 3 C), as well as submucosal scar fibrous tissue. The patient was informed that a new surgery should be performed to remove the remaining fragments.

DISCUSSION

Foreign bodies can penetrate superficially or deeply into the maxillofacial tissues through wounds caused by trauma, whether accidental or provoked. In addition to the clinical diagnosis, in case of any doubt of the presence of foreign bodies, complementary tests should be associated that can help in the closure of the diagnosis. Imaging tests are the most indicated tests for the identification of foreign bodies in soft tissues and should be correctly indicated for each case, such as plain radiographs, computed tomography, ultrasonography or magnetic resonance imaging. Imaging tests allow the presence of the foreign body to be confirmed, as well as more information such as the location, size, shape, and number of impacted objects or structures (Khandelwal, 2018).

In any wound resulting from a lesion that does not heal, the presence of a retained foreign body should be suspected. These can remain in the tissues for days, months, and even years after the trauma, however, over time they can result in complications. In this context, removal is indicated, except in cases evaluated individually in which removal may lead to possible injury to nearby noble or vital structures (Khandewal, 2018; Gupta et al., 2020). Some cases may be asymptomatic, but according to the literature, most are accompanied by some symptomatological condition, such as spontaneous or palpatory pain, punctual edema, continuous purulent discharge, or development of a chronic drainage fistula (Khandewal, 2018).

In the present report, emergency medical care was performed in a regional emergency room, with a clinical diagnosis of superficial mucosal cut, without the presence of a foreign body and without the need for sutures. Throughout the healing, the presence of a firm tissue at the site was noticed. The patient sought a second appointment at the Stomatology Clinic of UFJF-GV, with a clinical diagnosis of the presence of a foreign body in the mucosa, through clinical examination

associated with complementary imaging. A conservative surgical approach was chosen with removal of the fragments, resulting in a comfortable immediate postoperative period, as well as excellent tissue repair. Histopathological examination revealed vascularized fibrous connective tissue and amorphous material associated with the presence of epithelioid lymphocytes, confirming the diagnostic hypothesis of a foreign body.

The literature presents a wide variety of materials that can penetrate superficially or deeply into maxillofacial tissues through wounds caused by trauma or even by aesthetic demands, such as restorative materials, fragments of instruments, needles, aesthetic materials, graphite, rubber, pequi thorns, pieces of glass or wood, hooks, among others (Lacerda et al., 2022; Pereira et al., 2020; Pulkit Khandelwal et al., 2019; Khan, Singhal and Singh, 2015; Ugly, 2013; Puliyel et al., 2013; Passi et al., 2012).

Histopathological analysis of tissue containing foreign objects may reveal the presence of fibrous tissue, foreign body reaction, multinucleated giant cells, macrophages, chronic inflammatory infiltrate, peripheral vascularization, or often even no signs of inflammation (Lacerda et al., 2022; Pereira et al., 2020; Khan, Singhal and Singh, 2015; Ugly, 2013; Puliyel et al., 2013).

Currently, the use of injectable facial cosmetic fillers is increasing, which also leads to an increase in the number of adverse reactions. In the case series presented by Feio et al. (2013), the authors reported a case of reaction, possibly due to hyaluronic acid in the lower lip, with nodular formation of fibrous consistency and mild painful symptoms. Histopathological analysis revealed chronic inflammatory infiltrate in the connective tissue and the presence of several giant cells around translucent particles of spindle or oval shape. The definitive diagnosis was a foreign body reaction (Feio et al., 2013).

Gupta et al. presented a report of the insertion of a ballpoint pen cap in the retromolar region in a ten-year-old boy who presented with increased volume and purulent secretion on the left side of the face after three months of evolution and without a history of trauma (Gupta et al., 2020). Pereira et al. presented a case of formation of an encapsulated fibrous nodule with the presence of peripheral, vascularized collagen fibers, as well as inflammatory cells and macrophages, by accidental insertion of pequi thorns (Pereira et al., 2020).

Lacerda et al. (2022) presented a clinically compatible case with pyogenic granuloma in gingival tissue, however, histopathological examination revealed a nonspecific chronic inflammatory process suggestive of a foreign body granuloma. The authors suggested an association between both lesions, but did not identify the material as the cause of the foreign body reaction. Surgical excision was performed, and the lesion was followed for one year, with no recurrence (Lacerda et al., 2022).

De Mendoza et al. (2022) reported two cases of foreign body reaction due to aesthetic material, with clinical manifestation of edema in the upper lip with a few months of evolution. The histopathology of both cases revealed a non-necrotizing granulomatous reaction in the submucosa, with clusters of macrophages, some multinucleated giant cells, and absence of peripheral lymphocytic component. In the first case, a vacuolated material was found inside the macrophages, compatible with liquid silicone. In the second case, fragments of greenish-crystalloid material, compatible with calcium hydroxyapatite (used in collagen stimulation for facial rejuvenation and harmonization) were found (De Mendoza et al., 2022).

Regardless of the object, the reported approach was a detailed physical examination, most of the time associated with imaging tests for the correct diagnosis. The surgical maneuver to remove the object is the main modality of choice. A second surgical intervention is often indicated when the first intervention is unsuccessful in removing all the material present in the tissue (Khandewal 2018; Martorelli, 2020; Gupta, 2020)

In the present case, a second surgical intervention was indicated to remove the remaining composite resin fragments. The prognosis is usually good, with resolution of the nodular areas and associated symptoms.

CONCLUSION

The presence of a foreign body should be considered in any injury to the head and neck region. The literature indicates detailed clinical examination associated with imaging tests for the correct diagnosis. The most indicated treatment is surgical removal in order to avoid future complications. Depending on the location of the object and size of the fragments, surgical removal is challenging. Histopathological analysis is essential for any and all material removed from the head and neck region. The present study reports a case of accidental inclusion of composite resin fragments in the lower lip mucosa, as well as the approach adopted for the case.

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ANNEX 1

Figure 1. Frontal image of the patient's face showing a cut below the vermilion edge of the lower lip (A-B). Image showing a cut of the lower lip mucosa (C). Image showing the fractured incisal portion of tooth 21 (D). Complementary periapical radiography (E).

Figure 2. Extraoral radiography revealing the presence of composite resin fragments in the lower lip mucosa (A). Sequence of the surgical intervention showing the removal of the fragments (B-C), suturing (D) and storage of the fragments in 10% formaldehyde for histopathological analysis (E).

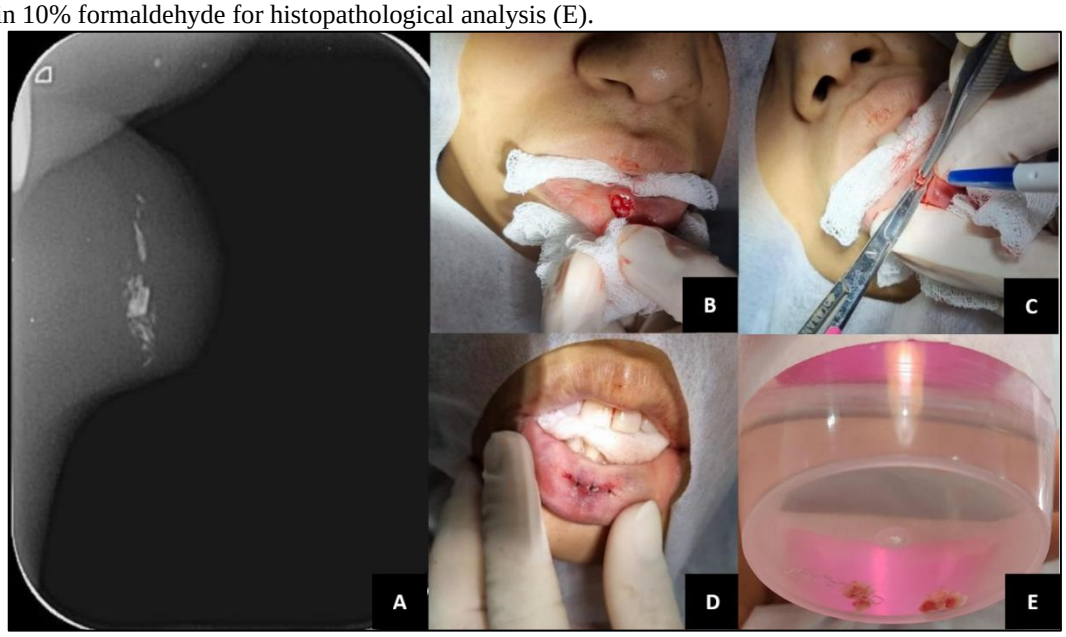

Figure 3. View of the lower lip mucosa showing good healing after seven days (A). Formation of fibrous nodulation in the lower labial mucosa after three months (B). A new extraoral X-ray also revealed fragments of composite resin in the lower lip mucosa (C).