

Peripheral Ossifying Fibroma Removed by CO₂ Laser: Case Report

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Abstract:

Peripheral ossifying fibroma is classified as a non-neoplastic reactive proliferative process. It affects the gingiva almost exclusively, and this is one of the hypotheses of the etiopathogenesis of the lesion. Clinically, peripheral ossifying fibroma presents as an exophytic nodule or tumor mass; erythematous or pinkish in color; pedunculated or sessile base; smooth surface, or under trauma, it can be ulcerated, presenting painful symptoms. It can reach variable dimensions. Among the histopathological characteristics, it may present in the stroma, foci of calcified material that are sometimes visible radiographically. The lesion may be associated with periodontal diseases, poor oral hygiene, and the presence of dental calculus. The treatment of choice is surgical excision, and local irritating factors should be eliminated. The recurrence rate of the lesion is relatively high, around 20%, usually related to the persistence of local irritating factors. The purpose of this article is to present a case of peripheral ossifying fibroma in the buccal gingiva of the maxillary left molars, in a female patient with advanced periodontal disease, who underwent surgical excision with CO₂ laser, due to abundant bleeding.

Keywords: Peripheral Ossifying Fibroma; Free Gingival Graft; Gingiva; Oral diagnosis; Oral pathology.

Introduction

Peripheral ossifying fibroma is classified as a non-neoplastic reactional proliferative process, and is relatively common in the oral cavity. Generally, the lesion affects almost exclusively the gingiva, beginning in the interdental papilla. Thus, the etiopathogenesis of the lesion, which is still discussed, may have its origin in periodontal ligament cells and/or periosteum¹⁻¹⁹.

Clinically, peripheral ossifying fibroma presents as an exophytic nodule or tumor mass; erythematous or pinkish in color; pedunculated or sessile base; smooth surface, or under trauma, it can be ulcerated, presenting painful symptoms. It can reach variable dimensions. The lesion can be associated with periodontal diseases, poor oral hygiene, and the presence of dental calculus^{1,2,4,5,7-17,19}. Among the histopathological characteristics, it can present in the stroma, foci of calcified material that are sometimes visible radiographically^{2,5,7-18}.

The treatment of choice is surgical excision, and local irritating factors should be eliminated prior to excision. The recurrence rate of the lesion is relatively high, around 20%, usually related to the persistence of local irritating factors and incomplete excision^{1-3,5,7-14,16,18,19}.

The purpose of this article is to present a case of peripheral ossifying fibroma in the buccal gingiva of the maxillary left molars, in a female patient with advanced periodontal disease, who underwent surgical excision with CO₂ laser due to abundant bleeding.

Case Report

A black female patient, 24-years-old, came to clinic complaining of a lesion in her mouth. During intraoral clinical examination, the patient presented a tumor mass, approximately 30 mm in diameter, erythematous in color, located in the keratinized gingiva between teeth 24 and 26, with 2 years of evolution. In occlusion, the lesion was also directed to the mandibular teeth, covering them (Figure 1). The patient also presented poor oral hygiene and installed periodontitis.

Radiographically, bone loss inherent to periodontitis was observed (Figure 2). No systemic diseases or conditions were reported, and no drugs were routinely administered.

Initially, periodontal treatment was proposed, emphasizing the importance of prior surgical removal of the lesion. The patient declined this recommendation, urgently requesting surgical excision. The patient reported fear and anxiety at the possible diagnosis of malignancy of the lesion.

Under local infiltrative anesthesia, the lesion was incised through the pedicle (Figure 3) using the CO₂ laser (Sharplan 20C™, Tel Aviv, Israel), due to the need for hemostatic control (Figures 4 and 5). Due to difficulty in hemostasis, surgical cement was inserted covering the surgical site after the end of surgery (Figure 6).



Figure 1: Lesion located in the keratinized gingiva between teeth 24 and 26.

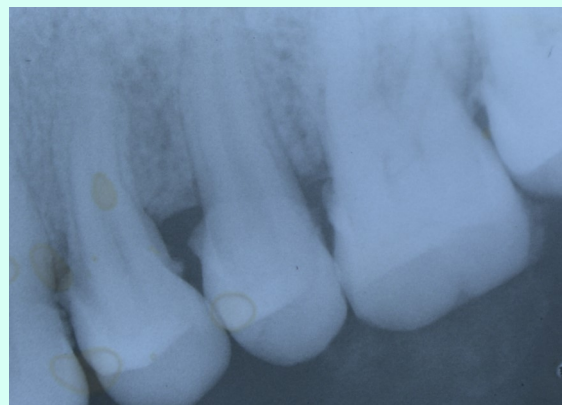


Figure 2: Bone loss observed inherent to periodontitis.



Figure 3: Pedicle of the lesion and periodontitis adjacent.



Figure 4: Incision of the lesion's pedicle using the CO₂ laser.



Figure 5: Immediate post-surgical.



Figure 6: Insertion of surgical cement covering the surgical site after the end of surgery.

The patient was given analgesic, anti-inflammatory and antibiotic drugs.

The removed lesion (Figure 7) was fixed in 10% formalin and sent to the Laboratory of Surgical Pathology of the School of Dentistry, University of São Paulo. The sections revealed epithelial tissue with areas of ulceration and underlying chronic inflammation. In permeation of the connective tissue, fusiform fibroblasts and foci of bone tissue surrounded by osteoblasts were observed. The final diagnosis was peripheral ossifying fibroma (Figure 8).

After 15 days, the patient was evaluated. The surgical cement was removed (Figure 9) and partial healing of the surgical wound was verified (Figure 10). The patient was referred for periodontal treatment.

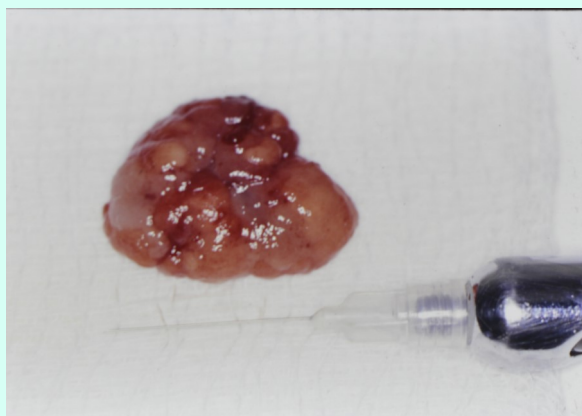


Figure 7: Lesion removed.

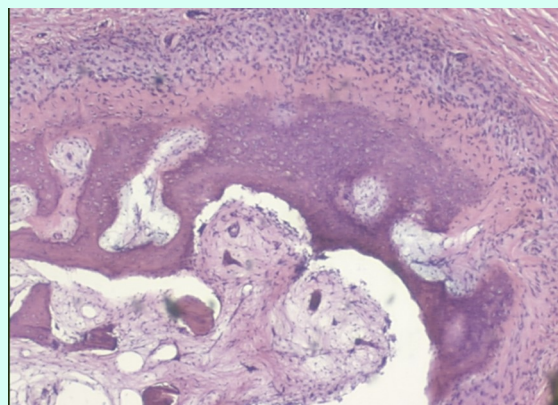


Figure 8: Histopathological aspects of the peripheral ossifying fibroma (HE; 25 X).



Figure 9: Surgical cement after 15 days post-surgery.



Figure 10: Partial healing of the surgical wound.

Discussion

The synonymy for peripheral ossifying fibroma included several other designations: peripheral cementifying fibroma, fibroblastic granuloma, peripheral fibroma with calcification, ossifying/calcifying fibroid/fibrous epulid, calcifying granuloma, calcifying fibroblastic granuloma^{2,4,8,11,14,15,17}.

Peripheral ossifying fibroma has a peak incidence in the 2nd and 3rd decades of life, with a greater predilection for females. The anterior region of the maxilla is more involved^{2-6,8,12,15-18}.

The clinical characteristics vary between nodule or exophytic tumor mass; affecting almost exclusively the keratinized gingiva, frequently beginning in the interdental papilla; well delimited; varying in size from a few millimeters to a few centimeters; smooth surface or, under mechanical trauma, ulcerated, which can indicate painful symptoms; erythematous to pinkish color; pedunculated or sessile base; resistant, although slightly resilient to palpation^{2-5,7-17,18,19}.

Cortical bone destruction; tooth movement, migration, or mobility can occur caused by the lesion^{3,10,12,14,16-18}. In some cases, depending on the affected dimension and locality, it can interfere with the usual functions of the patients, such as chewing, swallowing, and phonation, or even generate facial asymmetries and subsequently psychological disturbances^{1-4,18}.

The lesions may or may not ^{10,17} present radiopaque images as radiographic signs, resulting from foci of calcification ^{2,5,12,13,16,18}.

The etiopathogenesis is still discussed. It has been postulated the origin from cells of the periodontal ligament, by the incidence on the gingiva. Local irritative factors are also very present, indicating the proliferative reactional lesion in the face of inflammatory and infectious process^{1-3,5,6,9}. The higher occurrence in females suggests that hormonal factors are important in the etiopathogenesis of the lesion¹³.

The differential diagnosis is broad and includes: pyogenic granuloma; fibroma; peripheral giant cell lesion; inflammatory fibrous hyperplasia; peripheral odontogenic fibroma; giant cell fibroma^{1,2,5-7,10,12,14-16}. In neonatal children, newborn cyst and eruption cyst can be considered^{6,11}.

The preconized treatment is surgical excision, by incision close to the periosteum and underlying bone, in order to avoid recurrence of the lesion^{1,2,4-6,11-13,16,19}. Additionally, other procedures may become necessary. As well as the present report, using the CO₂ laser, due to the need for hemostasis, other authors have suggested the use of the laser. Tavares et al.⁶ (2020) used the diode laser in the removal of peripheral ossifying fibroma in a 2-month-old patient. Advantages such as reduced amount of anesthetic, absence of sutures and better post-surgery were pondered⁶. Complementarily, in our case, due to the need, we opted for covering the surgical wound with surgical cement to favor hemostasis. Surgical removal of the peripheral ossifying fibroma by piezosurgery and filling of the bone defect by platelet-rich fibrin, obtained from the blood of the patient collected before the start of surgery, was reported³. Removal of local irritating factors was recommended^{1,3-5,9,15-19}. Prior to surgical excision, basic periodontal treatment should be performed^{12,15,19}. In the present report, periodontal treatment was indicated before surgery. However, due to fear of the nature of the lesion, the patient declined and requested prompt removal of the lesion.

Because of the high recurrence rate of the lesion (from 8 to 20%), follow-up should be performed^{1,2,8,10,12,13,15,17,18}.

Conclusion

Peripheral ossifying fibroma presents as an exophytic tumor mass that can reach variable sizes, which can cause doubts and discomfort to patients. Usually associated with periodontal diseases, it should be surgically removed after periodontal treatment. Patients should be reassured about its nature, as it is a non-neoplastic reactional proliferative process. Follow-up should be performed due to high frequency of recurrence of the lesion, always guiding patients. The excision of the lesion by laser surgery assists in the trans- and post-surgery, favoring hemostasis and tissue healing.

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