Giant cell fibroma: a case report

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This article describes a case of giant cell fibroma in a 3-year-old boy, which is an uncommon age for this lesion. The cause of this pathology has not been determined. The lesion was excised by electro surgery and submitted to a histological exam, which confirmed the diagnosis. No recurrence was observed. Pediatric dentists should be capable to diagnose and treat this kind of lesion despite this lesion being an unusual pathology among children.
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INTRODUCTION

Giant cell fibroma (GCF) is a lesion of the oral mucosa, and represents 5 to 10 percent of all fibrous lesions.[1,2] It differs from other lesions because of the particular clinical and histological characteristics, specially the presence of giant cells. The first description of GCF dates from 1975.[1]

Clinically, GCF is an asymptomatic, pedunculated and papillary fibrous lesion. Histological features are: presence of giant cells, squamous epithelium in different stages of keratinization and hyperplasia, immature connective fibrous tissue presenting large stellate fibroblasts and absence of granulation tissue.[1-4] Mono and multinuclear cells, which are also part of lesion, present characteristics related to protein synthesis as well as fibroblasts. However, the first contains more microfibrils.[5]

The origin of GCF has been discussed by literature, but some questions have not been answered yet. Initially, it was believed to have a connection with Langerhans cells or melanocytes[1], the maturation process of granulation tissue, such as with a pyogenic granuloma[5] and nonspecific reaction of fibrous hyperplasias.[11] However, recent histological,[6] ultrastructural[5] and immunohistochemical research[3,7,8] have contradicted these theories. Currently, the most accepted hypothesis is the evolution of GCF as a response to trauma or to a recurrent chronic inflammation,[6] characterized by functional changes in fibroblastic cells[3,7,8] while other cells would take over for collagen synthesis.[3] This idea is in accordance to the similarity between GCF and normal oral mucosa, when analyzed by tenascin-C immunoreactivity.[9]

The incidence of GCF is higher among caucasians,[1-2] in 2nd and 3rd decades of life.[1,6,10,11] However, another researcher showed 3rd and 4th decades as the most common age for GCF occurrence.[2] Studies have observed GFC preference for females[1-2,10] or absence of predominance related to sex.[6,11] The site of predilection has been the gingiva.[1-2,6,10-11]

CASE REPORT

A 3-year-old Caucasian boy, whose complaint was a gingival swelling, which was growing, but not causing pain, was brought to the Pediatric Dentistry Clinic in Dental Research Center São Leopoldo Mandic. The lesion was triangular, fibrous and pedunculated located in gingiva, specifically between teeth 52 and 53, near hard palate. The surface was nodular and coloration was similar to the normal oral mucosa (Figure 1). It measured approximately 5mm in diameter. The radiographic exam did not show any evidence of a lesion in hard tissues (Figure 2).

Based on clinical appearance, the differential diagnosis was fibrous hyperplasia and fibroma.

First the child was introduced to the dental environ-

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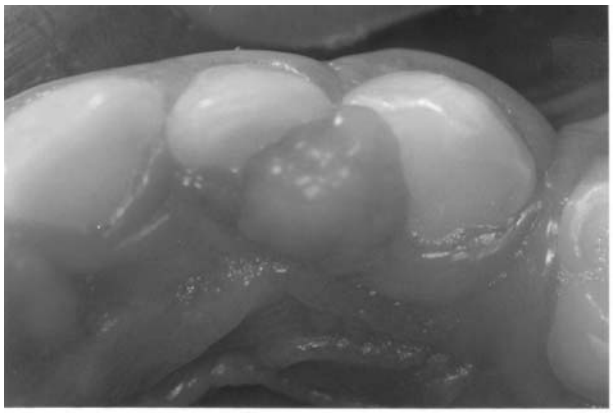


Figure 1.

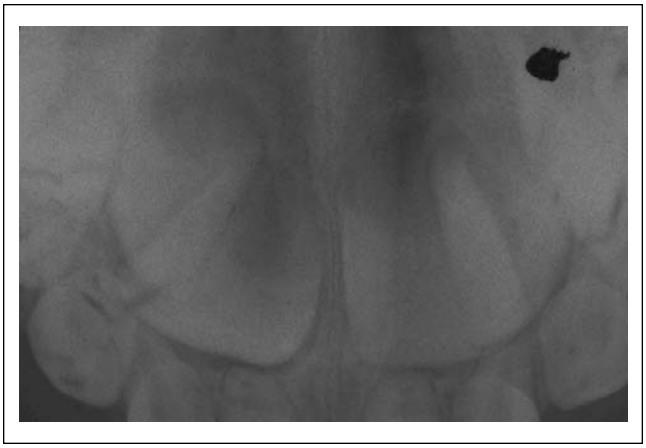
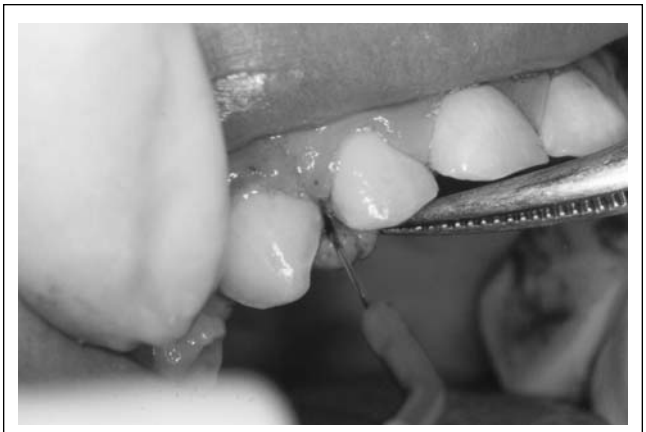


Figure 2.



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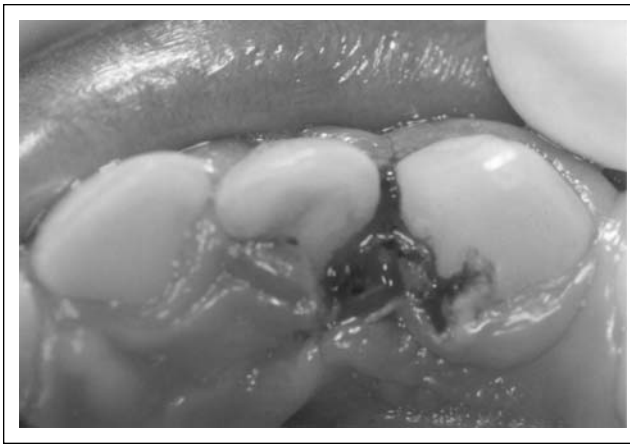

Figure 4.

Figure 5.

ment. In the following appointment, the area where the lesion was located was anesthetized. The lesion was excised by using electro surgery (Figure 3). No suture was required to stop bleeding (Figure 4).

Excised tissue was sent for analysis to the Oral Pathology Laboratory of University of São Paulo (Figure 5). Histological analysis of the excised lesion showed a piece of oral mucosa composed by hyperparakeratin squamous stratified epithelium and fibrous connective tissue. In the epithelium, some projections were seen on the connective tissue (Figure 6a). The connective tissue presented many short collagenous fibers, stellate giant fibroblasts, sometimes multinuclear fibroblasts (Figure 6b) and some inflammatory mononuclear cells.

The postoperative visits, after a week and a month, were considered good, with no pain and normal tissue healing (Figure 7). Recurrences of lesion have not observed, but the child still returns regularly (every three months) for clinical evaluation.

DISCUSSION

The GCF is an unusual pathological entity among young children, being more prevalent among teenagers and young adults (2nd and 3rd decades of life).[1,6,10-11] Therefore, this clinical description (3-year-old child) is atypical according to age. Despite being rare, 5 percent[2] to 15.5 percent[11] of evaluated GCF had been found in children from birth to 10 years. Age 4 years was the

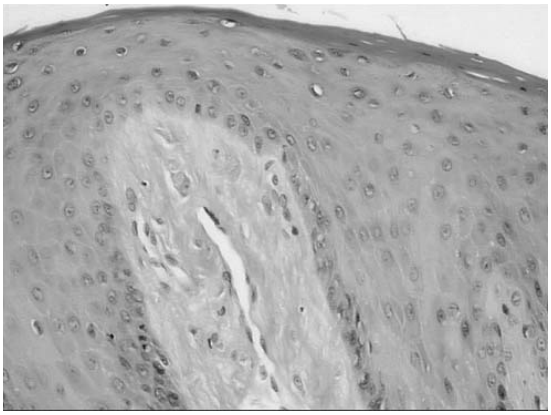

Figure 6a.

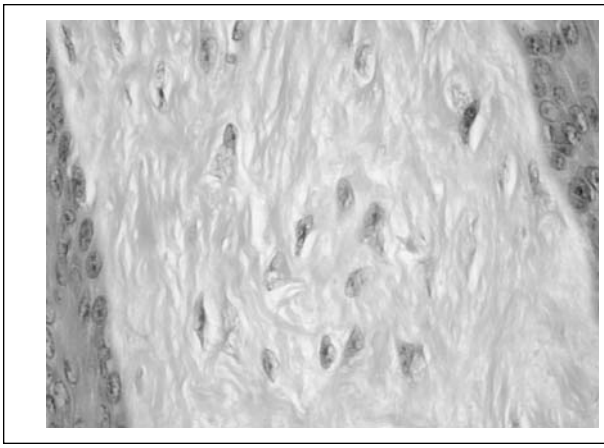

Figure 6b.

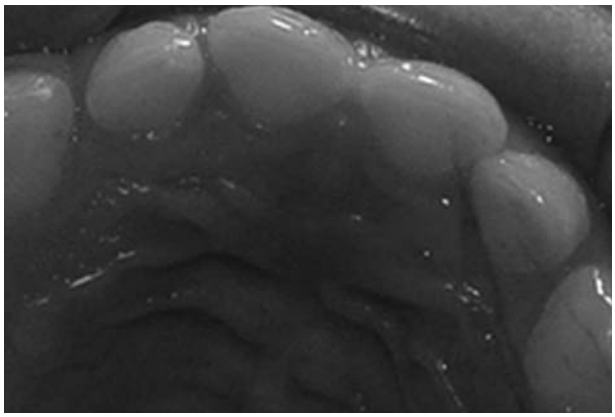

Figure 7.

youngest age found.[2,11] Consequently, the pediatric dentist participation should be emphasized in diagnosis of this kind of lesion.

Some authors have reported GCF usually prefers mandibular gingiva (mandibular-to-maxillary ratio 2:1),[1,2] this one appeared in maxillary gingiva, next to hard palate.

Clinical and histological characteristics observed in this case are similar to others described in the literature, especially because of its clinical appearance of a well-grown delimited, coloration similar to normal oral mucosa and papillary connective tissue, with short collagenous fibers (characteristics of an immature connective tissue) and significant presence of giant cells. Size of the lesion is generally under 5mm[1,2]

In spite of being similar to a hyperplasia, the GCF presents some particularities (age, sex, race), which separate it from other entities.[13] Currently, the most accepted origin of GCF is fibroblastic,[3,7,14] probably associated with miofibroblasts.[7] Besides, the histogenesis is not completely understood,[3,7,11,14] because of questionable fibroblastic changes in the histopatologic analysis (a functional differentiation or a degenerative one).[11,14] Furthermore, some authors pointed GCF as a response to trauma or recurrent chronic inflammation.[6,12] In fact, this entity has not been considered a truly neoplastic lesion because of absence of fibrous capsule around it and a singular vascularity.[13] Granulation tissue is not seen in this kind of lesion in spite of existing some vascular dilatation and engorgement vascularity, eliminating the hypothesis that GCF arises from cells of pyogenic granuloma. [2,6]

Presence of inflammatory cells, typical of GFC,[2,6,8,11] support the idea that fibroblastic differentiation could be induced by a recurrent inflammation, but also could be a response to a low intensity trauma that occurred after lesion formation.

Considering clinical features, the differential diagnosis was fibroma and fibrous hyperplasia. However, the histopathological analysis was required to conclude the diagnosis, so that some distinctive characteristics, as presence of giant cells, could be checked. As the treatment for the lesion is excision,[4] the biopsy represented the therapeutic stage.

Pediatric dentist participation should also be emphasized during these procedures because of their ability to work with children.

Electrosurgery has been used in Dentistry since 1930's and advocated for Pediatric Dentistry since 1965.[15] Nevertheless, it has been subject of much controversy. The lateral heat produced within adjacent to electro surgery electrode has been the greatest problem with this technique.[16,17] On the other hand some variables, as frequency, size of electrode, wavelength, and cooling period, are controlled by the dentist to minimize heating effects.[18,19] All in all, there are numerous indications for electro surgery in dentistry,[20] including treatment of children.[15]

The choice of electrosurgery to remove the lesion was done based on the power of cutting and coagulating soft tissues simultaneously.[20] Furthermore, having no need to suture (a difficult task when executed in hard palate mucosa). Clinically, tissue after electro

surgery contact is similar to traditional surgical blade incision. In fact, heat production causes initially alterations in epithelial cells and zones of denatured collagen, but these histological responses do not change final result of healing process and gradually disappear during a 2-week period.[19] Thus, electrosurgery was a good option for biopsy in children. The recurrence is not frequent in cases of GCF,[4] but recall visits are important.

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