

Cemento-Ossifying Fibroma: A Case Report

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Abstract

Cemento-ossifying fibroma (COF) is a benign bone neoplasm; it's considered that its origin is the periodontal ligament. Presents a slow-growing lesion and could cause deformation of affected area. A case of incidental finding in a 20-year-old patient is presented; it was found in a control examination of post-orthodontic treatment, located in the canine area of the jaw. Early diagnosis requires the integration between the clinic, the radiology and the anatomic-pathological study of the lesion; this allows early applying an adequate therapy. It is important to follow up the treated patients; in this case, it's allowed to identify incidental findings. The interdisciplinary work was fundamental for the diagnosis and treatment of this pathology. The objective of this work is to present an incidental finding of a cemento-ossifying fibroma.

Keywords: Cemento-Ossifying Fibroma; Incidental Finding; Orthodontics-Canine

Introduction

Cemento-ossifying fibroma (CFO) is considered a benign fibro-osseous neoplastic lesion. It can affect the maxilla as well as the jaw. It's considered odontogenic in origin, mainly from the periodontal ligament, is more frequent in women than in men. It appears between the second and fourth decade [1]. Although, it can be found in a wide range of age [2]. CFO is a well-defined, encapsulated neoplasm that contains fibrous tissue and variable amounts of calcified tissue that looks like bone, cement, or both [1,3,4]. In 62–89 % of the cases affects the jaw with predilection for the premolar and molar area [4,5]. However; there are reports in the literature with other locations, such as maxillary sinus and bilateral jaw [4,6].

Histologically it consists of fibrous tissue, which presents several degrees of cellularity with mineralized material as abnormal bone like cement. Clinically appears as a localized and indurated tumor that displace teeth [7]. Radiographically, CFO initially presents a well-defined radiolucent lesion, which is gradually transformed with radiopaque foci dispersed. Radiopacity may change depending the amount of cement and bone that has been deposited. Some of these can contain calcifications. CFO may appear as a unilocular or multilocular radiolucent lesion, which then becomes into a radiopaque, resulting in a lesion with mixed density, associated with cortical expansion, with or without sclerotic borders [7,8]. This article describes a case of an incidental finding, in a post-orthodontic follow up. Clinical and radiography images of a central CFO are presented in a female patient in the canine area of the jaw.

Case Report

A 16-year-old female patient underwent a panoramic radiography before orthodontic treatment due to dental crowding (Figure 1). After two years, a panoramic radiograph was required to remove the orthodontic appliances (Figure 2 and 3). At 20 years-old, a panoramic radiography was indicated to be controlled by her orthodontist, a radiolucent lesion of rounded shape with well-defined border, affected the teeth's apical area involved in the lesion, clinically asymptomatic, without cortical plates expansion (Figure 4).



Figure 1: Panoramic radiography at 16 years-old, before the orthodontic treatment

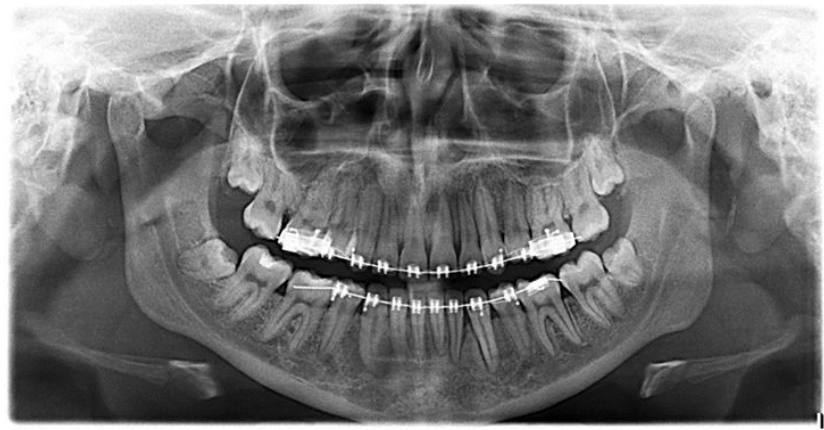


Figure 2: Panoramic Radiography at 18 years of age, without the first premolars, there is generalized widening periodontal space as a consequence of orthodontic dental displacement



Figure 3: Intraoral pictures of the end of orthodontic treatment.



Figure 4: Digital panoramic radiography after two years removing orthodontic appliance, apical radiolucent lesion of rounded shape well-defined limits that extends from piece 4.5 to 4.1 that respects the bony cortices.

In the oral examination, the teeth involved in the lesion present vitality, there wasn't mobility, and there was not pain at the percussion. The patient didn't remember any trauma in the area, as to assume a cyst of traumatic origin.

It was decided to do an aspirative puncture to discard cystic lesion content. The syringe offered a lot of resistance or negative pressure to the aspiration. There weren't enough material samples for pathological anatomy. A tomography was requested and the decision was to take material through a conventional biopsy (Figure 4). Mandible CBCT scan show well round lesion, the edges of the tumor are smooth, well defined and poorly corticated. The lamina dura of involved teeth is missing. The internal structure may be a mixture of radiolucent and radiopaque tissue. When the flap was detached, it was observed that the internal face or the periosteum was invaded by soft tissue as shown in the tomography; the lesion had eroded the vestibular cortical around the canine and the presence of a sandy soft tissue easy to remove (Figure 5 and 6). Representative samples were taken on both sides of the canine, at different depths to refer as much as possible to the pathological anatomy.

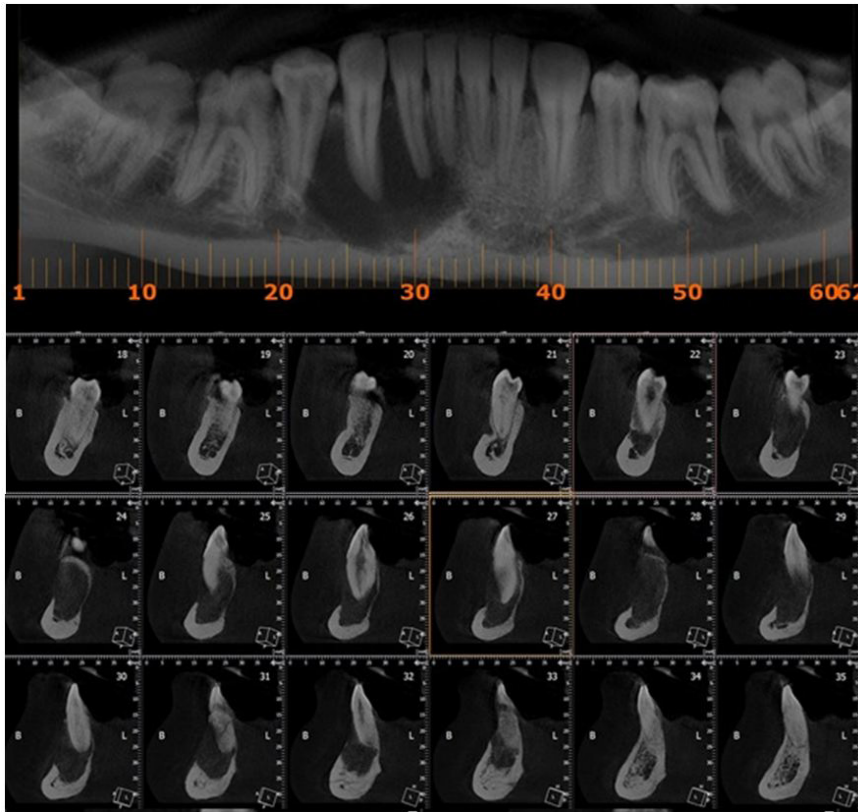


Figure 5: Cone beam computed tomography images of the cemento-ossifying fibroma. Panoramic and Cross-sectional views show a well-defined round lesion with mixed density surrounded by a poorly corticated rim in the canine region of the right mandibular body, buccal cortical perforation and loss of lamina dura of teeth



Figure 6: The round lesion had eroded the vestibular table around the canine in de 3D volume

Once the sample was delivered and the preparations were ready, we contacted the pathologist and explained what was observed in the preoperative studies, as well as the details of the clinic and photos of the intervention, which was of great importance to make the diagnosis easier (Figure 7). A week later, the sutures were removed and the only complication observed was the numbness sensation caused by the compression of the mental nerve during the intraoperative maneuvers, which repaired and recovered its normality after 21 days. Today the patient requires treatment.



Figure 7: Intraoperative image showing the loss of the vestibular cortical and the sandy content of the lesion

Discussion

The FCO was describe and named for the first time in 1827 by Menzel, frequently appears in head and neck regions and represents an aggressive pattern when it comes to the middle of the face or the Para nasal sinuses [9,10].

In 1968, Hamner, *et al.* analyzed 249 cases of fibrous lesions of the jaw with origin in the periodontal membrane and classified them [11,12]. The origin of this lesion is the periodontal ligament due to the mixed content of the lesion [13].

In 1971, WHO had classified for the first time in 4 types of cement-forming lesions: fibrous dysplasia, ossifying fibroma, cementifying fibroma and FCO [14].

According to the second WHO classification, benign fibro-osseous lesions in the oral and maxillofacial regions were divided into two categories, osteogenic-neoplasm and non-neoplastic bone lesions; cementifying ossifying fibroma belonged to the first category [15]. In the new WHO classification (2005) the term "cementifying ossifying fibroma" was reduced to *ossifying fibroma* [16]. This was because cementum and bone are essentially the same tissue and can only be distinguished by their relationship to the tooth root [17]. The new 4th edition therefore classifies cemento-ossifying fibroma as a benign mesenchymal odontogenic tumour with Odontogenic fibroma, Odontogenic myxoma/myxofibroma, Cementoblastoma [18]. The terminology "cemento" has been restored to cemento-ossifying fibroma and cemento-osseous dysplasias, to properly reflect that they are of odontogenic origin and are found in the tooth-bearing areas of the jaws [19].

It is mainly located in the jaws, it can also be found in other areas such as the temporal, frontal, sphenoid, ethmoid and orbit bones [5,20,21]. This case was an incidental finding radiolucent lesion, with oval shape [20]. Located in the canine area, but it's usually located in the premolar and molar areas [22]. The patient received the orthodontic treatment before the clinical manifestation of the pathology.

It is important to highlight the characteristics of the lesion that forces us to differentiate with other pathologies, such as fibrous displasia, show wide sclerotic border of the cysts and is multifocal. The radiologic differentiation of central cemento ossifying fibroma from Gorlin cysts and Pindborg tumors is difficult if it is not associated with impacted teeth, with which they have a high association. The well-defined border of the central cemento ossifying fibroma helps differentiate from the aggressive sarcomas and carcinomas [22]. In hemorrhagic cysts, the edges are more defined. The differential diagnosis with other fibro-osseous entities such as, the osseo-cementifying dysplasia (florid and periapical and focal dysplasia), fibrous dysplasia and other such as osteoid osteoma, osteoblastoma or chronic sclerosing osteomyelitis [16]. When there is close proximity to the apices of the teeth, as the presented cases, differential diagnosis could be done with chronic periapical periodontitis, although other radioluscent mandibular lesions should never be pointed out as a solitary osseous cyst, keratocyst, ameloblastoma.

Although MacDonald-Jankowski considered that radiological diagnoses was not difficult for specialist radiologists, however, for the early lesion similar radiological appearance of the tumour in the jaw bone may confused the diagnosis [13].

Conclusion

Cemento-ossifying fibroma is a very uncommon benign tumor. The interdisciplinary work is fundamental to make an accurate diagnosis. Allowing the early identification of the tumor to take early therapeutic measures.

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