

Central odontogenic fibroma: A case report

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ABSTRACT

Objective: The aim of this case report was to analyze clinical and histological features of a central odontogenic fibroma followed up for 6 years after surgical excision.

Methods: A 26-year old Caucasian female was referred, reporting a painless gingival swelling in the buccal area of the maxillary right canine. There were no other symptoms and no recent history of pain. Her medical history was non-contributory. Radiographic evaluation showed the presence of a radiolucent area with well-defined margins. The lesion was surgically removed and histologically analysed.

Results: Histologic analysis showed a cellular fibroblastic tissue characterized by interwoven bundles of collagen densely packed and absence of odontogenic epithelium. The surgical site was monitored for 6 years after surgery with no signs of recurrence.

Conclusion: The central odontogenic fibroma here reported displayed a prominent quantity of collagen and absence of odontogenic epithelium. The surgically removed lesion had a favourable prognosis and no recurrence for the 6 year follow-up period.

Key words: Central odontogenic fibroma, endodontic disease/diagnosis, oral tumors.

INTRODUCTION

The central odontogenic fibroma (COF) is a rare and benign neoplasm that could appear very similar to the endodontic lesions and/or to the other odontogenic tumors (1, 2). This lesion is considered to be derived from the mesenchymal tissue of dental origin such as periodontal ligament, dental papilla, or

dental follicle. The central odontogenic fibroma consists of collagenous fibrous connective tissue containing varying amounts of odontogenic epithelium (3). Connective tissue proliferation can have different localizations and there exist both intraosseous (central) and gingival (peripheral) lesions designated as odontogenic fibroma. While peripheral odontogenic fibroma clearly represents a periodontal lesion, the central odontogenic fibroma usually resembles an endodontic lesion and it is reported in endodontic or oral pathology journals (4, 5).

Some authors in an international classification of oral tumors have reported that some COF could contain varying amounts of hard tissue resembling dysplastic cementum or bone (6). Clinically, the central odontogenic fibroma could appear as an asymptomatic expansion of the buccal or lingual cortical plate, occurring in the mandible and in the maxilla with equal frequency. In the maxilla the lesion appears frequently to involve the anterior region, whereas in the mandible the lesion tends to be located in the posterior area, involving the premolar and molar areas. The radiological examinations of this lesion appear as an area of radiolucency or as an area with a mixed radiodensity, most of the time the lesions have well-defined borders (7). The central odontogenic fibroma has been described as a unilocular (8, 9) or a multi-locular radiolucent lesion (10), root resorption and displacement have also been reported in cases of more severe lesions.

The aim of this case report was to analyze clinical and histological features of a central odontogenic fibroma, occurring in the area of the maxillary canine and followed up for 6 years after surgical excision.

CASE REPORT

A 26-year old Caucasian female was referred to us with a chief complaint of painless gingival swelling in the buccal area of the maxillary right canine. The patient reported slow growth of the lesion during the last two years; she believed that the small diastema present between the maxillary right canine and lateral incisor was increasing. There were no other symptoms and no recent history of pain. Her medical history was non-contributory.

The oral examination showed the presence of an enlargement of the buccal maxillary right canine region, extending to the area of the canine and first premolar. The overlaying mucosa and gingiva were of normal colour and smooth in texture. The canine appeared to have been slightly displaced by the lesion. The mass was firm, raised, not tender and no fluctuation was evident on manual palpation. All the teeth in the area were positive to thermal testing; percussion and palpation tests were within normal limits. The needle biopsy did not give any result.

Radiographic evaluation showed the presence of a unilocular radiolucent area between the maxillary right canine and first premolar. The radiolucency did not appear to involve the teeth apices. The margins of the lesion appeared to be well-defined (Fig. 1).

A comprehensive explanation was given to the patient, who signed an informed consent.

An intrasulcular incision and two vertical releasing incisions were made in order to better mobilize the full thickness flap and a buccal flap was raised to give access to the lesion. An absence of buccal cortical bone was observed, the limits of the lesion were identified. The lesion, which was white and of stiff-elastic consistency, was removed and enucleated intact. After lesion removal a horizontal bone defect with no bony walls was observed. The residual bone defect was vigorously and thoroughly curetted and the exposed root surfaces were scaled and planed with ultrasonic and hand instruments. The bone defect did not reach the root apex areas of the adjacent teeth. The mucoperiosteal flap was repositioned and primary closure was achieved using 3/0 silk sutures. The patient was prescribed amoxicillin, 2 gr, at the time of surgery, then 500 mg, 3 times daily, for 5 days. The patient used chlorhexidine as a postoperative oral rinse for 30 days. Sutures were removed at 7 days after surgery. Instructions were given to the patient to neither brush nor floss the surgical area for the first 4 weeks and to continue the chlorhexidine application to the surgical area.

The surgical site was monitored for 6 years after surgery with no signs of recurrence and with a complete soft and hard tissue healing (Fig. 2).

Histological examination of the lesion was carried out as follows: the specimen was fixed in phosphate-buffered neutral formalin for 1 day, subsequently, 5 micron paraffin sections were obtained and stained with hematoxylin and eosin.

Histologic analysis of the tissue obtained from the specimen showed a cellular fibroblastic tissue characterized by densely packed interwoven bundles of collagen. The fibroblastic cells were slightly elongated with thin and fusiform nuclei, which appeared intensely stained. Many areas of the lesion showed a

random distribution of fibroblastic cells (Fig. 3), whereas some other areas showed a distribution resembling an elongated rete ridge. The lesion had a component of reactive hyperplastic collagen, which contributed to the overall size of the lesion.



Fig. 1. Periapical radiograph showing a radiolucent area with well-defined margins in the maxillary right canine area.



Fig. 2. Periapical radiograph 6 years following surgical excision.

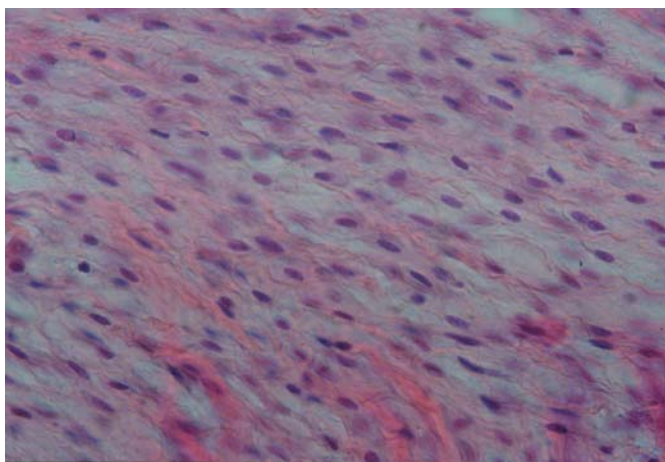


Fig. 3. Histologic features of biopsy specimen showing a cellular fibroblastic tissue characterized by interwoven bundles of collagen densely packed and absence of odontogenic epithelium. (Hematoxylin-eosin stain; original magnification X 150).

DISCUSSION

Although the Central Odontogenic Fibroma is a rare lesion of the periodontium, general dentists and periodontists should consider the presence of COF because this lesion closely resembles the endodontic lesions. The COF lesion is often diagnosed in the second and third decade of life.

In international literature a considerable age range was noted. Some authors reported a distribution related to gender with a 2.2 to 1 ratio of women to men (11). The most frequently observed sign was swelling and, moreover, several clinical cases showed the presence of slowly-growing diastema, due to the dislocation of the adjacent teeth. Clinical symptoms such as pain and paresthesia were uncommon.

The radiographic features of the central odontogenic fibroma were compatible with radiolucent lesions with well-defined borders. The radiographic unilocular or multilocular aspect of the lesions seemed to be dependent on the dimension of the lesion. Small fibromas (about 2 cm) had a radiographic unilocular appearance, whereas large lesions (about 4 cm) had a radiographic multilocular appearance (12).

Many clinical cases of odontogenic fibroma showed a dislocation of adjacent teeth and, sometimes, root resorption. The case reported in this study showed a unilocular radiolucent area with well-defined borders associated with the dislocation of adjacent teeth without any sign of root resorption (13).

The radiographic features of the COF are similar to other peripheral odontogenic tumors such as traumatic bone cyst, ameloblastoma, odontogenic cyst and central giant cell granuloma (14). It was originally thought that most of these lesions have multilocular radiolucencies, but the current reports showed that there were more unilocular than multilocular radiolucencies (14).

The histologic differential diagnosis is based on the presence of the reactive fibrous hyperplastic tissue, which may contain occasional inactive odontogenic cells. A variety of mineralised

tissues such as bone, dentinoid or even cementum-like material may be found, sometimes associated with the odontogenic epithelium.

According to the latest classification of odontogenic tumours reported by Gardner (15), the odontogenic fibroma (OF) is classified as a benign lesion derived from “odontogenic ectomesenchyme with or without odontogenic epithelium”. This classification has been applied to various types of lesions, characterized by the presence of connective tissue containing islands and strands of odontogenic epithelium, and sometimes associated with the presence of dystrophic calcification. The author (15) reviewed the information concerning the central odontogenic fibroma identifying lesions with two different histologic patterns. The first type, classified as simple, contained fibrous tissue with various amounts of collagen and the second type, which has been referred to as the WHO type or complex type, contained fibrous tissue with myxoid area associated to odontogenic epithelium. Moreover, dysplastic dentin and cementum-like material could be found.

Daniels has reported a case of central odontogenic fibroma of the right molar region of the mandible in a 30-year-old female patients (16). The case being reported here occurred in the maxillary right canine region in a 26-year-old female. This case report showed a lesion with cellular fibrous connective tissue and collagen fibers arranged in interlacing bundles and absence of odontogenic epithelium.

The central odontogenic fibroma is usually easily removed, not showing any adherence to bone and/or to tooth structure. As seen in the clinical case here reported, the lesion is slow-growing and typical conservative surgical intervention including enucleation and curettage has often proved to be successful. It should be noted that, depending on the extent of the residual defect, the bone regenerative procedure must be considered. In this case, the morphology of the residual bone defect, which was filled by a blood clot, did not require any guided bone regeneration. Despite the fact that no regenerative procedures were performed, a complete bone healing was observed, as shown by the radiographic examinations at the follow-up visits. Moreover, the clinical examination showed a normal alignment of the teeth previously dislocated. Few clinical cases reported in literature had a recurrence which required more extensive surgical excision (3). Some other authors reported a clinical case which had recurrence 9 years after surgery (17); in another clinical study the authors found recurrence of 2 cases out of 15 (18).

In conclusion, the clinical, radiological and histological aspects of the case reported here were consistent with the diagnosis of central odontogenic fibroma from periodontal ligament. The lesion was surgically removed, the prognosis was favourable and no recurrence of the lesion was observed until the 6 year follow-up visit.

The periapical radiolucent lesions of non-endodontic origin sometimes occur, and a proper diagnosis must be made. A wrong initial diagnosis may delay or preclude the rendering of proper treatment. Therefore, dentists must be aware of periapical lesions of non-endodontic origin. The clinical examination should give serious consideration to the pulp vitality tests and the radiographs should be diligently observed.

The findings from this case report point out the importance of recommending to the patient periodic clinical and radiographic examinations, and the importance of adequate pathological expertise for histological examination of fibrous lesion of the maxilla.

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