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REVIEW ARTICLE

A CASE REPORT OF CENTRAL ODONTOGENIC FIBROMA SIMPLE TYPE: ONLY HISTOPATHOLOGY DIVULGES THE DIAGNOSIS

[1,*]Dr. Ajinkya Amritrao Deshmukh, [2]Dr. Atul Deshmukh and [3]Dr. Kirti Balkrishna Buva

[1]III Yr Post Graduate Fellow, Bharti Vidyapeeth Deemed University Dental College, Hospital and Research Centre, Pune, India
[2]Director, Oral & Maxillofacial Pathology and Pre-Clinical Research Center Mumbai, Director of Center for Interdisciplinary Research D Y Patil University Navi Mumbai, India
[3]MDS (Oral Pathology) Pune, India

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ABSTRACT

Central odontogenic fibroma (COF) is extremely rare benign neoplasm which stands for less than 0.1% of odontogenic tumors. COF is mainly derived from dental origin tissue of mesenchyme-like dental papilla, periodontal ligament or dental follicle. It has more predilections in the mandible than in maxilla. Radiographically it shows both unilocular as well as a multilocular radiolucent lesion with a sclerotic border. Histologically it shows dense mature connective tissue stroma consisting of mature collagen fibers and plenty of fibroblasts which are usually plump and active in nature. COF is broadly of two types one is a simple type and other is WHO type. Here in our case, 09 years old girl represents central odontogenic fibroma in the mandible.

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INTRODUCTION

Central odontogenic fibroma is a very rare proliferation of mature odontogenic mesenchyme. According to WHO in 1992 central odontogenic fibroma is defined as a "fibroblastic neoplasm containing varying amounts of apparently inactive odontogenic epithelium" (Speight, 1992). COF is a very rare and it is a proliferation of mature odontogenic mesenchyme. Because it is a rare lesion we cannot accurately determine the age and sex of the patient (Marx and Stern, 2003). According to Shafer, COF occurs at any age but most common in younger individuals. And according to Langdon and his coworkers, it affects to both the jaws but more predilection to the mandible. Mostly found in the posterior part of the mandible. More commonly affects to females and high incidence is seen in blacks (Rajendran and Sivapathasundharam, 2012). Usually, fibroblasts present in the COF are pleomorphic. Usually, it is an asymptomatic lesion with noticeable swelling and it causes expansion of cortical plate of maxilla or mandible.

****Corresponding author: Dr. Ajinkya Amritrao Deshmukh,***
III Yr Post Graduate Fellow, Bharti Vidyapeeth Deemed University Dental College, Hospital and Research Centre, Pune, India.

Radiographically it shows unilocular or multilocular radiolucency with a sclerotic border. Sometimes it shows expansile multilocular radiolucency like ameloblastoma. In most severe cases it causes root resorption and displacement of the tooth (Covani *et al*., 2005; Cercadillo-Ibarguren *et al*., 2006). There are two types of central odontogenic fibroma one is a simple type and other is WHO type. Histopathologically they show different features. The aim of this case report is to present a case of central odontogenic fibroma simple type in the mandibular posterior region of the 09-year-old female patient.

Case report

A 09-year-old female patient reported with a swelling in the posterior region of the mandible. And it was asymptomatic. The patient was apparently alright when she noticed small swelling 03 months back. It was slow growing. The differential diagnosis of the lesion included radicular cyst, odontogenic myxoma, central giant cell tumor, ameloblastoma, ossifying fibroma. Orthopantomography (OPG) shows large unilocular radiolucency of the left posterior side of the mandible involving erupting canine to the first molar region with a sclerotic border.

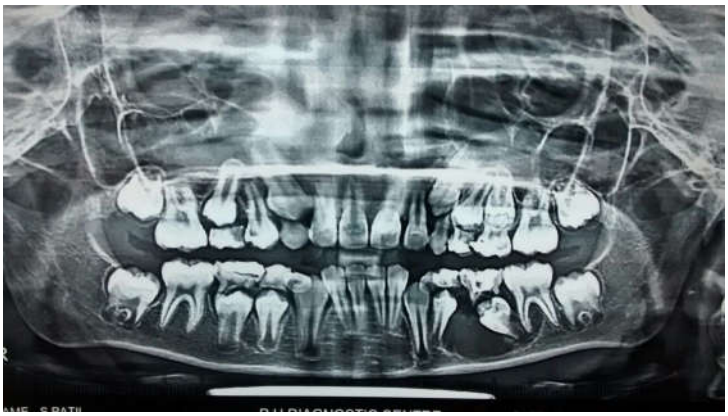

Figure 1. OPG showing unilocular radiolucency in the posterior region to the left side of the mandible

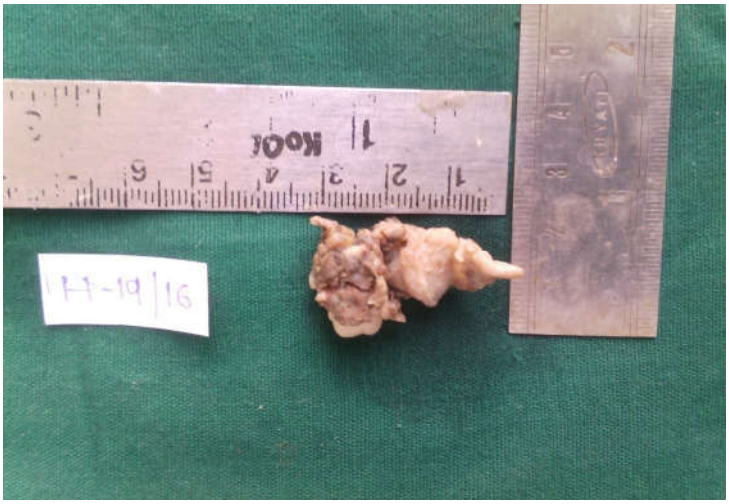

Figure 2. Gross specimen of the lesion 3X2 cm in size

Radiolucency extending on the left side of the mandible anteriorly from the apical of the lateral incisor to the posteriorly apical of the first molar and inferiorly till the lower border of the mandible. Gross examination of the biopsy revealed a single bit of tissue measuring approximately about 3X2 cm which is soft in consistency and grayish white in color with irregular borders and margins. Microscopic examination revealed tumor composed of mature and fibrous connective tissue stroma. Marked proliferation of fibroblasts is seen. Residual bony trabeculae are seen at the periphery of the lesion. The inflammatory infiltrate is present mainly plasma cells, macrophages, and lymphocytes. The absence of dentin or cementum-like material. So based on clinical, radiographic and histological findings a diagnosis of Central Odontogenic Fibroma of simple type was established.

DISCUSSION

COF is a relatively rare benign odontogenic neoplasm. And it is separated into two variants, the simple type, and the WHO type, by Gardner in 1980. In 1991, Handlers and colleagues reported that the difference between the two lesions was often arbitrary and not clear, so they preferred one name, central odontogenic fibroma because the behavior of the two variants appears to be similar.

The 2005 WHO classification reported the lesion as a proliferation of odontogenic ectomesenchyme, with or without included odontogenic epithelium (Gnepp, 2009). The central odontogenic fibroma usually affects in an adult patient, mean age reported 35 years (range, 4–80 years). a female predilection is seen, with women to men ratios ranging from 2:1 to 7:1, The maxilla and mandible are affected equally, most of the maxillary cases affect the anterior segments of the jaw and mandibular lesions tend to involve the posterior segments (Daniels, 2004). The most common clinical sign is swelling, and depression of the palatal mucosa has also been noted in some patients, as well as tooth mobility. Smaller odontogenic fibromas are usually asymptomatic. Radiographically, early lesions appear as well-defined unilocular radiolucencies, but as the lesion enlarges, it may become multilocular. In some cases, radiopaque flecks may be seen in the lesion (Kaffe and Buchner, 1994). Usually, the central odontogenic fibroma arises between the roots of teeth, suggesting a periodontal ligament origin, and divergence of roots may be noted. many cases involve the crown of an impacted tooth, some of these simply may have been hyperplastic dental follicles. Resorption of adjacent tooth roots is also frequently noted. Histopathologically it shows a variable pattern, simple type of central odontogenic fibroma exhibit evenly spaced and equidistant plump fibroblasts which are set against a

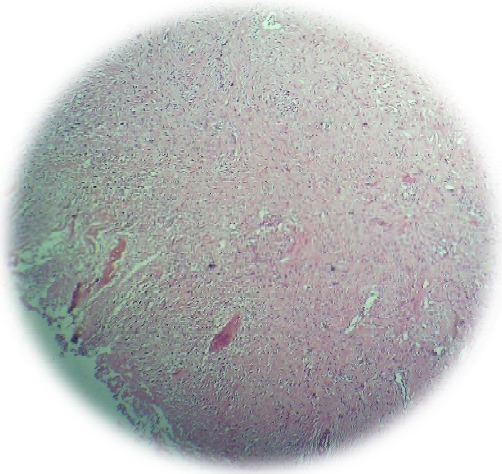

Figure 3. 4x magnification showing dense fibrous mature connective tissue stroma and bony trabeculae

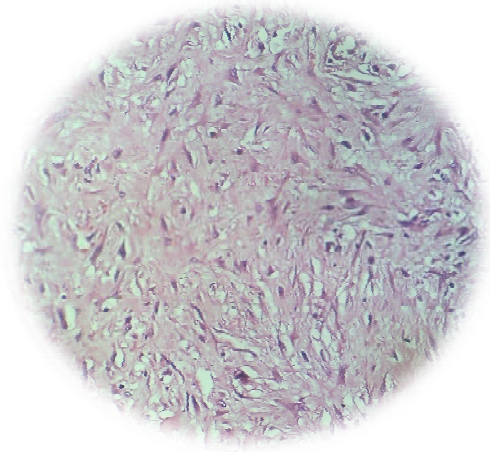

Figure 4. 10X magnification showing marked proliferation of fibroblasts

background of delicate collagen fibers and ground substance. Few nests of odontogenic epithelium may be present in very few quantities or sometimes completely absent. Rarely foci of dystrophic calcification may be present. While the WHO type, shows a cellular fibrous connective tissue and few to many islands of odontogenic epithelium. Hyalinization and myxoid areas can be seen.

The epithelium shows the absence of palisading, reverse polarization, and stellate reticulum–like areas sometimes Calcified material referred to as dysplastic dentin, and can be seen (Allen *et al*., 1992; Odell *et al*., 1997; Taylor *et al*., 1999). Lesions with sparse odontogenic epithelium may be mistaken for desmoplastic fibroma, a central produces dense collagen production and growth pattern is infiltrative compared with central odontogenic fibroma. The desmoplastic fibroma shows a more fascicular pattern compared with central odontogenic fibroma. And if the ground substance is prominent then the possibility of odontogenic myxoma can be entertained, and, myxoid zones in fibrous lesion would be consistent with central odontogenic fibroma.

And because of the odontogenic epithelial component, COF could mistake as ameloblastoma (particularly desmoplastic ameloblastoma), but the classic reverse polarization of the nuclei present with ameloblastoma is not seen. The calcifying epithelial odontogenic tumor is also coming under differential diagnosis if the lesion has abundant epithelium. But the absence of amyloid-like material and negative staining for amyloid, confirms to rule out the possibility of a calcifying epithelial odontogenic tumor. An ameloblastic fibroma is also a differential diagnosis but COF shows more fibrous component than ameloblastic fibroma. And, COF usually forms nests of epithelial islands while ameloblastic fibroma forms longer, ribbon-like strands. When comes to treatment of COF Curettage generally is accepted as the treatment of choice, and the prognosis is also good. Recurrence is very rare.

Conclusion

A large number of tumors and similar clinical and radiological appearance and close similarity of this lesion with many

another lesion, it is not possible to rule out this lesion only with clinical and radiological appearance, so only the histological finding can reveal this specific entity from other similar lesions.

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