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Usha Hedge

Professor and Head of the
Department of Oral pathology,
JSS Dental College. Final year,
Post graduate student,
Department of Oral pathology,
JSS Dental College.

Rekha. M

Professor and Head of the
Department of Oral pathology,
JSS Dental College. Final year,
Post graduate student,
Department of Oral pathology,
JSS Dental College.

Central odontogenic fibroma of maxilla-a case report

Usha Hedge, Rekha. M

Abstract

Handlers and his colleagus described Central Odontogenic Fibroma (COF) in 1991, as an extremely rare benign odontogenic tumor that is derived from dental mesenchymal tissue. Its accounts for about 0.1% of all odontogenic tumors. COF is an asymptomatic, slow growing lesion, usually occurring in adults and has a female predilection. This article presents a case of COF in a 35-year-old male, on the right side of maxilla that presented as an asymptomatic swelling with well-defined borders having unilocular radiolucency. The clinico- pathological findings, radiographic features and treatment of COF are discussed.

Keywords: Odontogenic, Tumors, Fibroma, Central

1. Introduction

Odontogenic fibroma (OdonF) is a mesenchymal odontogenic tumor [1]. The WHO defines Central odontogenic fibroma as fibroblastic neoplasm containing variable amounts of apparently inactive odontogenic epithelium and is classified as odontogenic tumor of ectomesenchyme with or without included odontogenic epithelium [2].

COF is an uncommon benign odontogenic tumor that may be derived from either the dental germ (dental papilla or follicle) or from the periodontal membrane, and therefore is invariably related to the coronal or radicular portion of teeth. It appears as an asymptomatic lesion causing expansion of the cortical plates of the mandible or maxilla [3, 4]. Radiologically, COF manifests as a unilocular or multilocular radiolucency with well-defined margins surrounded by a sclerotic border [5]. In 1980, Gardner classified COF as the hyperplastic dental follicle type, Simple type and WHO type [6]. This paper reports a rare case of COF of right maxilla in a 35 year old male patient.

Case Report

A 35 year old male patient was referred by a private practitioner with a history of slow growing painless swelling on the right side of maxilla since 1 year. Extra oral examination revealed slight facial asymmetry. There was no cervical lymphadenopathy. Intraoral examination showed hard bony swelling between 1stmaxillary premolar and 1st maxillary molar on the right side which was non- tender, firm to hard in consistency with overlying mucosa appearing to be normal.

There was buccal cortical expansion and grade I mobility of 14 and 15. There was a negative response to pulp vitality test with respect to right maxillary 1st and 2nd premolar and 1st molar. There was no sensory loss or difficulty in chewing. Panoramic radiograph showed unilocular well defined radiolucency in the right maxillary premolar region, measuring about 2 × 3 cm. (Fig 1)

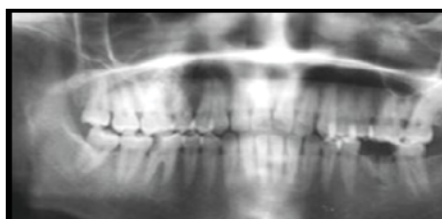


Fig: Orthopantomograph Panoramic radiograph showed unilocular radiolucency extending from mesial surface of right first premolar to distal surface of first molar in maxilla which was 2 × 3 cm in dimension with well-defined margins.

Correspondence

Rekha. M

Professor and Head of the
Department of Oral pathology,
JSS Dental College. Final year,
Post graduate student,
Department of Oral pathology,
JSS Dental College.

Incisional biopsy was done and the samples were sent for histopathological examination. The gross specimens consisted of two bits of soft tissue which measured approximately 1×0.5cm (Bit –A) and 1.5×1.5cm (Bit –B). They were irregular in shape, creamish brown in colour and firm in consistency. Both the bits were taken for processing.

Histopathological examination revealed a hyper cellular fibroblastic proliferation in a collagenous stroma showing inactive appearing odontogenic epithelial islands throughout the lesion. Focal areas of calcification resembling osteoid and cementoid were interspersed between the epithelial cells. (Fig-2,3,4) Based on the histopathological findings it was diagnosed as WHO type of COF. The lesion was surgically excised and the specimen was sent for histopathological examination. The excised specimen was evaluated and the histopathology confirmed the incisional biopsy findings. Follow up of the case for over a period of 2 years now has been uneventful.

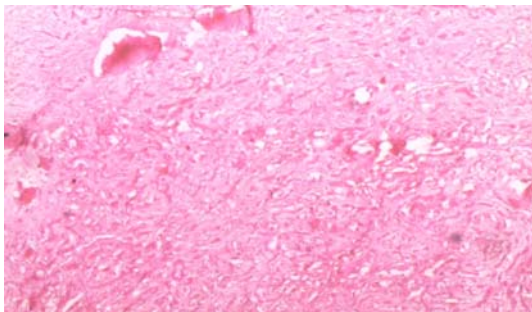


Fig 2: Low power. Connective tissue stroma shows hypercellular area and few calcifications areas.

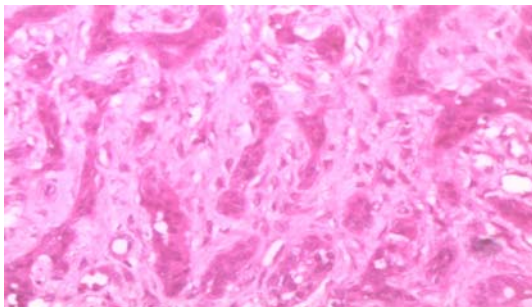


Fig 3: Low Power. Connective tissue stroma shows nests and strands of odontogenic epithelium and few calcification areas.

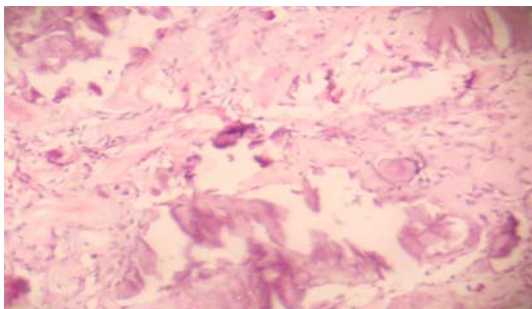


Fig 4: High power Connective Tissue showing osteoid and cementoid and few odontogenic nests with in collagen fibers.

Discussion

COF was introduced in the World Health Organisation (WHO) classification of odontogenic tumors in 1971 [7]. Thereafter, further attempts were contemplated to simplify and classify this tumor few authors have attempted to clarify the diagnostic criteria of COF [6]. However, COF still remains somewhat

controversial, causing confusion due to its nature and definition. Gardner in 1980 classified COF in to three categories, the hyperplastic dental follicle, fibrous neoplasm with collagenous fibrous connective tissue containing odontogenic epithelium simple type and a lesion with dysplastic dentin and cementum like tissue and odontogenic epithelium WHO Type. In the WHO type dysplastic dentine or cementum like tissue may or may not be present [6]. Shafer *et al.* in 1983 considered Odontogenic fibroma as a distinct neoplasm with its own histopathologic features [4]. The WHO (2005) identifies COF in two categories, the WHO type and non WHO type. In both, features of fibroma are present and calcifications may or may not be present. However the difference lies in the presence of odontogenic epithelium rests in WHO type and its absence in non-WHO type [6].

COF occurs both centrally (arise in bone) and peripherally (arise from the gingiva/alveolar mucosa). Central lesions occur at any age and have higher predilection for mandible than maxilla (6.5:1). In the maxilla it has a tendency to involve the anterior area, whereas in the mandible the molar and premolar areas are the most prevalent sites [8, 9]. Peripheral lesions have higher predilection in 2nd and 4th decades of life, occurring commonly in the anterior mandibular gingival region than maxilla [1]. Central and peripheral COF are reported more often in females than males (3:2 and 2:1) [4]. Clinically COF presents as slow growing, painless, hard swelling with asymptomatic expansion of buccal and lingual cortical plates. Sometimes it is recognised by slow growing diastema due to dislocation of adjacent teeth. However in the present case, our patient was a 37y rold male who presented with similar findings but without diastema. This is also in accordance with the study conducted by Bueno *et al.* [9] and Handler's *et al.* [10].

Radiologically, they commonly present as unilocular or multilocular radiolucencies [9, 10]. The radiographic presentation seemingly depends on the dimension of the lesion, small fibromas (about 2 cm) having a unilocular appearance, whereas large lesions (about 4 cm) showing multilocularity. Thus, the multilocular lesions are more likely to be associated with complications such as root resorption of adjacent teeth, teeth displacement and expansion of the cortical bones [1, 11]. The present case showed unilocular radiolucency with buccal cortical expansion.

According to WHO 2005, two variants of COF have been identified, the WHO type, and Non-WHO type. The WHO type is comprised of two distinct cell types, a fibrous element, and an epithelial component that resembles dental lamina or its remnants. In contrast, the non-WHO variant lacks an epithelial component and is said to be a monomorphic fibroblastic tumor, purported to be of odontogenic mesenchymal origin and ostensibly derived from pulpal or follicular fibroblasts [7]. In the present case, the predominant basophilic cementum-like calcifications, osteoid and remnants of odontogenic epithelium in a highly cellular fibroblastic connective tissue background were seen, thus diagnosing the present case as WHO type of COF. Clinically there are no differences between the two subtypes. Due to its non-exclusive histological features, coupled with great variability of clinical and radiological characteristics, wide range of pathosis should be considered to make a safe diagnosis. At the same time, its correct histologic identification is necessary to avoid the diagnostic pitfall of over diagnosis of similar-appearing follicular sacs and dental pulps [12].

Dunlap and Buster presented two cases of COF in the upper jaw which were treated with enucleation of lesion and a consequent 9 year tracking period has been uneventful [13]. In

the present case too, the treatment was conservative, enucleation of the lesion was performed and it has been followed up for past two years without any recurrence.

Conclusion

Despite being an extremely rare tumor, it is very important that dentists be aware of its clinical, radiographic and histological features in order to arrive at definitive diagnosis and hence better patient management.

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