Central odontogenic fibroma of mandible: A Case Report

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ABSTRACT:

The World Health Organization (WHO) recognizes two variants of Central Odontogenic Fibroma(COF) namely: 1) Epithelial-rich type (WHO) and 2) epithelial-poor type (simple type). This article presents a case of 12 year old male child with an assymptomatic bony swelling of lower jaw. Histologically, it showed a tumor mass made up of mature collagen fibers interspersed usually by many plump fibroblast that are very uniform in their placement and tend to be equidistant from each other. Small nest or islands of odontogenic epithelium that appear entirely inactive were present in variable amounts. Cementum-like hematoxyphilic calcifications of various sizes were also observed.

Keywords: Central, Mandible, Odontogenic fibroma.

INTRODUCTION

Central odontogenic fibroma (COF) is a rare benign odontogenic neoplasm of jaw bone. WHO defines a central odontogenic fibroma as a "fibroblastic neoplasm containing varying amounts of apparently inactive odontogenic epithelium".[2] It is considered to be derived from the mesenchymal tissue of dental origin such as periodontal ligament, dental papilla, or dental follicle.[2] It presents as a bony swelling of the jaw.

The World Health Organization (WHO) recognizes two variants of COF namely: 1) Epithelial-rich type (WHO) and 2) Epithelial-poor type (simple type). Generally the lesion is asymptomatic except the swelling of the jaw. Radiographically the lesion presents as an expansile multilocular radiolucency similar to that of the ameloblastoma.[1]

CASE REPORT

A 12 year old male child patient was referred from the department of orthodontics for a swelling noticed in the right and left back alveolar region.

Patient was undergoing orthodontic correction of his mal-aligned teeth and during the course of his treatment a long standing swelling was observed in his right and left mandibular posterior alveolar region which was slow growing and was not associated with any pain which was small in size to start with but enlarged slowly to present size. The swelling was not associated with any discharge.

Extra oral examination showed no facial asymmetry. Intra oral examination revealed swellings present on the mandibular left and right posterior alveolar ridge region involving lingual and buccal cortical plates measuring about 6 × 2.5 × 1 cm in dimensions on right side and 1.5×0.5 ×0.5 cm on the left side.

Description of Swelling on right side (Figure 1): The solitary swelling on the right side extending mesio-distally from the mesial aspect of 46 extending upto retromolar area distally. Buccolingually it extended from the buccal aspect in the region of 46 and 47(erupting) upto the lingual aspect of 46, 47(erupting) not covering the occlusal aspect. Superio-inferiorly it extended from the middle of the cervico-incisal length of crown superiorly upto the vestibular sulcus inferiorly on the lingual sulcus and upto buccal sulcus

inferiorly on the buccal sulcus region of 46 and 47 (erupting).

Description of Swelling on left sight side(Figure 1): A solitary swelling extending mesio-distally from the mesial aspect of 37 upto the distal aspect of 37. Bucco-lingually it extended from the buccal aspect of the 37 obliterating the buccal vestibule upto the lingual aspect of 37 projecting lingually. Superio-inferiorly it extended from middle of the cervico-incisal length of crown superiorly upto the vestibular sulcus inferiorly on the lingual sulcus and upto buccal sulcus inferiorly on the buccal sulcus region of 37.

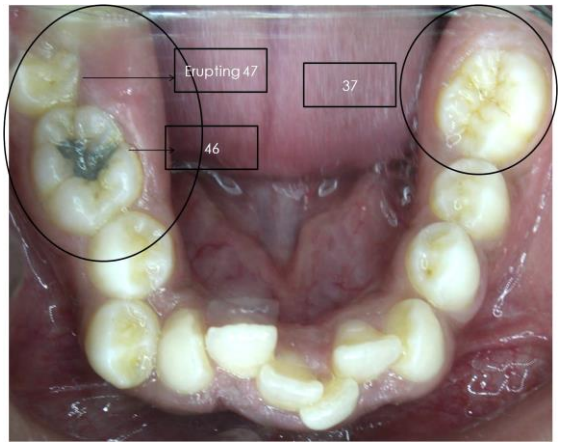

Fig 1: Intra oral picture of mandibular arch showing the extent of bilateral swelling of the alveolar ridge region

There was no evidence of paraesthesia. On palpation swelling was firm in consistency. Orthopantamogram did not reveal any characteristic finding related to the swelling except the mesial drifting of the 37 in the place of 36 which was due to missing 36. (Figure 2 & 3)

Fig 2 : OPG of the patient showing no characteristic findings except missing 36 and mesial drift of 37 in the position of 36

Fig 3: Occlusal radiograph showing thickening of buccal and ligual cortical plates of mandible on the left side

The differential diagnosis included odontoma, ossifying fibroma, fibrous dysplasia, ameloblastoma. Blood investigation was performed prior to the surgery and the values were under normal limits. Incisional biopsy specimen was received which was sent for histopathological examination. Gross examination of the biopsy specimen showed, multiple bits of soft tissue specimen, creamish white in colour of varying size and diameter with regular borders, soft to firm in consistency from the right side was received, which was subjected for routine processing. (Figure 4)

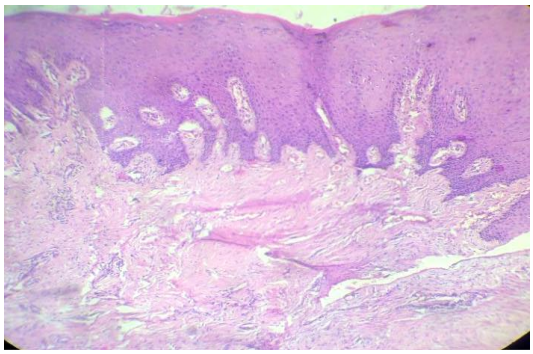

Figure 4: Low power view microphotograph showing slightly proliferated para-keratinized epithelium with underlying fibrous connective tissue stroma.

Microscopic examination revealed tumor consisting of slightly proliferated parakeratinized epithelium and underlying fibrous connective tissue stroma with multiple dispersed odontogenic islands and strands of inactive odontogenic epithelium. (Figure 5,6,7,8)

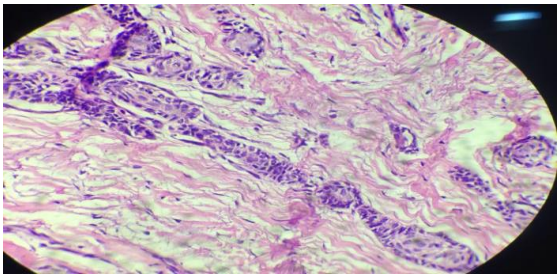

Figure 5 : High power view microphotograph showing odontogenic islands lined by tall columnar cells and centrally placed polygonal type of cells

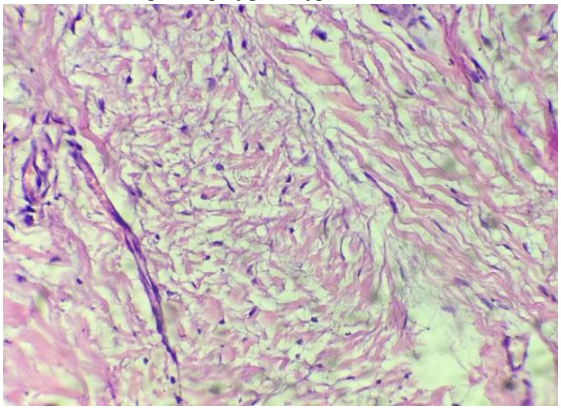

Figure 6: High power view microphotograph showing Fibrous connective tissue stroma with parallel arrangement of collagen fibers equidistant from each other

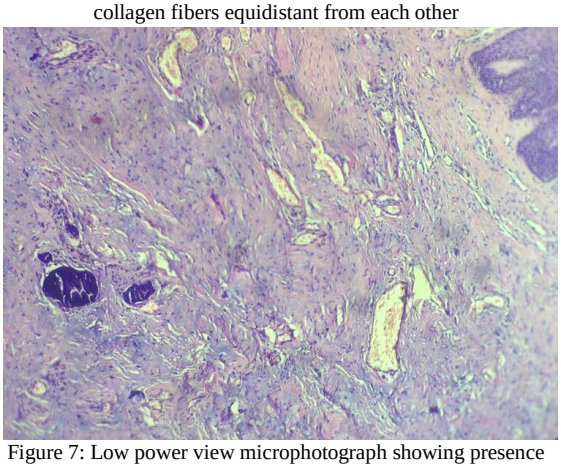

Figure 7: Low power view microphotograph showing presence of area of calcification within connective tissue stroma

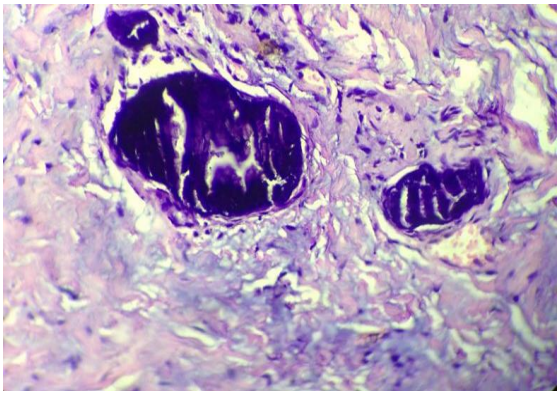

Figure 8: High power view microphotograph showing areas of calcification within connective tissue stroma

DISCUSSION

Central odontogenic fibroma has been classified under odontogenic ectomesenchyme with or without included odontogenic epithelium.[4]

Central odontogenic fibroma is an infrequent tumor of the jaws.

Concepts behind this tumor :

1. It is a lesion of fibrous connective tissue, with scattered islands of odontogenic epithelium.
2. It is a lesion which has been described by WHO as a fibroblastic neoplasm containing varying amounts of odontogenic epithelium.[4]

Gardner has suggested referring to the tumor made up of connective tissue and odontogenic islands resembling dental follicle as the simple central odontogenic fibroma. COF is defined as a fibroblastic neoplasm containing varying amounts of apparently inactive odontogenic epithelium. It is considered to be derived from mesenchymal tissue of dental origin, periodontal ligament, dental papilla, or dental follicle. COF is a benign odontogenic neoplasm which remains incompletely understood. Revised WHO histological typing of odontogenic tumors by Kramer (1992) included this entity under "odontogenic ectomesenchyme with or without included odontogenic epithelium.[4]

The odontogenic fibroma occur more frequently in children and young adults with a predilection for occurrence in the mandibular posterior region. The clinical course of the lesion is usually asymptomatic with slow growth rates causing expansion of cortical plates.[1] COF causes bony expansion and displacement of the adjacent teeth. In our case also the bony expansion was seen with displacement of the adjacent teeth.[4] **All the above findings were in accordance with our case.**

Histologically the simple type is characterized by a tumor mass made up of mature collagen fibres interspersed usually by many plump fibroblast that are very uniform in their

placement and tend to be equidistant from each other. Small nest or islands of odontogenic epithelium that appear entirely inactive are present in variable amounts.[4] In the present case also multiple inactive odontogenic epithelial islands were appreciated in a fibrous connective tissue stroma.

The histological differential diagnosis of odontogenic fibroma includes ameloblastic fibroma, desmoblastic fibroma, and myxoma.[2] Ameloblastic fibroma is composed of epithelial component in the form of strands and islands, showing peripheral layer of cuboidal or columnar cells, which may enclose a small number of cells, resembling stellate reticulum, and connective tissue component in ameloblastic fibroma is more cellular and embryonic looking. Desmoblastic fibroma shows aggressive behavior and is devoid of epithelial component and fibroblasts are myofibroblastic in nature. The presence of epithelial islands is a prerequisite for the diagnosis of central odontogenic fibroma, where as it is not frequent finding in odontogenic myxoma.[1]

The treatment of odontogenic fibroma is conservative surgery by the enucleation of lesion. Reccurence is not uncommon.[3]

CONCLUSION

This article presented a case of central odontogenic fibroma of simple variant, in a child patient showing light on its clinical features, histological features this widening our knowledge regarding the tumor. It has a low recurrence rate, but a post operative follow up is still needed.

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