Case Report

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Ameloblastic Fibroma Mimicking a Periapical Lesion: A Case Report

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Abstract

Ameloblastic fibroma (AF) is an uncommon true mixed odontogenic tumor, frequently diagnosed in the first two decades of life and presented as a well defined unilocular or multilocular radiolucency. We report an unusual case of AF mimicking a periapical lesion in a 22-year-old male as a painless swelling associated with a carious molar. The patient underwent surgery and the lesion was excised, subsequently submitted for histopathological examination. Thus, this paper highlights the importance of submission of periapical tissue for its histopathological examination.

Keywords: Ameloblastic fibroma; Odontogenic cysts; Odontogenic tumors; Periapical lesion.

Introduction

Ameloblastic fibroma (AF) is a relatively rare, mixed odontogenic tumour, mostly affecting young children under the age of 20 years in the mandibular posterior region. Histopathologically it reveals a small odontogenic epithelial island in a characteristically myxomatous connective tissue stroma resembling dental papilla.[1] Here, we report an interesting case of AF associated with a carious mandibular molar mimicking a periapical lesion.

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Case report

A 22-year-old healthy male reported to our department with a chief complain of a gradually increasing painless swelling showing a facial asymmetry in the right mandibular posterior region since 2 months. His medical, social & family history was non-contributory. Extra-oral examination revealed a solitary, diffuse, oval, painless swelling of hard consistency measuring about 3cm x 2cm in size affecting the right side of the face without cervical lymphadenopathy. Intra-orally, an ill-defined bony hard swelling extending from the tooth #43 (permanent mandibular right canine) to #47 (permanent mandibular right second molar) obliterating mandibular right posterior buccal vestibule exhibiting bicortical expansion was observed. Root pieces of the carious tooth #46

(permanent mandibular right first molar) were evident. No cervical lymphadenopathy, draining sinus or lip paresthesia were observed (Fig. 1).

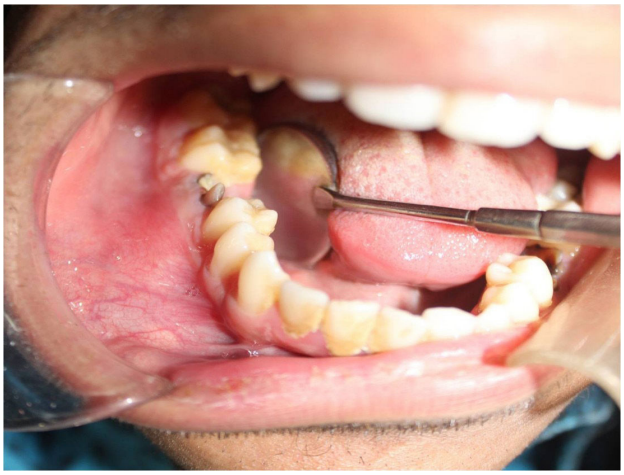

Fig. 1: Intra-oral swelling causing obliteration of right mandibular buccal vestibule.

A panoramic radiograph revealed a well-defined, corticated, unilocular periapical radiolucency extending from the tooth #43 (permanent mandibular right canine) to #47 (permanent mandibular right second molar) with thinning the inferior border of mandible. Root pieces of teeth #36 (permanent mandibular left first molar) and #46 (permanent mandibular right first molar) were seen with apparent root resorption of the teeth #45 (permanent mandibular right second premolar) and #46 (permanent mandibular right first molar) (Fig. 2).

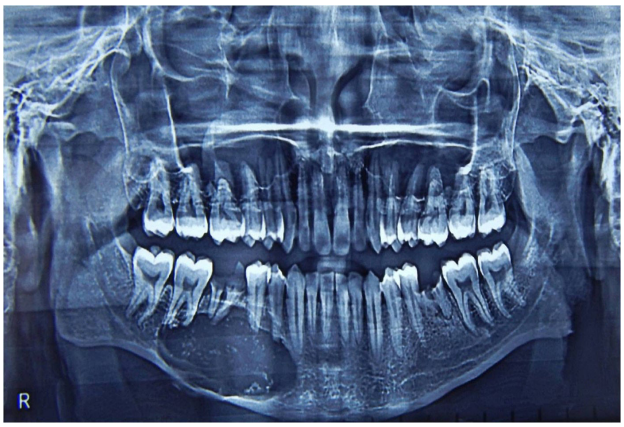

Fig. 2: A panoramic radiograph showing a well-corticated unilocular radiolucency with irregular radiopacity within it, in the periapical region of tooth #43(permanent mandibular right canine) to #47(permanent mandibular right second molar).

Based on clinico-radiographic findings a provisional diagnosis of radicular cyst in relation to the carious tooth #46 was made. Differential diagnosis of various odontogenic cysts, odontogenic tumors, and central giant cell lesion were also kept in mind.[2,3]

Considering benign nature of the lesion, surgical excision along with extraction of carious root pieces of the tooth #46 were carried out under general anesthesia. Grossly specimen was an uncapsulated, soft, solid mass having smooth outer surface. Microscopic examination of the excised lesion revealed a benign proliferation of numerous ameloblastic islands dispersed throughout the myxomatous stroma resembling dental papilla. Ameloblastic islands were composed of peripherally palisaded columnar cells and centrally placed stellate reticulum like cell. The final diagnosis of AF was rendered (Fig. 3).

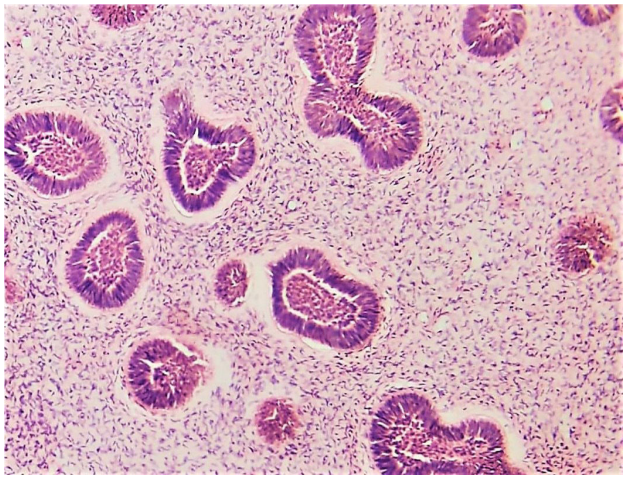

Fig. 3: Representative photomicrographs showing ameloblastic islands with peripheral palisaded columnar cells and reversal of polarity embedded in the myxoid stroma resembling dental papilla (hematoxylin-eosin stain, original magnification X10).

Post-operative healing was uneventful without any signs of recurrence.

Discussion

AF is a true histologic mixed tumour consisting of odontogenic ectomesenchyme and odontogenic epithelial strands representing 1.5-6.5% of the odontogenic tumours.[1] It is a slow growing tumour seen in the first two decades of life with a slight male predilection.[4] It is commonly located in the mandibular molar region frequently associated with unerupted molars altering the sequence of eruption of permanent teeth.[5] Radiographically, it can be seen as a unilocular or multilocular radiolucency with a sclerotic border associated with unerupted or displaced teeth along with expansion of cortical plates.[6]

Histologically, the AF resembles enamel organ, characterized by the proliferation of odontogenic epithelium consisting of nests, buds and cords of cuboidal or columnar ameloblasts like cells surrounding central stellate reticulum like cells. The cell rich mesenchymal component with myxomatous connective tissue stroma closely mimicks the dental papilla.[6] BRAFV600E mutation and fractional allelic loss of tumor suppressor gene with a low frequency have been reported in few cases of AF, however, larger numbers of studies warranted to know genetic profile of ameloblastic fibroma.[7]

Treatment for AF is comprised of a conservative excision along with peripheral osteotomy.[8] Recurrence rate varies from 18%-43.5%.[9,10] Pertaining to recurrence of AF and possibility of its malignant transformation into ameloblastic fibrosarcoma life time follow-up is mandatory.[8]

Cahn and Blum postulated that an ameloblastic fibroma could develop eventually into an odontoma if the lesion is undisturbed but maturational theory seems unlikely as more differentiated tumor like odontomas occurs at a younger age than the tumor from which it is hypothetically derived.[11] In the 2017 WHO classification of odontogenic tumors, ameloblastic fibroma remained unchanged as mixed odontogenic tumor. Ameloblastic fibrodentinoma and ameloblastic fibro-odontoma which were earlier considered as mixed odontogenic tumor, have been excluded because there is some evidence that once dental hard tissues are formed, these lesions are programmed to develop into odontomas unlike ameloblastic fibroma.[7]

In the present case, history of painless swelling and presence of periapical radiolucency associated with the carious tooth #46 (permanent mandibular right first molar) led to a provisional diagnosis of inflammatory periapical pathology. To our surprise, histopathological examination of excised tissue turned out to be AF. Radicular cysts and granulomas have more focus in studies on periapical pathologies, as these lesions are highly prevalent and associated with pulpal necrosis and infection. However the occurrence of non-inflammatory lesions such as developmental odontogenic cysts and tumours, periapical cemento-osseous dysplasias and central giant cell lesions should also be taken into consideration. A well defined periapical radiolucent pathosis associated with a carious tooth can present with hurdle in the diagnosis, which can be further evaluated with histopathological assessment to derive at a accurate diagnosis.[12]

Conclusion

We reported an unusual presentation of AF of the mandible, mimicking a periapical lesion. Present paper highlights the importance of submission of surgically excised periapical tissue for histopathological examination to ensure a definitive diagnosis and appropriate treatment.

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