CASE REPORT

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Ameloblastic Fibroma Associated With Impacted 3rd Molar: A Case Report

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ABSTRACT

Ameloblastic fibroma is an uncommon mixed neoplasm of odontogenic origin with a relative frequency between 1.5 – 4.5%. It can occur either in the mandible or maxilla, but predominantly seen in the posterior region of the mandible. It occurs in the first two decades of life. Most of the times it is associated with tooth enclosure, causing a delay in eruption or altering the dental eruption sequence. The common clinical manifestation is a slow growing painless swelling and is detected during routine radiographic examination. There is controversy in the mode of treatment, whether conservative or aggressive. Here we reported a 38 year old male patient referred for evaluation of painless swelling on the right posterior region of the mandible associated with clinically missing 3rd molar. The lesion was completely enucleated under general anesthesia along with the extraction of impacted molar.

KEYWORDS: Ameloblastic Fibroma, Odontogenic Tumors, Jaw Tumors, Neoplasm, Hamartoma

INTRODUCTION

Odontogenic tumors are encountered frequently, therefore a comprehensive understanding of the embryology of these lesions will aid the clinician in formulating an accurate differential diagnosis and treatment plan.[1] Ameloblastic Fibroma (AF) is a rare mixed odontogenic tumor that usually occurs in young patients, being diagnosed at a mean age of 15 years.[2] AF was first described by Kruse in 1891 and it accounts for 2.5-4.5% of all odontogenic tumors.[3,4] In 1946, Thoma and Goldman were the first to classify this tumor as a separate entity. WHO defined AF as "consisting of odontogenic ectomesenchyme resembling the dental papilla and epithelial strands and nests resembling the dental lamina and enamel organ, no dental hard tissues are present".[5]

AF affects males more frequently when compared with females in a ratio of 1.4:1. Mandible is more commonly affected when compared to the maxilla. The majority of AF's are found in the molar (posterior) area of mandible and are often associated with unerupted or displaced teeth. Clinically the tumor grows slowly and painless expansion of jaw and causing migration of adjacent teeth.[6] There has been a long debate as to whether AF represents an anamolous hamartomatous growth or is a true benign neoplasm. This is due to difficulty in differentiating between the histology of the neoplastic and hamartomatous lesions with the histologic features of AF.[4]

CASE REPORT

A 35 year old male patient came with a chief complaint of pain and swelling in the right lower back tooth region. Patient had identified the swelling 4 months back and his medical history was unremarkable. On intraoral examination, obliteration of the right lower buccal vestibule was seen due to the expansion of buccal cortical plate. The mucosa over the swelling was same as surrounding mucosa. It measured approximately 3x3 cm extending anteroposteriorly from mandibular 2nd molar to retromolar area on right side. On palpation swelling was bony hard in consistency and mild tenderness over the swelling was seen.

Panoramic radiograph showed a unilocular radiolucent lesion with a scalloped borders measuring 5x3 cm, seen on the right side of the mandible extending from the 2nd molar to the whole ramus of the mandible. Internal structure was predominantly radiolucent and impacted 3rd molar was seen within the lesion and inferior alveolar canal was displaced inferiorly (Figure 1). Computed tomography revealed an osteolytic

lesion involving the ramus of the mandible on right side (Figure 2).

The lesion was completely enucleated under general anaesthesia and the impacted 3rd molar was extracted. The excised specimen was sent for histopathologic examination. The haematoxylin and eosin stained section showed both epithelial and mesenchymal elements. The mass was composed of embryonic mesenchyme, which was traversed by odontogenic epithelium in the form of elongated cords, islands (Figure 3). Epithelial islands were with peripherally placed row of columnar cells and centrally placed stellate cells. Juxta epithelial hyalinization of connective tissue resembling dentin was observed around some epithelial buds (Figure 4). The clinical, radiological and histopathological features confirmed the diagnosis as AF.

DISCUSSION

Odontogenic tumors are uncommon lesions derived from specialized dental tissues.[6] AF is a rare benign, true mixed odontogenic tumor in which both epithelial and the ectomesenchymal components are neoplastic without hard tissue formation.[4,7,8,9] It is generally intraosseous, but can also occur in peripheral location.[4,8] AF represents only 2% of odontogenic tumors.[9,10] The precise etiology of AF is not known, however it is believed to arise de novo during a particular stage of odontogenesis, possibly as a result of overzealous elaboration of the basal lamina without further odontogenic differentiation.[9]

AF is mostly encountered in young patients especially during the first two decades of life with slight male predilection.[1] AF exhibits slower growth than ameloblastoma and does not tend to infiltrate. Instead, it enlarges by gradual expansion so that the periphery of the lesion often remains smooth. The tumor frequently remains unnoticed by the patient and are discovered accidentally during radiographic examination.[9] AF usually presents with a bony hard swelling, but intra oral ulceration, pain, tenderness or drainage may also be observed.[5,11] In case of AF in a pericoronal location, the involved tooth may fail to erupt into the oral cavity as seen in our patient.[11] An impacted tooth may be associated with the tumor in appropriately three quarter of the cases.[4,5]

Mandible is the predominant site of occurrence and the posterior mandible is affected more often than the maxilla by a factor of 3:1.4 Radiographically, AF are unilocular lesions, occasionally multilocular when larger, with smooth well demarcated borders. Cortical expansion may or may not be discernable on plain film. Because these lesions are frequently associated with unerupted teeth, they may initially be interpreted as dentigerous cysts.[10] The radiological differential diagnosis includes ameloblastoma, odontogenic myxoma, KCOT, central granular cell tumor and histocytoma.[6]

Microscopically, AF comprises strands and islands of odontogenic epithelium in a loose and primitive connective tissue stroma characteristic of dental papilla. The odontogenic epithelial cells are similar to those of ameloblastoma. Tiny islands resembling the follicular stage of the developing enamel organ may be observed.[4,5,11] Some recurrent cases developed dentin formation with or without enamel structure and subsequently differentiate over the time into odontoma.[5,11] AF in young patient may resemble the primitive stage of odontoma.[11] Mitoses should not be a feature of AF.[5,7] The presence of mitosis should expand the differential diagnosis to include malignant entities like ameloblastic fibrosarcoma.[11] In cases undergoing malignant transformation, there are unequivocal changes in the mesenchymal component and the odontogenic epithelium is completely disappeared.[5,11]

The preferred mode of treatment for AF is the conservative approach.[1] Philipsen et al. proposed that the innocuous behavior of the lesion does not justify the aggressive initial treatment but rather meticulous surgical enucleation with close clinical follow up.[5] In our case a conservative surgical approach was followed along with removal of impacted tooth.

In general, a conservative approach such as enucleation with curettage of the surrounding bone should be applied for young patients. Conversely an extensive tumor and/or multiple reccurences necessitate more radical therapies.[11] Recurrence rate of AF has been reported upto 18.3% by Zallen et al.[3] and 43.5% by Trodahl et al.[6,8,12,13,14] The literature showed the possible

malignant transformation of AF to ameloblastic fibrosarcoma. Malignant transformation of AF is 4.5%, it may be due to untreated or surgical excision.[1] Irrespective of the mode of treatment long term follow up is necessary for AF.

CONCLUSION

AF is a benign odontogenic mixed tumor, with a very good prognosis. A conservative approach including enucleation and mechanical curettage of the surrounding tissue is the mode of treatment. Recurrence of the lesion is common after excision, so long term follow up is necessary after the removal of the lesion.

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LEGENDS

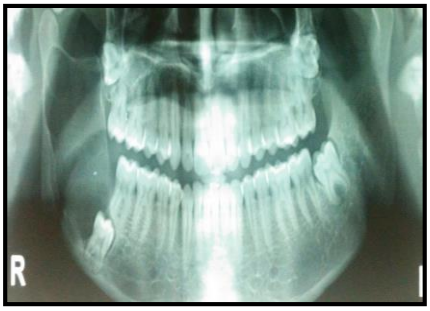

Figure 1. Orthopantomograph reveals unilocular radiolucent lesion in the right ramus of the mandible with an impacted 3rd molar

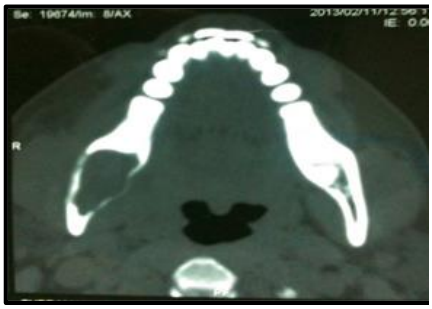

Figure 2. CT axial section showing osteolytic lesion in the mandible on the right side

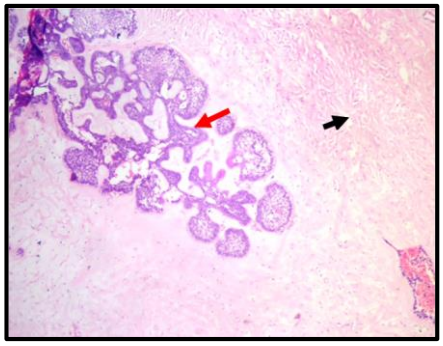

Figure 3. H&E Photograph 4x magnification showing elongated chords, strands and islands of odontogenic epithelium (Red arrow) in a stroma of primitive connective tissue (black arrow)

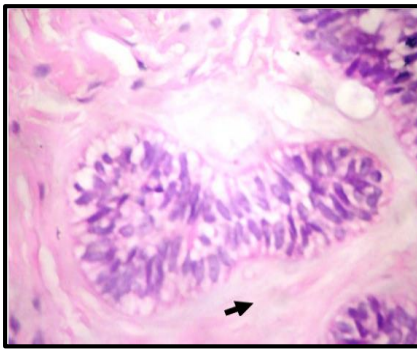

Figure 4. The epithelial island in 40 x magnification showing peripherally placed row of columnar cells and centrally placed stellate cells. Juxta epithelial hyalinization of connective tissue (black arrow)