

Case Report:

Ameloblastic Fibro-Odontome : A case report with review of literature

Dr. Priyanka Ghalaut, Dr. Vijay Wadhawan , Dr. Priya Kapoor

Department of Pathology & Microbiology, Subharti Dental College, & Hospital, Meerut, India

Corresponding author: Dr. Priyanka Ghalaut

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ABSTRACT

AMELOBLASTIC FIBRO-ODONTOME (AFO) is an uncommon benign tumor of the jaws that belongs to the group of mixed odontogenic tumor. AFO is a well circumscribed, painless, slow growing tumor. It tends to produce swelling and has a central location in jaw and more prevalent in children and adolescent. AFO is associated with unerupted tooth. Radiographically AFO appears as well-circumscribed radiolucency which contains radio opaque foci. Histologically, the tissue masses of an AFO shows characteristics structure of an immature complex odontome consisting of irregularly arranged enamel, dentinoid, cementum and pulp like ectomesenchymal tissue along with Strands and island of odontogenic epithelium embedded in typical rich ectomesenchyme. This paper reports a case of Ameloblastic fibro-odontome of the mandible in 16 year old girl with review of literature.

Keywords- ameloblastic fibro-odontome, mixed odontogenic tumor, benign jaw lesion

INTRODUCTION

AMELOBLASTIC FIBRO-ODONTOME (AFO) is an uncommon benign tumor of the jaw that belongs to the group of mixed odontogenic tumor.^[1] AFO is a well circumscribed, painless, slow growing, and expanding tumor with no propensity for bony invasion. THE WORLD HEALTH ORGANISATION (WHO) defined the AFO as “a lesion similar to ameloblastic fibroma, but also showing inductive changes that lead to the formation of enamel and dentin”. The definition used by the present authors is as According to Reichart et al:

A hamartomatous lesion similar to the ameloblastic fibroma and fibrodentinoma, but showing further inductive changes that lead to the formation of enamel matrix in addition to the dentin (dentinoid).^[2,3] In this paper we describe a rare case

of AFO affecting left posterior mandible in a 16 year old female patient.

CASE REPORT

A 16 year old female patient reported to the OPD of department of oral & maxillofacial pathology presented with a 2 year history of slowly enlarging swelling on the left side of the mandible. There was no history of trauma, clinically lower left molars were missing. Swelling was 3×2cm in size extending from distal aspect of 34 to anterior border of ramus. There was obliteration of buccal vestibule. Panoramic Radiography showed a well defined radiolucent area containing large amount of radioopaque material of irregular size and inferior displacement of lower first molar. Under general anesthesia lesion was excised by enucleation.



Figure.1: Intraoral photograph shows missing left mandibular molars



Figure.2: panoramic radiograph revealed a unilocular radiolucent lesion with radio-opaque foci in the centre .the first permanent mandibular molar is displaced toward the inferior border of the mandible.

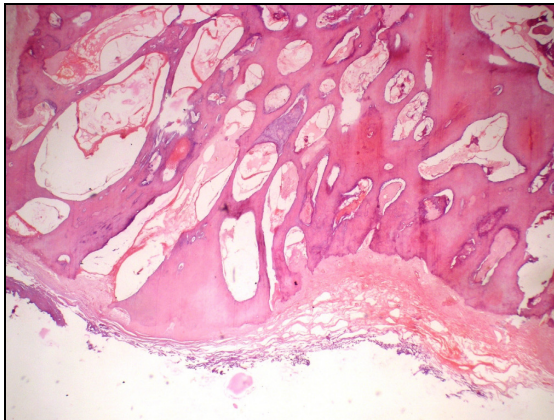


Figure.3: under low power magnification haphazardly arranged dental hard tissue and pulp like tissue is seen

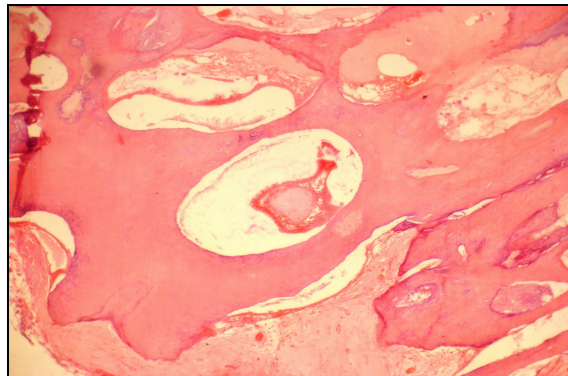


Figure.4: eosinophilic dysplastic dentin with areas of soft tissue showing odontogenic epithelial islands

Histopathological examination with hematoxylin and eosin stained section showed haphazardly arranged dental hard tissue which mainly comprises predominantly of dentin and basophilic cementum like material and pulp like tissue. Island of odontogenic epithelium with peripheral columnar cells resembling ameloblast and central stellate reticulum like cells were also found which resembled ameloblastic follicle. The mesenchymal component was fibrous and interspersed with large plump fibroblast resembling dental papilla. Based on the above finding histopathological diagnosis of ameloblastic fibro-odontome was made.

DISCUSSION

AFO is an uncommon mixed odontogenic tumor. The term AFO was first used by Hooker in 1967.^[3] According to modified WHO classification of odontogenic tumor in 1992 it comes under the category of benign tumor of odontogenic epithelium with odontogenic ectomesenchyme with or without hard tissue formation.^[4] AFO is associated with unerupted tooth.^[5] AFO is most commonly found in posterior mandible and maxilla.^[3] AFO is tumor of childhood and adolescence manifesting in first and second decade of life, with relative frequency of 0.3 % and 3.7 %. Posterior mandible is affected 2.4 times more often than maxilla with male: female ratio of 1.4: 1.^[2] Two most common presenting complaints are swelling and failure of eruption of teeth.^[5] on comparisons of pathogenesis of AFO to ameloblastic fibroma and ameloblastic dentinoma the inductive changes in AFO are more advanced and enamel is present in addition to dentin.^[2] Radiographically AFO appears as well-circumscribed radiolucency which contains various amounts of radioopaque

material of irregular size.^[6,7,8,9] Differential diagnosis of AFO includes calcifying epithelial odontogenic tumor, calcifying epithelial odontogenic cyst, adenomatoid odontogenic tumor, compound odontome.^[9,10,11]

Histologically the tissue masses of an AFO shows characteristic structure of an immature complex odontome consisting of irregularly arranged enamel, dentinoid, cementum and pulp like ectomesenchymal tissue.^[2,12] Strands and island of odontogenic epithelium with peripheral columnar cells resembling ameloblast and central stellate reticulum like cells^[5,7,12], embedded in typical rich ectomesenchyme. The dentin may vary structurally from dentinoid to tubular dentin. Enamel matrix is laid down by the odontogenic epithelium and may appear columnar or pre-ameloblast like. The presence of dentin and enamel matrix (mature enamel is lost during processing) is the feature that separates the AFO from ameloblastic fibroma.^[13] The amount of ectomesenchyme gradually decreases as the hard tissue mass dominates the central part of the lesion.^[14]

Immunohistochemically co-expression of cytokeratin 8, 13, 16, 14, 18, 19 and vimentin were found along with more proliferation of ectomesenchymal component than epithelial component.^[13]

Conservative surgical enucleation is the treatment of choice for AFOs, and recurrences have not been reported. In large lesions, the removal of an associated unerupted tooth cannot always be avoided. In small lesions with minimal production of dental hard tissue, however, the associated tooth may be left in situ. The prognosis for eruption of these teeth has proved to be good.^[2,15]

REFERENCES

1. Buchener A, Kaffe I, Vered M. Clinical and radiological profile of ameloblastic fibro-odontoma : an update on an uncommon odontogenic tumor based on a critical analysis of 114 cases. *Head and neck pathology* 2013; 7:54 -63
2. Raichart Peter A, Philipsen Hans P. *Odontogenic tumors and allied lesions* . quintessence publication, 2004 .
3. Nanda KD, Marwaha M. Ameloblastic fibro-odontoma masquerading as odontoma. *Indian journal of dental research* 2011; 2:24.
4. Shafer, Hine, Levy . *Shafer's text book of oral pathology* . 6th edition
5. Hegde Veda , Hemavathy S . A massive ameloblastic fibro-odontoma of the maxilla. *Indian J dent res* 2008; 19(2):162-164.
6. De Riu G, Meloni SM, Contini M, Tullio A. Ameloblastic fibro-odontoma-Case report and review of the literature; *J Craniomaxillofac Surg*. 2010 Mar; 38(2):141-4.
7. Oghli AA, Scuto I, Ziegler C, Flechtenmacher C, Hofele C.A. large ameloblastic fibro-odontoma of the right mandible *Med Oral Patol Oral Cir Bucal*. 2007 Jan 1; 12(1):E34-7.
8. H Chang, M S Shimizu, DS Precious. Ameloblastic fibro-odontoma: A case report. *Journal of the Canadian dental association* 2002; 68(4):243-6.
9. Prasanna K, P Sridhar, Ameloblastic fibro-odontoma in a 5 –year-old girl . *JIDAS* 2011 ;2 (1) januray-march:57.
10. G S, Reddy Y I, Prakash A R. Ameloblastic fibro-odontome (AFO) of the mandible: A case report . *journal of clinical and diagnostic research* 2014 Jan; vol -8(1):260-262.
11. Esther Manor, Elena Kan, Lipa Bodner. Ameloblastic Fibroodontoma of the Mandible with Normal Karyotype; *Case reports in dentistry* 2012; 01/2012: 969687.
12. Mummolo S. Ameloblastic fibro-odontoma case report. *Ann Stomatol (Roma)*. 2010 Apr-Jun; 1(2): 11–13.
13. Nelson BL, Thompson LD . Ameloblastic Fibro–Odontoma *Head and Neck pathology* [2014, 8(2):168-170.
14. Cavalcante ASR. Ameloblastic fibro-odontoma: A case report *Med Oral Patol Oral Cir Bucal*. 2009 Dec 1; 14 (12):e650-3.
15. Robert E. Marx , Diane Stern *Oral and maxillofacial pathology , A Rationale for diagnosis and treatment* . Second Edition Quintessence Publishing 2012.