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Ameloblastic Fibroma of Mandible

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Abstract

Background: Ameloblastic fibromas are a variation of odontogenic tumours that can occur either in mandible or maxilla, but is most frequently located in the posterior mandible. Usually seen in first two decades of life & is associated with tooth enclosure. In close to 75% of all cases, an impacted tooth is associated with the lesion. Although not confined to patients who are in their first or second decades of life, Ameloblastic fibromas most often arise in this population. The tumours may be either unilocular or multilocular radiolucencies when observed radiographically. Ameloblastic fibromas tend to have well-defined, scalloped margins radiographically but may also be corticated.

Case description: This paper describes 2 cases of Ameloblastic fibroma of mandible in a child & young adult. Radiographically, the lesion was multilocular in paediatric case involving the permanent tooth buds & unilocular in young adult without any impacted or embedded tooth. After clinical evaluation and biopsy, the lesion was identified as Ameloblastic fibroma. Both the cases were treated by the approach of enucleation via curettage of the bone, with removal of primary molar, and of the germs of included permanent teeth in the paediatric case without any complication. Six-month follow-up revealed no evidence of recurrence and normal eruption patterns of the succedaneous teeth in the affected area.

Conclusion: In these specific cases, the conservative approach to treatment appears to have been appropriate. This may not be the appropriate course for every case; as such, each case will have an individualized approach. Earlier recognition with careful inspection can reduce potential complications.

Keywords:

Introduction

Ameloblastic fibroma, first described in 1891 by Kruse[1] is a relatively infrequent tumor[2] accounting for between 2%[3] and 2.5%[4] of all odontogenic neoplasms. The lesion consists of a benign, mixed odontogenic tumour characterized by a proliferating odontogenic epithelium embedded in cellular ectomesenchymal tissue and resembling the dental papilla with varying degrees of inductive change have been described.[5] This tumour is reported to occur at an age ranging 6 months to 45 [6] years, with an average of 14.6 to 15.5 years.[7] The youngest patient reported is a 7-week old infant.[8] It can appear in either the mandible or maxilla but Over 80% of tumours occur in the mandible.[9] Only four cases of tumour in the maxillary anterior region have been reported. Both the epithelial and mesodermal components are neoplastic.[10]

Case 1

A 6-year-old boy was seen by dentist for swelling in the right mandibular region. Orthopantomography revealed a multilocular radiolucent lesion extending from the primary molars to the mandibular ramus

region. The patient was referred to the Service of Oral and Maxillofacial Surgery. The medical history, family history and routine laboratory findings were unremarkable. Extraoral examination revealed a firm, tender swelling in the right posterior mandible. The overlying skin was clear and there were no areas of facial inflammation. No palpable neck nodes were observed, and the rest of the head and neck examination was essentially normal. The intraoral examination in turn showed a firm swelling located in the right mandible, with reduced vestibular depth. The oral mucosa overlying the lesion was normal. The radiographic study revealed a large multilocular radiolucency with well-defined borders, surrounded by a radiopaque rim. Germ displacement was observed of the permanent teeth. Root resorption of the deciduous teeth were also seen (Figure 1). A biopsy was obtained under local anaesthesia, which diagnosed an odontogenic tumour exhibiting an Ameloblastic component. The lesion was enucleated via curettage of the bone, with removal of primary molar, and of the germs of included permanent teeth within the tumour (Figure 2). The biopsy shows odontogenic epithelium in form of nest, cord & island in dental papilla like mesenchymal tissue. Neither the odontogenic epithelium nor the fibroblastic mesenchyme showed mitotic activity or cellular atypia. The lesion was diagnosed as Ameloblastic fibroma.

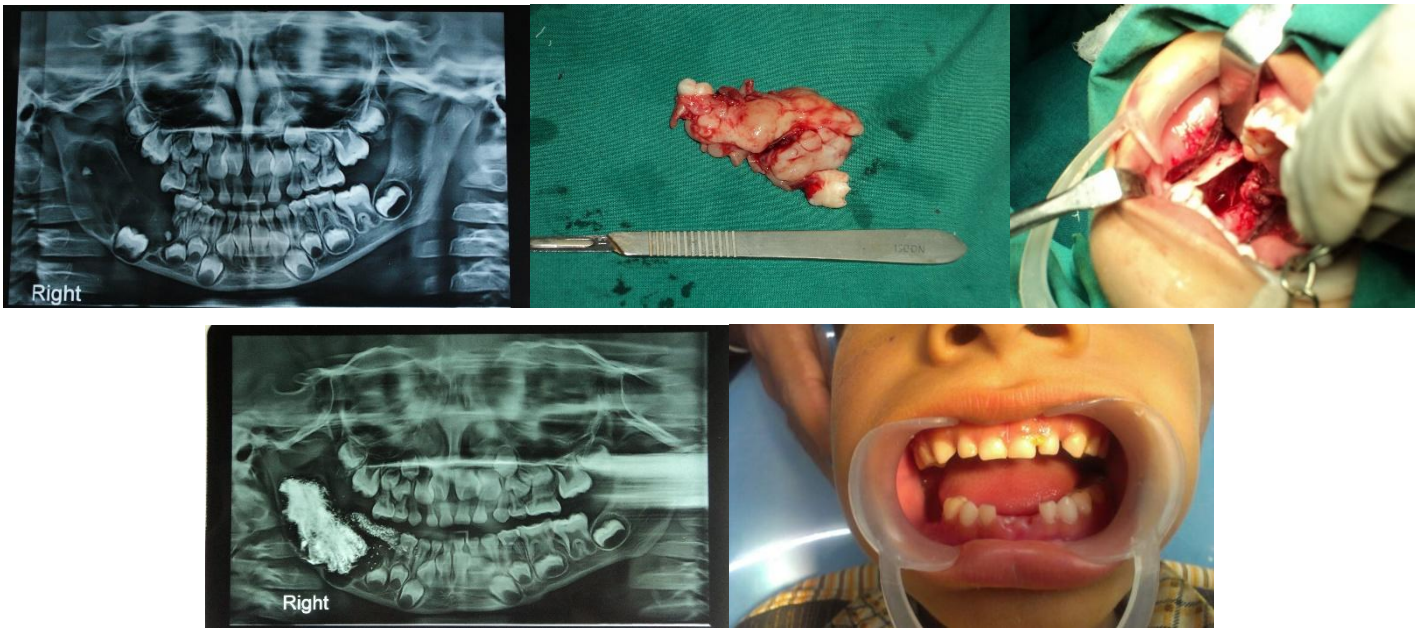

Figure: 1-5

Case 2

A 23-year-old male reported with complaint of intra oral swelling in the right-side mandible. Extra orally nothing significant was noted. Intra oral examination showed soft, palpable swelling in the right premolar & molar region. The oral mucosa overlying the lesion was normal. History of endodontic treatment before for the same. The radiographic study revealed unilocular radiolucency in 43, 44, 45, 46 with well-defined borders, surrounded by a radiopaque rim (Figure 6,7). CBCT showed Well defined osteolytic lesion in the mandibular right premolar-molar region within the alveolus and basal bone of right mandible. The radiolucency is extending from apical region of #43 to disto-proximal aspect of #46. The lesion has resulted in expansion, thinning and perforation of buccal and lingual cortical bone. An incisional biopsy under local anaesthesia diagnosed the lesion as Ameloblastic fibroma. Complete enucleation with bone curettage along with extraction of involved teeth was done (Figure 8).

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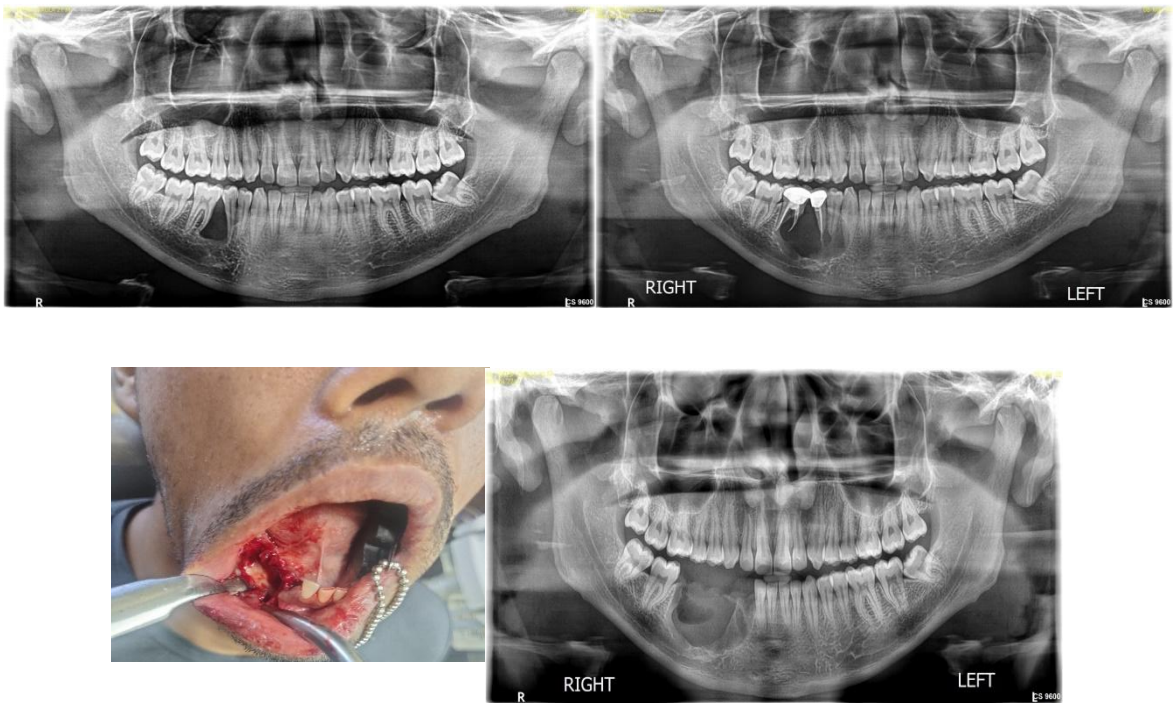

Figure: 6-9

Discussion

The Ameloblastic fibroma is an odontogenic tumour found primarily in children and teenagers with no apparent sex or race predilection. The lesion may occur in either jaw, although 80% of the reported cases have been in the mandible, usually in the premolar-molar area. The tumour enlarges by gradual expansion and often exhibits an asymptomatic clinical course. Pain or swelling may be the patient's initial complaint.[7,11-14]

Ameloblastic fibroma radiographically presents as a unilocular or multilocular radiolucency with a smooth, well-defined periphery. [11,12,15] Associated features may include unerupted or displaced teeth, divergence of the roots of adjacent teeth, or expansion of the cortical plates. [7,11--15] Histologically, the Ameloblastic fibroma is characterized by the proliferation of odontogenic epithelium supported by a primitive mesenchymal connective tissue stroma. [11,12] The epithelium presents as nests, buds, and cords of cuboidal or columnar cells which may develop a central portion resembling stellate reticulum. The cell-rich mesenchymal component closely resembles the dental papilla of the developing tooth germ. The Ameloblastic fibroma contains no calcified tissue elements. Generally credited as demonstrating benign behaviour, the recommended treatment for Ameloblastic fibroma consists of curettage or enucleation. [7,11-15]

The cases presented in this paper shares many similarities with other reports on Ameloblastic fibromas but have its own unique symptoms and characteristics.

In one similar report, a 15-year-old female patient presents with swelling in the posterior mandible, which somewhat mirrors the chief complaint of our paediatric case.[16] Histopathologically, the case also shows similarities because the lesion was found to contain "highly cellularized connective tissue stroma comprising odontogenic epithelium arranged in the form of strands, chords, and follicles of varying shape and size."[16] The patient was also treated by direct curettage under general anaesthesia. Radiographically "orthopantomogram showed a huge radiolucent lesion involving the body of the mandible from distal to 45 to the ramus of the mandible."[16] This lesion was much larger. This could be a product of the lesion having more time to progress as the patient was several years older than this paper's patient. However, several distinguishing characteristics were described in the case report that set it apart from the case of this paper. The case report notes that "46, 47, 48 were not clinically seen" and "serous discharge from a small opening distal to 45" was observed.[16] These differences could also be

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attributed to the age disparity between the two patients, due to both the age of onset and any effects the respective lesions would have on the natural schedule of the mandible's growth and development.

Another similar case details a 1-year-old patient presenting with "swelling in her posterior mandible" that was noted to be hard to palpation.[17] Like the case of our paper, no pus or drainage was observed, and "the buccal cortical plate expansion in the region of swelling was detected."[17] The lesion was also treated with surgical excision and direct curettage.[17] This case does, however, differ from that of this paper's subject in a number of ways. Its case report describes "a large well defined unilocular radiolucent lesion extending from the right deciduous canine to second molar region."[17] Our paper's subject was found to have a multilocular lesion, which was confined to the posterior mandible. The age difference between the two patients must be considered. The mandible of our subject has had several more years to develop and was much larger, and therefore the size cannot be accurately compared without taking into account measurements of the lesions and the overall size of each mandible.

Another report on a 3-year-old female describes a similar case in which swelling in the right mandibular body was present and a panoramic radiograph showed "a large multilocular, radiolucent lesion with scalloped margins."[18] These characteristics are similar to those found in the case studied in this paper. The lesion was also noted to have "extended from the right first deciduous molar area to the ascending ramus and coronoid process."[18] While the age disparity and subsequent difference in the size of each mandible may again be cited as possible factors, it should be emphasized that the coronoid process's involvement represents a departure from not only the subject of this paper's case, but any of the other cases examined in this paper. Another notable similarity is that the "radiograph also revealed expansion of the cortex and resorption of the roots of the lower right second deciduous molar."[18] While expansion of the cortex has been previously seen, root resorption was not seen at all.

Other published case reports are:

- Edward L. Mosby, David Russell, f Scott Noren, and Bruce E Barker[19]
- Edmund Whitson, Eliza Kim, Dennis Youngblood, Stacey Lubetsky[20]
- M. Garcia-Pola Vallejo/ M. Gonsalez Garcia/ L. Villalain Alvarez /M. Fresno Forcedello / J.S. Lopez-Arranz[21]
- Su-Gwan Kim and Hyun-Seon Jang[22]
- A. Usubütün, Ç. Atayar,N. Basal, K. Araz[23]
- Marko Božič and Nataša Ihan Hren[24]
- Belmiro C. E. Vasconcelos, Emanuel S. S. Andrade, Nelson S. Rocha, Hécio H. A. Morais and Ricardo W. F. Carvalho[25]
- Ameloblastic Fibroma in a 7-Week-Old Infant: A Case Report and Review of the Literature
- Paediatric Ameloblastic Fibroma: A Case Report
- Ameloblastic fibroma: a case report in a 6-year-old
- Ameloblastic Fibroma: Report of a Case
- Cystic Ameloblastic fibroma
- Ameloblastic fibroma
- Treatment of large Ameloblastic fibroma: a case report

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- Ashish Gupta, Rahul Sood, Pankaj Bansal[26]

The goal of comparing and contrasting similar cases with the subjects of this paper is to illustrate how an Ameloblastic fibroma can have many different characteristics and begin at different points in a person's lifetime. The intention was not only to show specific signs and symptoms but also to illustrate that an Ameloblastic fibroma is a complex condition and can present with a multitude of characteristics. While this paper does extrapolate the causes of each case's unique features, it only offers a background or context from which to postulate possible reasons for them, and in no way explains them. The similarities and differences among each Ameloblastic fibroma case report support the need for increased attention to this particular odontogenic tumour. Further research is required to pinpoint the exact cause of an Ameloblastic fibroma and the mechanisms by which one progresses.

The classical notion that these tumours are encapsulated and thus easy to remove is somewhat in conflict with the high recurrence rates observed and the potential for evolution towards Ameloblastic fibrosarcoma. In our opinion, the best management approach in cases of Ameloblastic fibroma in children is to surgically remove the lesion and furthermore perform careful curettage of the bone bed. Periodic follow-up examinations and radiographic studies are advised.

References:

1. Kruse A. Uber die entwicklung cystichen geschwulste in unterkiefer. Arch F Pathol Anat 124: 137-8, 1898.
2. Slootgweg PJ. An analysis of the inter-relatioship of the mixed odontogenic tumors-ameloblastic fibroma, ameloblastic fibroodontoma, and the odontomas. Oral Surg 51: 266-76, 1981.
3. Gorlin RJ. Odontogenic tumors. In: Gorlin RJ, Goldman HM. Oral Pathology. St Louis: Mosby Company, pp 481-515, 1970.
4. Bhaskar SN. Synopsis of Oral Pathology. 6ª ed. St Louis. CV Mosby pp 273-6, 1981.
5. Kramer IRH, Pindborg JJ, Shear M. Histologic typing of odontogenic tumours (ed 2). Berlin: Springer-Verlag, pp 3-10, 1992.

- Bilateral Ameloblastic Fibroma in A 6-Year-Old Child: A Unique Case

6. Belmiro CE Vasconcelos, Emanuel SS Andrade, Nelson S Rocha, Hecio HA Morais, Ricardo WF Carvalho. Treatment of Large Ameloblastic fibroma: a case Report. J of Oral Science 2009;51:(2)293- 96.
7. Trodahl JN. Ameloblastic Fibroma. Survey of cases from the Armed forces institute of pathology. Oral Surg Oral Med Oral Pathol 1972; 33:547-58.
8. Mosby EL, Russel D, Noren S, Barker BF. Ameloblastic fibroma in a 7-week –old infant, a case report and review of the literature. J Oral Maxillofac Surg 1998; 56:368-72.
9. Bhaskar SN. Synopsis Oral pathology. 7th ed. St. Louis; CV Mosby, 1986:284-287
10. Van Wyk CW, van der Vyver PC. Ameloblastic fibroma with dentinoid formation/immature dentinoma. J Oral Pathology 12: 37-46, 1983.
11. Gorlin, R. J. and Goldman, H. M. Thoma's Oral Pathology, 6th ed. St. Louis, C. V. Mosby Co., 1970, pp 493-496.
12. Sharer, W. G., Hine, M. K., and Levy, B. M. A Textbook of Oral Pathology, 3rd ed. Philadelphia, W. B. Saunders Co., 1974, pp 273-275.
13. Gorlin, R. J., Chaudhry, A. P., and Pindborg, J. J. Odontogenic tumours: classification, histopathology, and clinical behaviour in man and domesticated animals. Cancer 14:73, 1961.
14. Gorlin, R. J., Meskin, L. H., and Brodey, R. Odontogenic tumours in man and animals: pathologic classification and clinical behaviour -- a review. Ann New York Acad Sci 108:722, 1963.
1. 11. Trodahl, J. N. Ameloblastic fibroma. Oral Surg 33:547, 1972.
15. Heringer, W. W. Ameloblastic fibroma in the anterior maxilla -- report of case. J Dent Child 45:408, 1978.
16. Kumar RM, Bavle R, Srinath N, et al. Ameloblastic fibroma in a young adult. J Oral Maxillofac Pathol 2019;23(Suppl 1):63–65.
17. Munde A, Karle R, Kale U. Ameloblastic fibroma in one-year-old girl. Int J Oral Maxillofac Surg 2013;17(1):149. DOI: 10.4103/0973-029X.110734.

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18. Kim SG, Jang HS. Ameloblastic fibroma: report of a Case. Int J Oral Maxillofac Surg 2002;60(2):216–218. DOI: 10.1053/joms.2002.29829.
19. Edward L. Mosby, David Russell, f Scott Noren, and Bruce E Barker**.** Ameloblastic Fibroma in a 7-Week-Old Infant: A Case Report and Review of the Literature. J Oral Maxillofac Surg 56:368-372, 1998.
20. Edmund Whitson, Eliza Kim, Dennis Youngblood, Stacey Lubetsky**.** Paediatric Ameloblastic Fibroma: A Case Report. The Journal of Contemporary Dental Practice, Volume 21 Issue 3 (March 2020).
21. M. Garcia-Pola Vallejo/ M. Gonsalez Garcia/ L. Villalain Alvarez /M. Fresno Forcedello / J.S. Lopez-Arranz**.** Ameloblastic fibroma: a case report in a 6-year-old. The Journal of Clinical Paediatric Dentistry Volume 25, Number 3/2001.
22. Su-Gwan Kim and Hyun-Seon Jang**.** Ameloblastic Fibroma: Report of a Case. J Oral Maxillofac Surg 60:216-218, 2002.
23. A. Usubütün, Ç. Atayar,N. Basal, K. Araz. Cystic Ameloblastic fibroma. British Journal of Oral and Maxillofacial Surgery (2002) 40, 512–514.
24. Marko Božič and Nataša Ihan Hren. Ameloblastic fibroma. Radiol Oncol 2006; 40(1): 35-8.
25. Belmiro C. E. Vasconcelos, Emanuel S. S. Andrade, Nelson S. Rocha, Hécio H. A. Morais and Ricardo W. F. Carvalho. Treatment of large Ameloblastic fibroma: a case report. Journal of Oral Science, Vol. 51, No. 2, 293-296, 2009.
26. Ashish Gupta, Rahul Sood, Pankaj Bansal. Bilateral Ameloblastic Fibroma in A 6-Year-Old Child: A Unique Case. J Oral Health Comm Dent 2010;4 (3):88-91.

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