

Ameloblastoma - A Case Report

Sheiba Gomes¹, Pooja Kamath², Mayura Mahajan², Priyadarshini³,
Suraj Manishankar⁴, Gaurav S⁴

¹HOD, Department of Public Health Dentistry, D.Y. Patil Dental College, D.Y. Patil Deemed to be University School of Dentistry, Sector 7, Nerul, Navi Mumbai, Maharashtra-4000706, India; ²Associate Professor, Department of Oral Pathology, D.Y. Patil Dental College, D.Y. Patil Deemed to be University School of Dentistry, Sector 7, Nerul, Navi Mumbai, Maharashtra-4000706, India; ³Post graduate student, Department of Oral Pathology, D.Y. Patil Dental College, D.Y. Patil Deemed to be University School of Dentistry, Sector 7, Nerul, Navi Mumbai, Maharashtra-4000706, India; ⁴Undergraduate Student, D. Y. Patil Deemed to be University School of Dentistry, Sector 7, Nerul, Navi Mumbai, Maharashtra-4000706, India.

ABSTRACT

Introduction: Ameloblastoma is a clinically benign and locally aggressive tumor of odontogenic origin. The tumor exhibits a variety of biological behaviors from a small cystic expansion to a large aggressive mass which is invasive, recurrent and may also show malignant transformation.

Case Report: This paper reports a unique case of a female patient with giant ameloblastoma of the mandible. Radiograph revealed an enormous swelling of the left side of the face, resorption of the affected hemi-mandible. Pressure from the tumor resulted in displacement and destruction of the facial skeleton. The patient was treated by radical hemimandibulectomy with removal of the tumorous mass.

Conclusion: Ameloblastoma of the mandible and maxilla is generally a benign tumor of the odontoma with locally aggressive behaviour. Post operative radiotherapy for patients at increased risk of local recurrence improves local tumor control.

Key Words: Ameloblastoma, Benign locally aggressive tumor, Recurrent, Radical hemimandibulectomy, Radiograph, Mandible and Maxilla

INTRODUCTION

Ameloblastoma is a slow growing, clinically benign and locally invasive tumor of odontogenic origin.¹ This tumor has the potential to grow to an enormous size, with resulting bone deformity, facial asymmetry and displacement of the soft tissues and neurovascular structures. Ameloblastoma usually originates from remnants of the dental lamina and odontogenic epithelium in the mandible and maxilla.² Generally, ameloblastoma typically occurs at approximately equal rates in both sexes between 30 and 60 years of age. The peak age at diagnosis is in the fifth decade of life in the overall population, while the peak incidence is reported in adults in the fifth and sixth decades of life.³

CASE REPORT

A 23-year-old female patient was referred because of a massive swelling of the left side of her face and neck. The

size of the swelling had increased over at least 1 year. The patient suffered no pain or problems with breathing and eating, although there was an obvious obstruction of the upper aerodigestive tract. Medical examination revealed swelling (12.0 × 12.8 × 7.4 cm) on the left side of the face affecting the temporal, parotidomasseteric, zygomatic, buccal and the entire left half of the mandible. H&E stained soft tissue section showed connective tissue capsule lined by cystic epithelium consisting of tall columnar cells resembling ameloblasts and stellate reticulum-like cells. Ameloblastic follicles were seen in the connective tissue below the cystic lining [Fig1]. Bony margins were free from invasion. Large number of blood vessels were seen in the connective tissue. Muscle bundles and salivary glands were also seen. Overall features along with clinical & pathological correlations were suggestive of ameloblastoma.

Corresponding Author:

Dr. Sheiba Gomes, HOD, Department of Public Health Dentistry, D.Y. Patil Dental College, D.Y. Patil Deemed to be University School of Dentistry, Sector 7, Nerul, Navi Mumbai, Maharashtra-4000706, India; Email: sheiba.gomes@dypatil.edu

ISSN: 2231-2196 (Print)

ISSN: 0975-5241 (Online)

Received: 18.12.2020

Revised: 18.01.2021

Accepted: 19.02.2021

Published: 10.03.2021



Figure 1: Large cystic cavities.

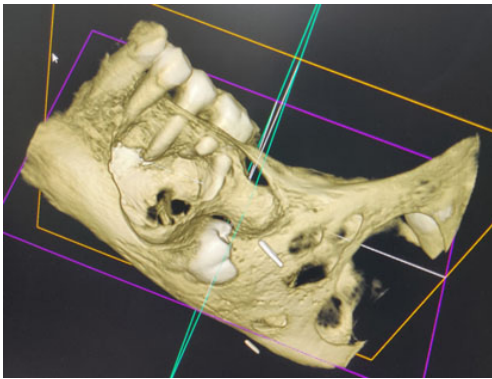


Figure 2: CBCT of the mandible from lateral surface.

The tumors were surgically resected, fixed using 10% neutral-buffered formalin, paraffin embedded, decalcified using 10% formic acid, and cut into 4- μ m-thick sections for hematoxylin and eosin (H&E) staining. H&E stained soft tissue section showed connective tissue capsule lined by cystic epithelium comprising of tall columnar cells resembling ameloblasts and stellate reticulum like cells[Fig3]. Ameloblastic follicles were seen in the connective tissue below the cystic lining. Bony margins were free from invasion. Large number of blood vessels were seen in the connective tissue. Muscle bundles and salivary glands were also seen[Fig4].

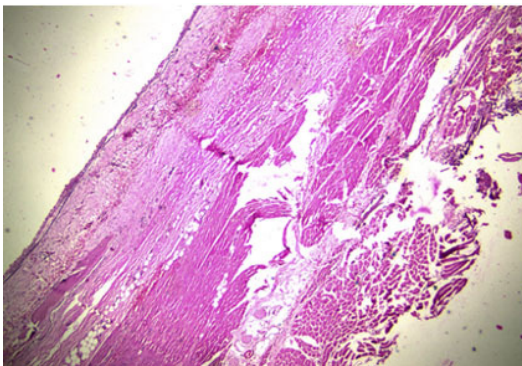


Figure 3: Showing H&E-stained section under 4X magnification.

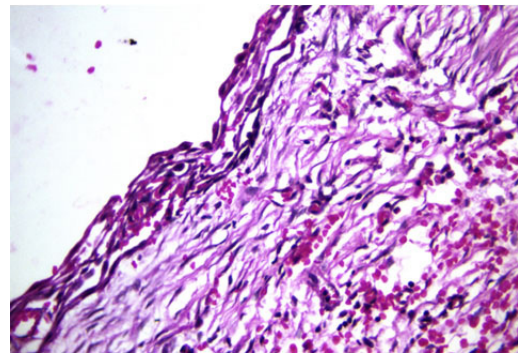


Figure 4: Showing H&E-stained section under 40X magnification.

DISCUSSION

Ameloblastoma is an odontogenic tumor that is typically benign, but which may exhibit high rates of locally aggressive growth and recurrence. Although previous studies conducted in Eastern China have characterized the growth of these tumors in hundreds of patients.⁴ The current report describes a patient who presented with a particularly large tumor (>10 cm), which had been growing for over 1 year. The unexpectedly large size of the tumors highlights the importance of a prompt diagnosis and surgical removal of the ameloblastoma. The tumors reported here was a solid/multicystic ameloblastoma subtype, which is the most common histological subtype of ameloblastoma. The case exhibited clear signs of intracellular hyalinization, which may be associated with hypoxia resulting from long-term cellular proliferation and tissue dystrophy within the tumors.⁵ The presence of clear cells in odontogenic tumors, including ameloblastomas, is not surprising, given that they originate from the dental lamina, which includes clear cells as one of its components.⁶ Given that clear cells have been associated with rapid tumor destruction, radical surgery with adequate tumor-free margins and close follow-up are strongly advised in patients with ameloblastoma.⁷ Their potential for local aggressive growth means that ameloblastomas are capable of inducing significant bone destruction[Fig2]. Accordingly, local bone destruction was observed in the current cases, despite both tumors being identified as benign, with no evidence of metastasis.⁸

CONCLUSION

Ameloblastoma of the mandible and maxilla is generally a benign tumor of the odontoma with locally aggressive behavior. Occasionally the tumor breaks through cortical bone and extends into adjacent soft tissues. Complete surgical resection with negative margins is the hallmark for curative resection. Local recurrences are rare, and usually amenable

to re- resection. Post operative radiotherapy for patients at increased risk of local recurrence improves local tumor control.

ACKNOWLEDGEMENT

Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors / editors / publishers of all those articles, journals, and books from where the literature for this article has been reviewed and discussed.

Conflict of Interest: None.

Source of funding: Self

Authors' Contribution: All authors contributed equally towards the data collection, data analysis & compilation

REFERENCES

1. Lovásová K, Borza B, Kizek P, Almaši M, Kachlík D, Hodorová I. A case of giant ameloblastoma: destructive effect on the facial skeleton and soft tissues of the head and neck. *J Int Med Res.* 2021;49(10):030006052110501. <http://dx.doi.org/10.1177/03000605211050185>
2. Effiom OA, Ogundana OM, Akinshipo AO, Akintoye SO. Ameloblastoma: current etiopathological concepts and management. *Oral Dis.* 2018;24(3):307–16.
3. Kreppel M, Zöller J. Ameloblastoma-Clinical, radiological, and therapeutic findings. *Oral Dis.* 2018;24(1-2):63–6. <http://dx.doi.org/10.1111/odi.12702>
4. de Roos P, Lucas C, Strijbos JH, van Trijffel E. Effectiveness of a combined exercise training and home-based walking programme on physical activity compared with standard medical care in moderate COPD: a randomised controlled trial. *Physiotherapy.* 2018;104(1):116–21.
5. Hong R, Lim SC. Granular cell tumor of the cecum with extensive hyalinization and calcification: a case report. *World J Gastroenterol.* 2009;15(26):3315–8.
6. de Aguiar MCF, Gomez RS, Silva EC, de Araújo VC. Clear-cell ameloblastoma (clear-cell odontogenic carcinoma. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 1996;81(1):79–83. [http://dx.doi.org/10.1016/s1079-2104\(96\)80153-3](http://dx.doi.org/10.1016/s1079-2104(96)80153-3)
7. Marí A, Escutia E, Carrera M, Pericot J. Clear cell ameloblastoma or odontogenic carcinoma. A case report. *J Craniomaxillofac Surg.* 1995;23(6):387–90.
8. Yang Z, Li K, Liang Q, Zheng G, Zhang S, Lao X, et al. Elevated hydrostatic pressure promotes ameloblastoma cell invasion through upregulation of MMP-2 and MMP-9 expression via Wnt/ β -catenin signalling. *J Oral Pathol Med.* 2018;47(9):836–46. <http://dx.doi.org/10.1111/jop.12761>