

Case Report

Cone Beam Computed Tomography- A Boon in Diagnosis of Expansile Follicular Ameloblastoma of Mandible - A Case Report

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ABSTRACT

Ameloblastoma is a locally invasive benign epithelial odontogenic tumour. It has a high rate of recurrence in the long term. Ameloblastoma was first described by Falkson in 1879. It is a slow growing, persistent and locally aggressive neoplasm. It is more common in the third and fourth decade of life with equal sex distribution. It is more common in posterior mandibular body ramus region. Radiologically it may present as unilocular or multilocular with cortical plate expansion. Cone beam computed tomography enables the clinician to get exact nature and extent of ameloblastoma. Here we present a rare case which demonstrates the use of cone beam computed tomography in diagnosis of a large expansile ameloblastoma of mandible in a 47 year old female patient.

Keywords: Ameloblastoma, epithelial, odontogenic, neoplasm, posterior mandible, cortical plate expansion.

INTRODUCTION

Ameloblastoma is a locally destructive, benign neoplasm, which arises from the odontogenic epithelium. [1] It represents 1 % of all ectodermal tumours and 9% of odontogenic tumours. [2] Regezi and Sciubba reported that ameloblastoma accounts for 11% of all odontogenic tumour in the jaws. [3] Ameloblastoma is the most common odontogenic neoplasm. It usually occurs sporadically without any apparent genetic predisposition. Robinson has defined it as a unicentric, non functional, intermittent growth which is anatomically benign and clinically persistent. Ameloblastoma has locally invasive behavior which causes marked deformity and serious debilitation. It also has an increased recurrence rate after surgery.

In 80% of the cases, ameloblastoma presents as an intraosseous neof ormation in

the mandible, particularly in the molar area or the ascending ramus. [4] Since 1992 the World Health Organization has accepted three subtypes of benign ameloblastomas: Solid/ multicystic, unicystic and extraosseous / peripheral. [5] Since 2005 two new subtypes have been added to the classification: desmoplastic and mixed (with areas of desmoplastic and solid pattern). Radiologically ameloblastoma usually present as a well defined, multilocular radiolucency with scalloped border typically described as honeycomb or soap bubble appearance. It may also occur as unilocular radiolucency.

The availability of cone beam computed tomography allows the clinician to appreciate the 3-dimensional architecture of the lesion to a great extent and provide detailed examination of the hard tissue finding. In this paper we describe a case of

solid multicystic ameloblastoma mainly follicular mixed with few areas of plexiform pattern in a 47 year female patient.

CASE REPORT

A 47 year female patient reported to the department of oral medicine and radiology with a chief complaint of pain and huge swelling on left side of face since two years. The patient was alright two years back. To start with initially the patient had noticed a swelling on left side of the jaw which was small in size and gradually increased to attain the present size. The patient gave history of dull, intermittent pain which was aggravated on taking food. The patient had visited to institute one year back for the same problem but she did not take any treatment for the same and showed her negligence for treatment. The patient did not pay any attention to the swelling. The patient had taken some ayurvedic treatment for the same problem but she started developing pain and swelling on left side of the jaw. The pain was intermittent and aggravated on chewing food and relieved by itself. From last since month she started experiencing numbness on left side of jaw and tongue.

There was no history of trauma in the region of swelling, no discharge of pus or blood from the swelling. Past medical history and family history was not significant. All vital signs were within normal limit.

Extraoral examination revealed a diffuse swelling involving the left side of the face extending superiorly one centimeter below the infraorbital margin, inferiorly till the inferior border of mandible involving the entire submental and submandibular area, anteriorly from angle of mouth to posteriorly upto the tragus region. The swelling was crossing the midline and was extending over the right side of the jaw. The overlying skin was thin and shiny. There was no sinus tract and ulceration noted. The swelling was firm to hard in consistency, tender on palpation, non pulsatile with no local rise in temperature. Swelling was non

compressible. The submental and left submandibular lymph nodes were palpable, firm in consistency mobile and tender on palpation. All the findings of inspection were confirmed on palpation.

On intraoral examination, a diffuse ill defined swelling was seen on left side of the mandible involving the floor of the mouth extending from left retro molar area crossing the midline upto 44 region. There was obliteration of the buccal vestibule with expansion of the buccal and lingual cortical plate. Diffuse swelling extending over the anterior border of ramus of mandible was present. The tongue was displaced due the swelling due to which the patient was unable to close her mouth. The surface of the swelling was smooth. No discharge and ulcerations were noted. The findings of inspection were confirmed on palpation. The local temperature was not raised. Egg shell crackling was obtained on palpation. Tenderness was present. The swelling was firm to hard in consistency. Expansion of buccal and lingual cortical plates was present. Based on clinical examination and presentation provisional diagnosis of ameloblastoma was made. And Differential diagnosis of Calcifying Epithelial Odontogenic Tumor, Keratocystic Odontogenic Tumor (KCOT), and Central Giant Cell Granuloma Odontogenic Myxoma was made. [5-9]

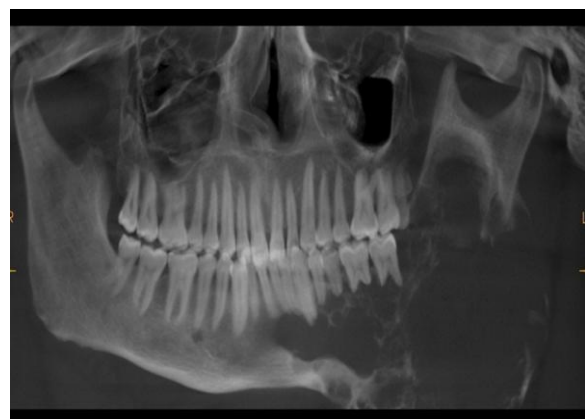


Figure 1: Orthopantomograph shows diffuse ill defined expansile lesion present on left side mandible involving complete mandible on left side normal anatomy of mandible was not traceable due to expansion and destruction of cortical bone.

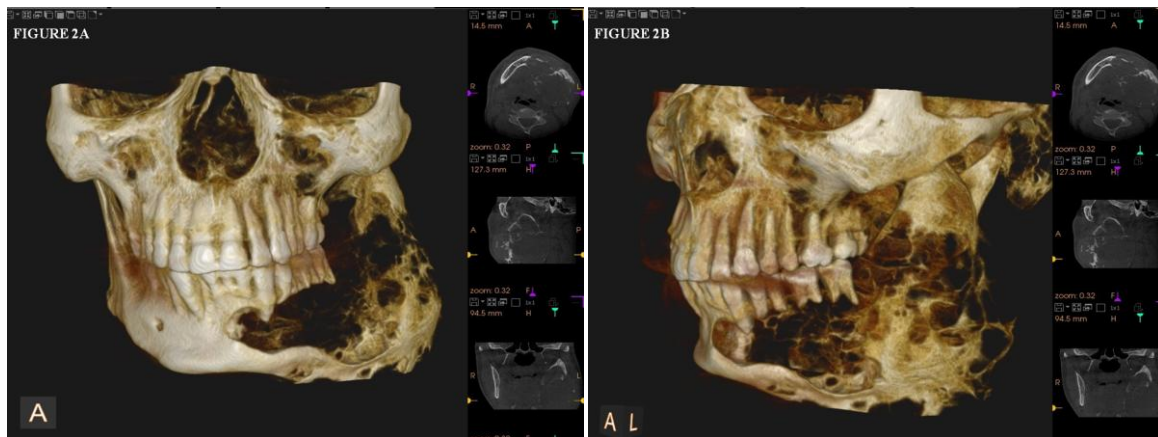


Figure 2A & 2B: Three Dimensional reconstructions in CBCT shows diffuse expansile lesion present on left side mandible.

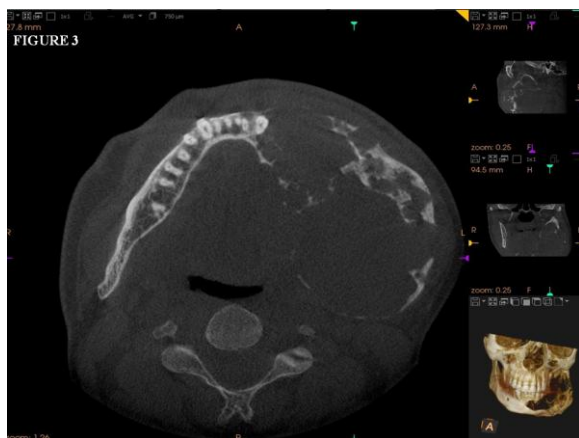


Figure 3: Axial section showing expansion of cortical plate bucco-lingually with perforation of cortical plates in some region.



Figure 4: Coronal section showing ill defined multilocular lesion with soap bubble like appearance. Buccolingual expansion of the lesion noted.



FIGURE 5A

Figure 5A: Extra oral diffuse swelling present on left side face extending from infraorbital region to lower border of the mandible region.



FIGURE 5B

Figure 5B: Extra oral diffuse swelling present on left side face extending antero-posteriorly from ala of nose to preauricular region of the mandible region.

Investigations

The patient was subjected to routine hematological findings were not significant.

Radiographic Investigation:

Orthopantomograph was taken shows diffuse ill defined expansile lesion

present on left side mandible involving complete mandible on left side normal anatomy of mandible was not traceable due to expansion and destruction of cortical bone.

For further detailed information and to know the extent of the pathology patient was scanned using CBCT 9300CS 3D imaging system at 90 KVp and 8mA. The CBCT images revealed a large ill-defined mixed expansile multilocular lesion. Extending from symphysis of the mandible to the ramus of the mandible left side normal anatomy of mandible was not traceable due to expansion and destruction of cortical bone bucco lingually and supero inferiorly. Cortical plate was very thin and in some region cortical plate was not traceable. Some section demonstrated honey comb appearance and soap bubble appearance. The septae of the lesion were coarse and bicortical expansion was clearly seen with multiple area of perforation of corical plate.

On the basis of clinic radiographic findings provisional diagnosis of ameloblastoma was made. A incisional biopsy was performed biopsy was taken from the posterior region of the lesion and specimen was subjected to histopathological examination revealed the presence of follicles that consist of a core of loosely arranged angular cells resembling the stellate reticulum of enamel organ. A single layer of tall columnar ameloblast like cells had been arranged surrounding the central care. Nuclei of these cells were located at the opposite pole to the basement membrane (reversed polarity) with few follicles revealing micro cyst formation; these findings were strongly suggestive of follicular ameloblastoma. As the lesion was very extensive treatment was scheduled for surgical reconstruction with hemimandibulectomy.

DISCUSSION

Ameloblastoma term was coined by Ivey and Churchill in 1930. It was first recognized in 1827 by Cuscat. This odontogenic neoplasm was designated as "Admantinoma" in 1885 by the French physician Louis Charles Malasez. It resembles the cells of the Enamel forming organ. These tumors shows benign course

but are locally massive. They are more common with in the posterior region of the mandible .It is more common in 20-50 years of the age with equal frequency in both the genders. The probable etiologic factors are chronic irritation, infection, history of trauma etc. Ameloblastoma begins as a central lesion of bone which is slowly destructive but tends to expand bone rather .than perforate it. If left untreated for many years the expansion may be disfiguring and fungating and ulcerative type of growth characteristic of that of carcinoma may be seen. Radio graphically ameloblastoma may be unilocular or multilocular the internal structure may vary from totally radiolucent to mixed with presence of bony septa there is pronounced tendency of ameloblastoma to cause extensive root resorption. In most of the case of with expansile lesion Computed tomography (CT) is the cornerstone of modern medical Radiology to diagnose the extension of lesion. Cone beam CT (CBCT), which is a comparatively recent scanning technology in dentistry, provides images equivalent to medical CT at reduced costs and radiation doses. The radiation dose to the patient with CBCT is 40 % lesser than that of multi-slice CT dose but is 3-7 times higher than conventional panoramic radiograph exposure dose. CBCT has been considered the examination of choice in various instances, since it give high resolution imaging, diagnostic consistency and risk benefit assessment and allows wide platform for imaging of such expansive lesion. ^[10]

In our case the patient was a female in the fourth decade of life. Clinically there was a large expansile swelling on lest side of face which was tense and shiny. Radiographically multilocular expansile mixed radiolucency with all their appearance co existing in same lesion makes this case unique.

CONCLUSION

CBCT is advantageous in evaluating the borders, internal structure, cortical expansion, and relationship with

surrounding structures of Ameloblastoma. Cone Beam Computed tomography not only helps to confirm the diagnosis but also accurately demonstrates the anatomical extent of the tumor. It helps to detect the perforation of outer cortex and invasion into the surrounding soft tissues. It is also important for post surgical follow-up assessment.

REFERENCES

1. Rastogi R, Jain H. Case report: Desmoplastic ameloblastoma. *Indian J Radiol Imaging* 2008; 18: 53-55. <http://dx.doi.org/10.4103/0971-3026.35819>
2. Shafer's Oral Pathology
3. Williams TP. Management of ameloblastoma: a changing perspective. *J Oral Maxillofac Surg* 1993; 51: 1064-70.
4. Varkhede A, Tupkari JV, Sardar M. Odontogenic tumors: a study of 120 cases in an Indian teaching hospital. *Med Oral Patol Oral Cir Bucal*. 2011;16:e895–e899.
5. Black CC, Addante RR, Mohila CA. Intraosseous ameloblastoma. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2010; 110:585–592.
6. S. C. White and M. J. Pharoah, *Oral Radiology: Principles and Interpretation*, Mosby, St. Louis, Mo, USA, 5th edition, 2004.
7. R. P. Langlais, O.E.Langland, and C. J.Nortje, *Multilocular Radiolucencies*, Chapter-3, *Diagnostic Imaging of Jaws*, Williams & Wilkins, 1995.
8. R. Rajendran and B. Sivapathasundharam, *Shafer's Textbook of Oral Pathology*, Elsevier, New Delhi, India, 5th edition, 2006.
9. *Textbook of Oral and Maxillofacial Surgery* By Nilima Mallik
10. Warhekar S, Nagarajappa S, Dasar PL, et al. Incidental findings on cone beam computed tomography and reasons for referral by dental practitioners in Indore city (m.p). *J Clin Diagn Res*. 2015;9(2):ZC21–ZC24. doi:10.7860/JCDR/2015/11705.5555

How to cite this article: Pagare J, Johaley S. Cone beam computed tomography- a boon in diagnosis of expansile follicular ameloblastoma of mandible - a case report. *International Journal of Research and Review*. 2019; 6(8):198-202.
