Case Report

A Case of Benign Hard Tissue Lesion Of Jaw Bone: Report Of An Enigmatic Presentation

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Abstract

Clinicians still have a diagnostic problem when it comes to mandibular lesions, which can arise from both odontogenic and non-odontogenic structures and represent a wide range of lesions with varied degrees of malignant potential. Often, jaw abnormalities present in a nonspecific manner where clinical findings are not sufficient, making imaging of utmost importance in elucidating the cause of the symptoms. Although imaging results may not result in a particular diagnosis, they can restrict the differential diagnosis and guide further therapeutic steps. We are presenting a case of a 45 years old female patient with painless slow growing non-inflammatory lesion in mandibular anterior region with bicortical expansion emphasizing the aspects that aid in the differential diagnosis; correlating the clinical findings, imaging findings and histological features to reach up to the diagnosis.

Keywords: Cystic Lesions, Dental Imaging, Calcifying odontogenic cyst, Mandibular lesions

INTRODUCTION –

Tendency of the lesion to occur at a specific site with their pattern which is an aid in the differential diagnosis of the lesion.[1] Many lesions that occur in the jawbones have a tendency of similar radiographic pattern and it is often difficult to differentiate among them.[2] Anterior mandibular lesions include the median mandibular cyst, calcifying odontogenic cyst, central giant cell granuloma, , desmoplastic ameloblastoma, lesions of hyperparathyroidism and aneurysmal bone cyst.[1] The present case illustrates that enigmatic lesions like ameloblastomas show varied nature and a broader perspective of differential diagnosis should be considered.

CASE REPRESENTATION

A 45 year old female patient reported to the department of Oral Medicine and

Radiology with swelling in the lower front region of jaw for a month. The swelling was gradually increasing and has attained present size, associated with pain. There was no history of trauma or discharge from the swelling. Medical and family history were non contributory. General condition of the patient was normal with pallor present, all vitals were normal. Extraoral finding shows swelling in the mandibular anterior region which was diffuse in nature. Intraoral examination showed the labio-lingual swelling in the mandibular anterior region associated with mobility, pockets and attrition in mandibular anterior teeth.

Inspectory findings showed labio-lingual swelling which had different extensions. Labial swelling was bigger in size as compared to the lingual swelling. Labial swelling extended from the right side of the mesial aspect of the premolar to the left side of the mesial aspect of the canine. Lingual swelling extended from the mesial side of the central incisor to the mesial side of the premolar (right side), shape was roughly oval

Palpatory findings showed non tender, bony hard swelling in lingual aspect and soft in labial aspect which was non mobile and non compressible. On palpation it was found to be non-inflammatory, painless bicortical expansion leading to displacement of mandibular anterior teeth, and chronic in nature. On the basis of intraoral and extraoral examination provisional diagnosis of odontogenic tumors such as ameloblastoma was put forth. Following differential diagnosis were considered, namely, odontogenic keratocyst, odontogenic myxoma, aneurysmal bone cyst, fibrous dysplasia.(Figure.2)

Panoramic radiograph was performed as a screening radiograph and it showed multilocular radiolucency, roughly oval in shape. Well defined sclerotic borders with varying radiolucency within the lesion causing displacement of mandibular anterior teeth was seen. In multilocular area calcification was observed which gave a confounding differential diagnosis of ameloblastoma, CEOT, central giant cell granuloma. (Figure.3) Advanced imaging like CBCT was done which showed well defined hypodense lesions involving symphysis and parasymphysis region extending mediolaterally with root resorption of mandibular anterior teeth and loss of inferior border in the area of the lesion. Sagittal and axial sections of CBCT shows well defined hypodensity seen extending mesio-distaly from a point mesial to 35 to a point mesial to 44 in the alveolar bone region and super-inferiorly maximum extent is seen from the crest of alveolus in between 42 and 43 to in the inferior border of mandible. Root resorption was seen w.r.t 31, 32 , 41-44. Thinning of buccal and lingual cortical plates seen with perforation of both cortices in focal regions, especially in the zone of 32-42 . Thinning of the inferior border of the mandible was seen. The IANC canal is displaced inferiorly in the premolar regions bilaterally and anteriorly no canal is traceable. Displacement of teeth seen w.r.t 31, 32 , 41,42,43,44 (Figure.4,5,6) Approximate dimension of the lesion was mesiodistal : 49.9 mm - supero-inferior : 20.1 mm - antero-posterior : 25.3 mm.

Blood investigation showed the patient was slightly anaemic. Excisional biopsy was performed in the mandibular anterior region and the gross specimen was greyish white in color and soft in consistency. Lesion exercise was 2.5cm x 1.5 cm in size. (Figure.7) The histopathological features seen included odontogenic epithelium with ameloblastoma like cells and presence of eosinophillic dentinoid like material juxta epithellialy. Presence of large cystic lumen with dentinoid like calcification material and ghost cell which provided sufficient information to us to provide the final diagnosis of Calcifying Odontogenic Cyst. (Figure.8)

DISCUSSION

As our case shows the enigmatic presentation, clinically it shows chronic benign central lesion. Panoramic radiograph displayed characteristics of multilocularity and aggressive behavior leading to inferior border involvement, however, advanced imaging showed calcifications. CBCT showed the unicystic appearance without evidence of locularity and calcification and the histology report provided with the cystic appearance (COC) because of the lumen present inside the lesion. Histopathological findings are considered as final diagnostic criteria in such cases.

Radiographically initially the lesion would appear completely radiolucent, as it matures calcifications were seen as a mixed radiopaque and radiolucent lesion. The presence of calcifications is a very unique finding in COC.[10] Radiographically, most of the lesions exhibit a unilocular pattern with a well-demarcated sclerotic border, however, few cases are multilocular (5%–13%). The internal structure may manifest varied presentations – (a) completely radiolucent, (b) mixed pattern - most cases appear as a mixed (radiolucent-radiopaque) lesion, with unevenly distributed calcifications as seen in our case,(c) conglomerate of cloudy masses.[3] As an intraosseous and extraosseous developing cyst, calcifying odontogenic cysts have been included in the most recent version of the WHO classification of malignancies of the head and neck (2017). [4] Praetorius et al., however, categorize COC lesions as solid cysts or tumors. In the cystic variety, there are three distinct types: simple unicystic, unicystic odontoma-producing, and unicystic with ameloblastomatous growth.[5,6] About half of all COCs have calcification, which is a significant radiographic characteristic in the interpretation of COCs. The prevalence of the multilocular type has been reported to be 5%.[7]

The presence of varying numbers of ghost cells in the lining epithelium is the most distinctive histologic trait of the COC. The term "ghost cells" refers to these eosinophilic ghost cells, which are modified epithelial cells with a fundamental nucleus and cell shape but no life.[8] During the pathogenic change from odontogenic epithelial cells into ghost cells, the ghost cells exhibited an increase of hard keratins and amelogenins in their cytoplasm.[9] Similar histopathological features were present in our case as well.

CONCLUSION

A rare benign odontogenic tumor that can resemble both a cyst and a solid tumor is called a calcifying odontogenic cyst. A histological investigation is the only method that can provide a clear diagnosis because its clinical and radiographic characteristics may mirror those of other odontogenic cysts or tumors. Histologically, it showed proliferative cyst lining, ameloblastomatous alterations, and several regions of calcifying eosinophilic matrix indicative of dentinoid with embedded ghost cells and odontogenic epithelium, indicating the histologic variety of these neoplasms.

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Figure.1: Extraoral Profile Photograph

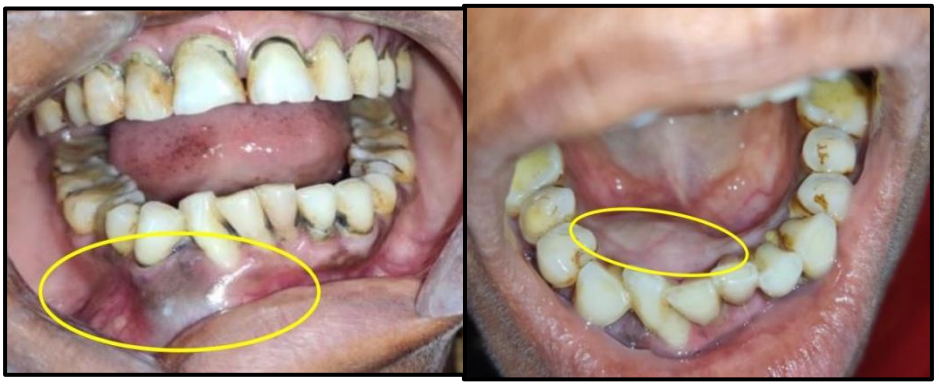

Fig.2 Intraoral photograph showing obliteration of the vestibule

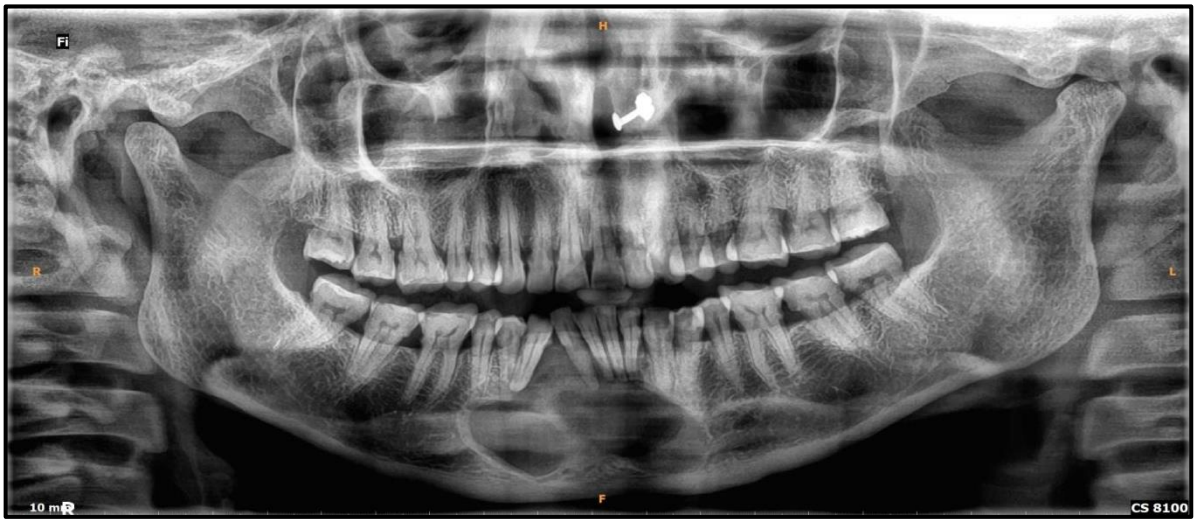

Figure.3 Panoramic radiograph show multilocular radiolucency, roughly oval in shape. on closure look calcification was observed in multilocular area

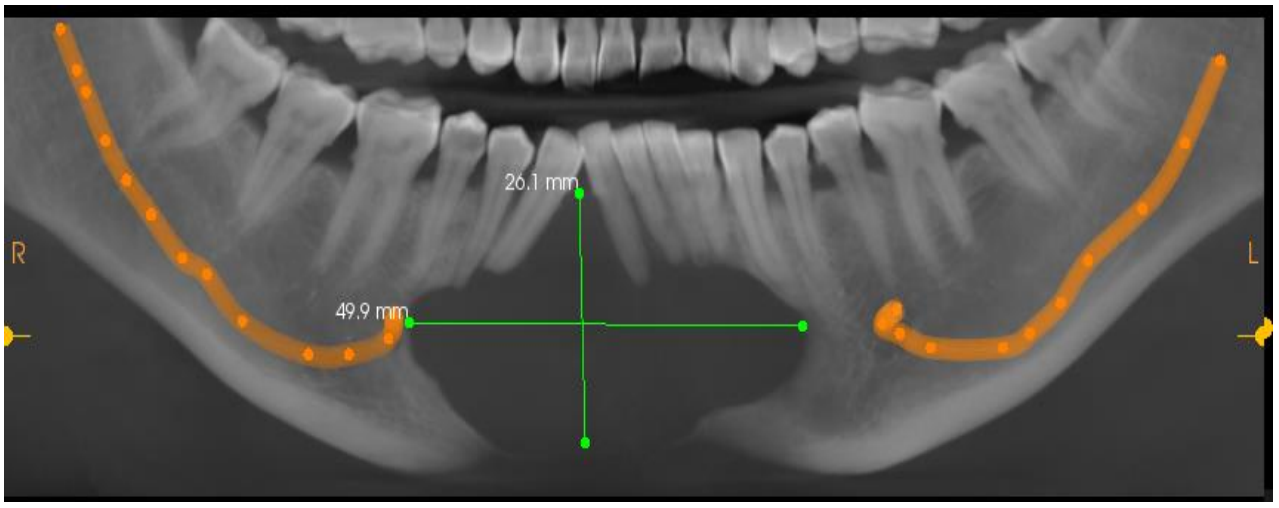

Figure.4 CBCT shows unicystic appearance without evidence of locularity and calcification.

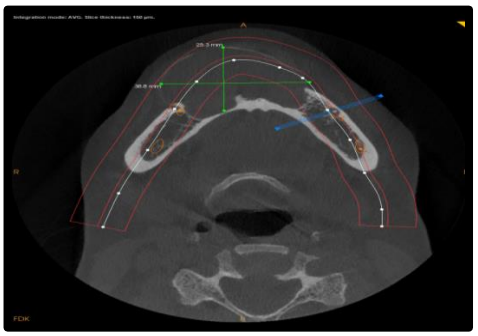

Figure.5 Axial section show the expansion and extent of lesion

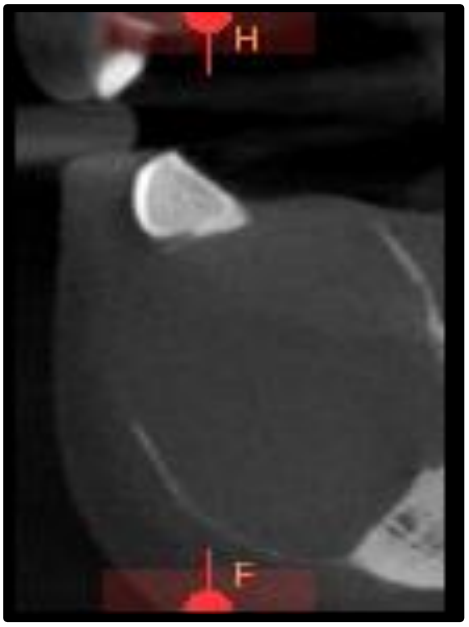

Figure.6 Thinning of buccal and lingual cortical plates seen with perforation of both cortices

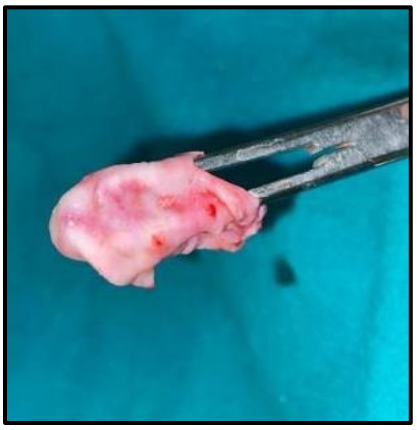

Figure.7 Gross specimen was greyish white in color and Soft in consistency with cystic lumen

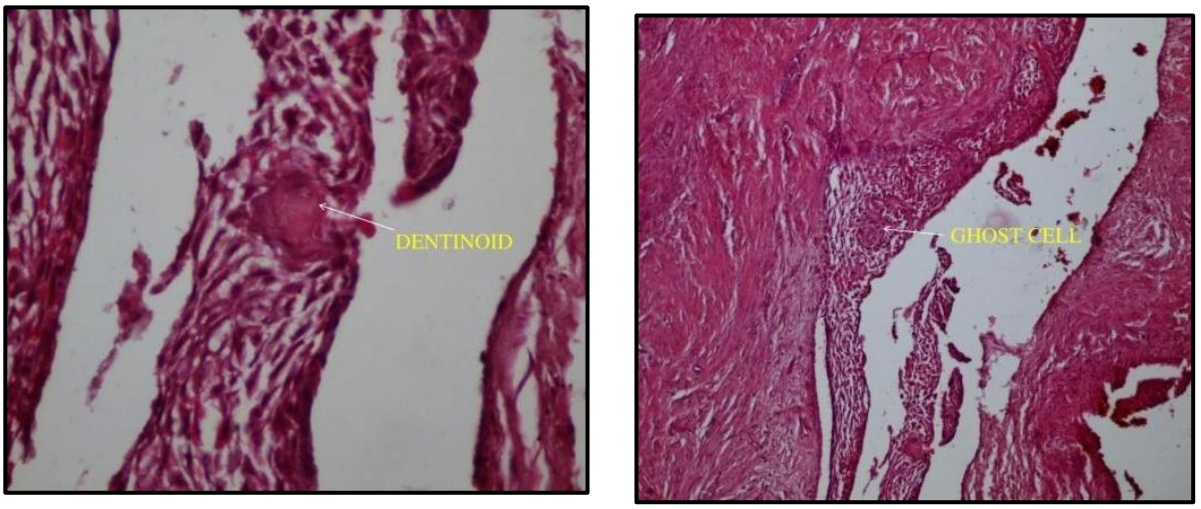

Figure.8 Histopathology shows ghost cell and dentinoid