

**CLINICAL, RADIOLOGICAL, AND HISTOLOGICAL CORRELATION IN DIAGNOSIS
OF GRANULAR CELL AMELOBLASTOMA*****¹Dr. Manisha Singh, ²Dr. Anjana Bagewadi and ³Dr. Vishwanath Pattar**¹MDS, Department of Oral Medicine and Radiology, KAHERS K.L.E.V.K. Institute of Dental Sciences, Belagavi, Karnataka, India.²Professor, Department of Oral Medicine and Radiology, KAHERS K.L.E.V.K. Institute of Dental Sciences, Belagavi, Karnataka, India.³MDS, Private practitioner, Head and Neck CBCT Imaging Centre, Belagavi, Karnataka, India.***Corresponding Author: Dr. Manisha Singh**

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ABSTRACT

Ameloblastoma is an epithelial odontogenic tumor of the jaw that accounts for 1% of all tumors in the head and neck region and approximately 11% of all odontogenic tumors. Ameloblastoma is a benign but locally invasive tumor. It exhibits several histopathological variants like follicular, plexiform, acanthomatous, desmoplastic, and granular types. Granular cell ameloblastoma is a rare variant of ameloblastoma making up 1–5% of all ameloblastoma. It is an aggressive lesion with a marked proclivity for recurrence and metastasis. Here is a case report of this rare tumor of Granular cell ameloblastoma with clinical, radiographic, and histopathologic features.

KEYWORDS: Granular cell ameloblastoma, radiographic investigations, radiographic differential diagnosis.**INTRODUCTION**

Robinson described the tumor as "unicentric, nonfunctional, intermittent in growth, anatomically benign and clinically persistent."^[1] Ameloblastoma displays an insidious slow growth and a locally invasive behavior with a high rate of recurrence.^[2] The World Health Organization classifies ameloblastoma into solid/multicystic, desmoplastic, unicystic, and extraosseous/peripheral types.^[3] Histologically, the multicystic type is further divided into the follicular, plexiform, acanthomatous, basal cell, and granular cell variants.^[4]

The purpose of this paper is to present an unusual case of GCA and to interpret the radiographic presentation of ameloblastoma including IOPA, OPG, and CT. This case also provides the radiographic differential diagnosis of jaw lesions present in the posterior mandible involving the third molar.

CASE HISTORY**Case report**

A 35-year-old female to the department of Oral Medicine and Radiology with a chief complaint of pain and swelling on the left lower one-third of the face for 1 month. The swelling was small and was increased to the present size. She reported difficulty in mouth opening with no pus discharge. There was a history of antibiotics followed and the swelling did not subside. The patient

had undergone extraction 1 year back and her medical history was non-contributory. On general examination, the female was thin built and vital signs were normal and the patient was well oriented to time, place, and person. Extra-oral examination revealed a solitary lymph node that was present in the left submandibular region. The lymph node was soft in consistency, mobile, and tender. The swelling was present in the left submandibular region measuring about 3cm x 1.5 cm extending from 1 cm ahead of the corner of the mouth to 1cm ahead posterior border of the ramus of the mandible antero-posteriorly. The swelling extended from the ala tragus line to the inferior border of the mandible superoinferiorly. [Figure 1] The skin overlying the swelling appeared to be normal. The mouth opening was reduced to 3 cm with no deviation. On palpation swelling was tender and firm in consistency.

Intra-oral examination revealed a diffuse swelling was present in the left buccal vestibule measuring about 1cm x 1cm. Swelling extended from the mesial side of 35 to the retromolar region. The mucosa over the swelling appeared to be normal. On palpation, the swelling was firm in consistency and tender. Obliteration of buccal vestibule was seen. [Figure 2] Other findings included missing 37 and facet 36.

Based on the clinical presentation, a provisional diagnosis of an infected Dentigerous cyst was given.

Differential diagnosis of Infected Odontoma and Ameloblastoma was considered.

Investigations

The patient was advised for cold vitality test and teeth showed vital response with 34,35, and 36. IOPA of 37 showed radiolucency extending from the mesial root of 36 to the distal aspect of 38 antero-posteriorly. Scalloping was seen extending from the distal side of the root of 35 to the region of the alveolar crest of 37. Scalloping also extended to the crown portion of 36. Knife-edge root resorption was present with a distal root of 36. [Figure 2a].

OPG showed a multilocular lesion extending antero-posteriorly from the distal aspect of 36 to 1cm anterior to the ramus of the mandible. Supero-inferiorly extending from sigmoid notch to lower border of the mandible. Mesioangular impacted 38 was present. Knife-edge root resorption was present with a distal root of 36. [Figure 2b] Internal displacement of the mandibular canal was noted. Alveolar ridge resorption was seen in relation to 37,38.

CT revealed a hypodense multilocular lesion with thin wispy striae seen within the hypodense lesion. [Figure 2c] Thinning of corticated margin was noted [Figure 2c] Medio-laterally the extent of the lesion was from buccal to lingual cortical plates. The buccal and lingual expansion was noted with the erosion of buccal and lingual cortical plates. [Figure 2d,2e,2f,2g].

The present case was managed by segmental resection of the left side of the mandible with reconstruction with an iliac crest graft. The incisional biopsy was performed from 37,38 regions and was sent for histopathological examination. The connective tissue of the biopsy specimen showed tumor cells proliferating in the form of cords, strands, nests, and sheets. The histopathological features were suggestive of Granular cell Ameloblastoma. [Figure 3a] On follow-up after 7 days, there was considerable healing. After 3 months, there were no signs of recurrence both clinically and radiographically. [Figure 3b].

DISCUSSION

Granular cell ameloblastoma accounts for only 1-5% of all ameloblastoma. [5] GCA is known to be an aggressive histologic variant of ameloblastoma. Granularity in this ameloblastoma is due to the marked transformation of the cytoplasm of the stellate reticulum cells into a granular eosinophilic appearance. [6] This ameloblastoma should be differentiated from other granular cell lesions due to its high recurrence rate. [7] The recurrence rate for granular cell ameloblastoma is 33.3% when compared with another histological subtype of ameloblastoma. [8]

In the present case, the age of the patient is 35 years with left posterior mandible involvement which is by the previous literature. Radiographically, ameloblastoma is

identified as a radiolucent lesion that presents either as a unilocular or multilocular lesion. [2] In the present case, similar radiographic findings are present.

A differential diagnosis of Ameloblastoma, Keratocystic Odontogenic Tumor, and Ameloblastic fibroma was established based on history, clinical findings, and radiographs. *Ameloblastoma* is a slow-growing and locally aggressive epithelial odontogenic tumor. Most commonly affects the posterior mandible. The radiographic appearance varies from totally radiolucent to multilocular radiolucency. The margins of the lesion are well defined with corticated borders. In this study, there are missing teeth 37 and 38 impacted teeth. Swelling and pain in the lower left posterior mandible. Expansion of buccal and lingual cortical plates, and root resorption with 36 could lead to the diagnosis of Ameloblastoma. *Keratocystic Odontogenic Tumor* mostly involves the posterior mandible and may be associated with unerupted teeth. Mild swelling may occur and appear as multilocular with scalloped and corticated margins. Large lesions may show slight expansion of cortical plates. *Ameloblastic fibroma* is a benign mixed odontogenic tumor and may be associated with missing teeth. The most common symptom is swelling present on the posterior mandible. The borders are well defined and internal structure varies from unilocular (totally radiolucent) to multilocular with indistinct curved septa. They may be associated with an expansion of cortical plates.

Granular cell ameloblastoma requires appropriate surgical treatment as it has a tendency for metastasis. [9] Granular cell ameloblastoma when treated by enucleation or curettage exhibits a high recurrence rate because the border of the tumor within cancellous bone lies beyond the apparent macroscopic surface and the radiographic boundaries of the lesion. Therefore, radical surgical methods are recommended. [10] The strength of this case is that the patient is under follow-up with no signs of recurrence and metastasis. The prognosis is good for this patient.



Figure 1:



Figure 2:



Figure 2a, 2b 2c:

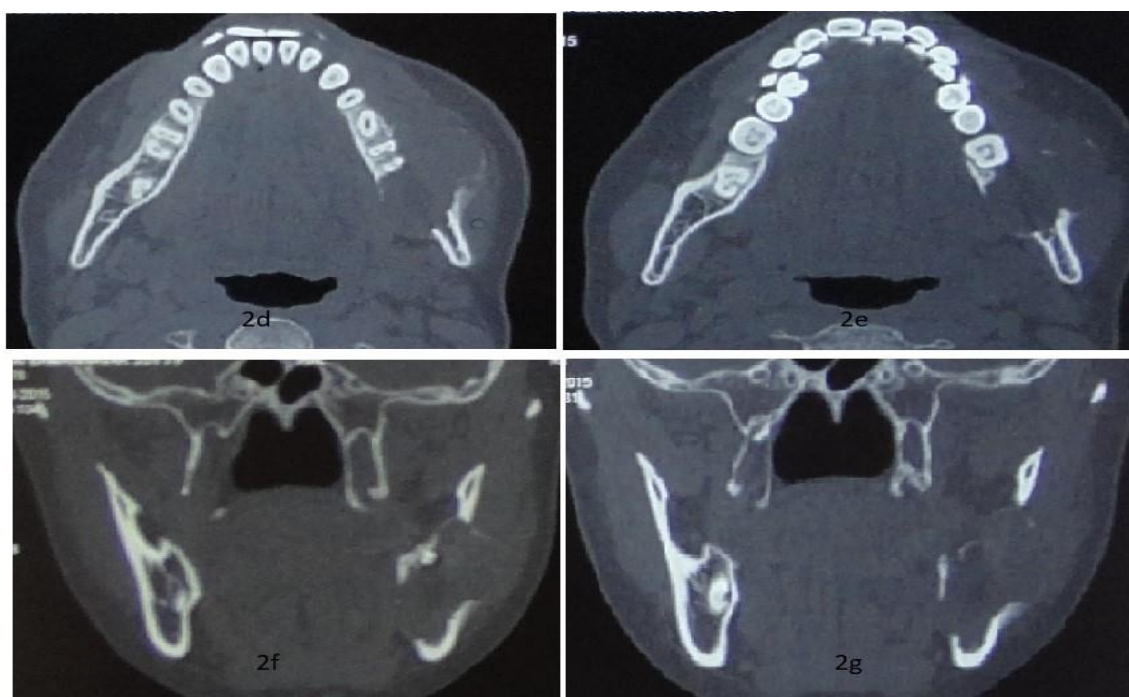


Figure 2d, 2e, 2f, 2g:



Figure 3a, 3b:

CONCLUSION

This case report describes the clinical, radiological, and histopathological features of granular cell ameloblastoma. Hence, the Radiographic Differential diagnosis is indicated in planning different procedures of surgery including an instrument to be used, excisional or incisional biopsy and blood requirement, and aspiration of the lesion.

Legends

Figure 1 – Extraoral swelling present in the left submandibular region.

Figure 2 - Intraoral picture showing obliteration of buccal vestibule in the region of 37,38

Figure 2a,2b,2c - IOPA revealing radiolucency with knife-edge root resorption with 36, OPG revealing multilocular radiolucency extending from a distal aspect of 37 to 1cm anterior to the ramus of the mandible and Axial section of CT showing hypodense multilocular expansile lesion

Figure 2d,2e,2f,2g – Axial and Coronal sections of CT showing hypodense multilocular expansile lesion

Figure 3a,3b - Histopathological photomicrograph revealing islands of tumor cells with granular cells(40x) and Post-operative OPG

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