

Innovations

“Unveiling the Enigmatic : A Case of Follicular Ameloblastoma ”

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Abstract

Background: Ameloblastoma (adamantinoma, adamantoblastoma, multilocular cyst) .It is a true neoplasm of enamel organ type tissue which does not undergo differentiation to the point of enamel formation. Defined as: ‘usually unicentric, nonfunctional, intermittent in growth, anatomically benign and clinically persistent’. By Robinson. Arised from Cell rest of enamel organ, either remnants of dental lamina or Hertwig’s sheath, the epithelial rest of Malassez . **Case presentation:** A patient of age 34yrs reported with the chief complaint of pain and swelling in the lower left back tooth region for past 3 months. On extra and intra oral examination a solitary swelling was noted. On aspiration brown fluid was obtained. Radiographic examination shows multilocular radiolucency. Hematological examination was done and incisional and excisional biopsy was done. Histopathologically it was diagnosed as follicular Ameloblastoma on the left mandibular posterior region. It was managed by marsupialisation and regular follow up. **Conclusion:** The treatment varies from conservative to radical based on the lesion.

Key words : Ameloblastoma, multilocular radiolucency, follicular type, marsupialisation, Mandibulectomy.

Introduction

Ameloblastoma is the most common benign odonto genic tumour of the jaws that constitutes about 1% of all cysts and tumours of the jaws (Suma MS et al, 2013).It is an aggressive neoplasm arising from the dental lamina remnants and odontogenic epitheliu(Nitin Gupta et al, 2012).The incidence rate of ameloblastoma is 0.92 per million person-years(Sushil Rayamajhi et al, 2022). It can be classified as multicystic, unicystic, peripheral and malignant subtypes.histopathologically it can be classified as follicular ,plexiform ,acanthomatous,granular,desmoplastic ,basal cell and clear cell ameloblastoma(Nitin Gupta et al, 2012). Its diagnosis requires a combination of imaging data, histopathological analysis and molecular

tests. The methods of treatment consist of radical surgery (segmental resection) and conservative treatments (enucleation with bone curettage)(Urechescu et al, 2023)

Case report

A female patient of age 34 yrs reported to the dental clinic with the chief complaint of pain and swelling in the left lower back tooth region for past 3 months. Pain is chronic, continuous, dull aching, non radiating type. Later she developed swelling for past 1 month which was initially small and started to grow in size and it progressed to its present size. History of hyperthyroidism for past 3 months and under medication for the same. On extra oral examination, A solitary swelling of size approximately 3 X 4 cm seen over the left lower third of the face, which is roughly ovoid in shape. It extends superiorly from the middle third of the face, inferiorly below the lower border of the mandible, anteriorly 3 cm away from the angle of the lip and posteriorly to the ramus of the mandible. The swelling appears to be smooth with no secondary changes. On palpation - All the above inspectory findings are confirmed with respect to site, size, shape, extent. On palpation, the swelling is tender, smooth, hard in consistency, with loss of sensation over the swelling, with no increase in temperature, associated with no secondary changes. Egg shell crackling was felt on palpation in the inferior border of mandible. Palpable left submandibular lymph nodes which is 1 in number, mobile, tender, soft in consistency. Intra oral examination shows Grade I mobility of 37, and Grade II mobility of 38. A solitary dome shaped swelling present in the left mandibular posterior region in relation to 36, 37, 38 extending of about anteroposteriorly 1.5 cm, superoinferiorly of about 2cm in size. It extends anteriorly to the lingual aspect of 36 and posteriorly to the lingual aspect of 38, superiorly to the marginal gingiva and inferiorly to the floor of the mouth. Obliteration of buccal vestibule in 36, 37, 38 region is evident. On palpation All the above inspector findings are confirmed with respect to site, size and extent. It is firm in consistency, tender on palpation. Buccal and lingual cortical expansion felt. Based on the history and clinical findings provisionally diagnosed as Benign odontogenic tumor in relation to 36, 37, 38.

Patient advised for hematological and radiographic investigation. And also advised for Fine needle aspiration cytology (FNAC) and biopsy.

Hemato logical investigation shows

Hemoglobin – 12.5 gm/dl

BT (Bleeding time) – 02.30 secs

CT (Clotting time) – 05.30 secs

Random Blood Sugar level – 105 mg/dl

Radio graphic in vestigation

IOPA (Intra oral periapical radiograph)of 36 – Reveals the presence of coronal and

radicular portion of 35, 36, 37. There is a loss of trabecular pattern inferior to the periapical region of 36, 37 with the root resorption of 37,36

IOPA of 37, 38 – Reveals the presence of coronal and radicular portion of 37, 38 and distal portion of 36. It shows the presence of multilocular radiolucency with well-defined corticated, scalloped margins with root resorption seen in 37, 38.

Lateral mandibular occlusal radiograph shows

Lateral mandibular occlusal radiograph shows the expanded and thinned cortical plates at the mandibular right posterior region of 36, 37, 38 region.

Opg (orthopantomogram) shows

Panoramic radiograph shows the presence of coronal and radicular portion of 11, 12, 13, 14, 15, 16, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 31, 32, 33, 34, 35, 36, 37, 38, 41, 42, 43, 44, 45, 46, 47, 48.

Location – The multilocular radiolucency is evident in the left ramus of the mandible.

Periphery - It shows the multilocular radiolucency with well defined, corticated, scalloped margins involving the periapical region of 36, 37, 38 and the ramus of the mandible.

Internal structure – Presence of bony septa creating the internal compartment.

Effect on surrounding structures –Also it shows the erosion and thinning of inferior border of the left side of the mandible. Inferior alveolar canal is not evident on the left side of the mandible.

Effect on adjacent tooth - Evidence of root resorption involving mesial and distal roots of 36, 37, 38.

Ct (computed tomography) of mandible shows

Axial CT shows a ovoid shaped hypodense area occupying the Left posterior region of mandible measuring 60X35X30 mm cystic lesion with loculations in the proximal body and ramus of the Left mandible, with expansion of both buccal and lingual cortical plates. Bony erosions is observed in the Left inferior border of the mandible.

Fnac shows

Aspiration done with 21 gauge needle in relation to lingual aspect of 37 region. On aspiration, brownish fluid is observed.

Both incisional and excisional biopsy was taken in relation to 36,37,38 region.

Incisional biopsy shows

Soft tissue specimen shows non keratinized stratified squamous epithelium showing 2 to 3 layers in some areas and hyperplasia in other areas. The epithelium shows proliferations into the connective intracytoplasmic vacuolations

and stellate reticulum like cells. The connective tissue is loose and fibrillar showing few follicles of odontogenic epithelium with peripheral ameloblast like cells and central tall columnar cells. Blood vessels and inflammatory cells are seen.

Excisional biopsy shows

Soft tissue – Soft tissue specimen shows loose and fibrillar connective tissue showing odontogenic epithelial cells in form of islands and cords. The odontogenic epithelial islands are small showing peripheral ameloblast like cells and central stellate reticulum cells. Other areas shows interconnecting network of odontogenic epithelial cells showing peripheral tall columnar cells and scanty central stellate reticulum cells. Blood vessels and inflammatory cells are seen. Based on histopathological features given tissue section diagnosed as Follicular type of Ameloblastoma.

Hard tissue – Shows numerous follicles of odontogenic epithelium showing peripheral tall columnar ameloblast like cells and central stellate reticulum cells. Cystic degeneration is seen in some islands. Budding is seen in some areas. Other areas show interconnecting network of odontogenic epithelial cells showing back to back arrangement of ameloblast like cells and scanty reticulum. Blood vessels and inflammatory cells are seen.

Management and followup

The marsupialization was done. The marsupialised area was packed with Bismuth iodoform paraffin paste and patient was prescribed with antibiotics and pain killers. Patient was reviewed after 10 days and healing was satisfactory. The patient was followed-up for two months.

Discussion

Ameloblastoma is a benign odontogenic tumour of epithelial origin. It is locally aggressive with extensive growth capacity and has a high potential for malignant transformation as well as metastasis. Ameloblastoma constitutes about 14% of all jaw tumors and cysts, and it is the most prevalent odontogenic tumors in developing countries (Santana Natarajan et al, 2022). Its slow-growing rate, similar to benign tumors, but having the characteristics of being locally invasive, with a high recurrence rate and a metastatic potential similar to malignant tumors (Effiom OA et al, 2018). The etiologic factors associated with the onset of the lesion after a local trauma, inflammation, nutritional deficiencies, mutations and/or molecular alterations, where different signaling pathways participate (Suhani Ghai et al, 2022). Ameloblastoma is accepted to be derived from a) Cell rest of enamel organ, and also remnants of dental lamina or Hertwig's epithelial root sheath, the epithelial rest of Malassez. b) Epithelium of odontogenic cysts, particularly the Dentigerous cyst & odontomas. c) Disturbance to emerging enamel organ. d) Basal cells of the surface epithelium of the jaws. e) Heteropic epithelium in other

parts of body especially the pituitary gland. There is no sexual distribution for development of ameloblastoma. Mandible is the most commonly affected in adult ameloblastomas (85%), and third molar region being the most common site (Belardo et al, 2012). It may be either solid or unicystic type, usually asymptomatic and are found either during routine radiographic examination or because of asymptomatic jaw expansion. It may be either multilocular or unilocular. Multilocular cyst like lesion of the jaw – tumor exhibits a compartmented appearance – With septa of bone extending into the radiolucent tumor mass – Honey Comb or soap bubble (Suma MS et al, 2013). The treatment of ameloblastoma remains debatable because it is a benign, locally aggressive tumor with a high recurrence rate. In surgical planning, it is important to consider whether it is a primary or recurrent tumor; the age, size, location and duration of the lesion; the presence of cortical bone rupture; and soft tissue involvement. According to these variables, the treatment may be conservative or radical. Conservative treatment includes enucleation, enucleation associated with curettage, and the use of adjuvant therapies such as Carnoy's solution and cryotherapy. Radical treatment consists of marginal or block resection (1–2 cm margin) and immediate bone reconstruction (Fujita M et al, 2013). Facial reconstruction procedures with iliac crest grafts or microvascular fibular flaps may be required (Sham E et al, 2009). There are targeted therapies due to recent advances in the understanding of the molecular signaling pathways associated with ameloblastoma pathogenesis (Milman T et al, 2016).

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Army dental corps

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Images

Figure 1 :



Facial View

Figure 2 :



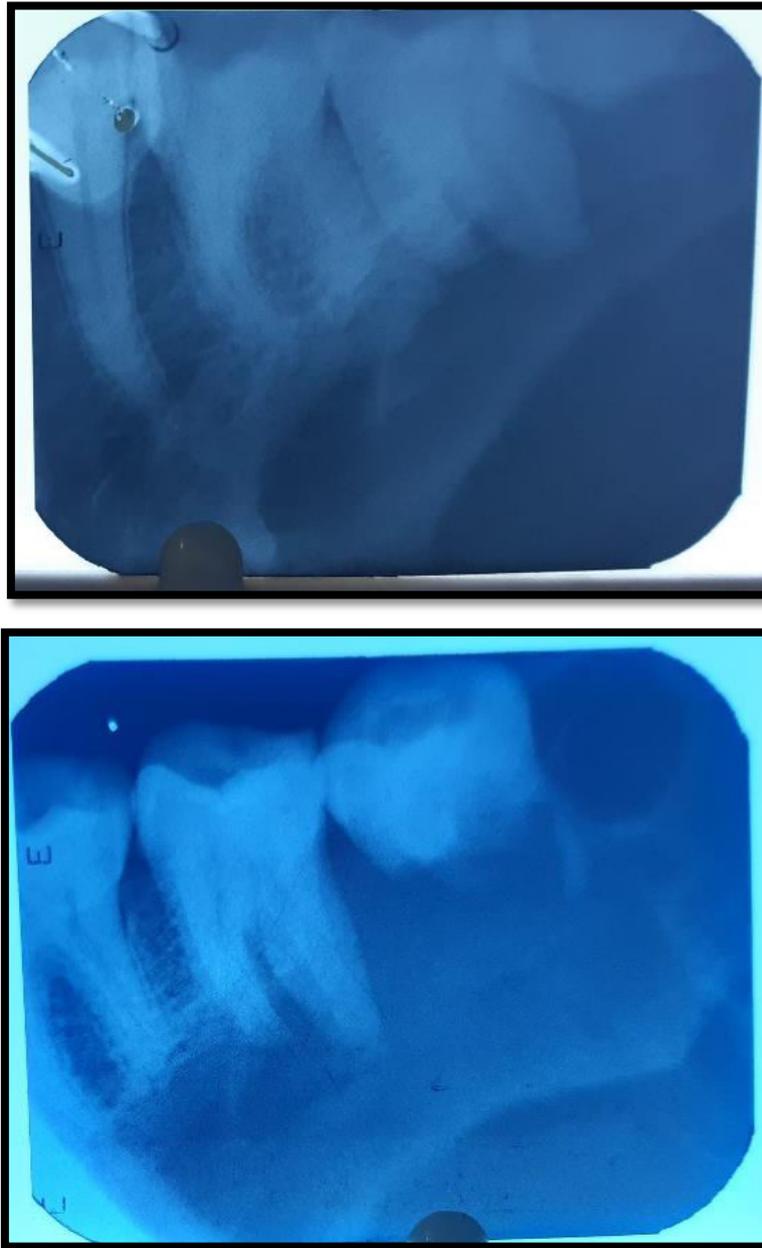
Extra Oral Palpation – Egg Shell Crackling Effect

Figure 3 :



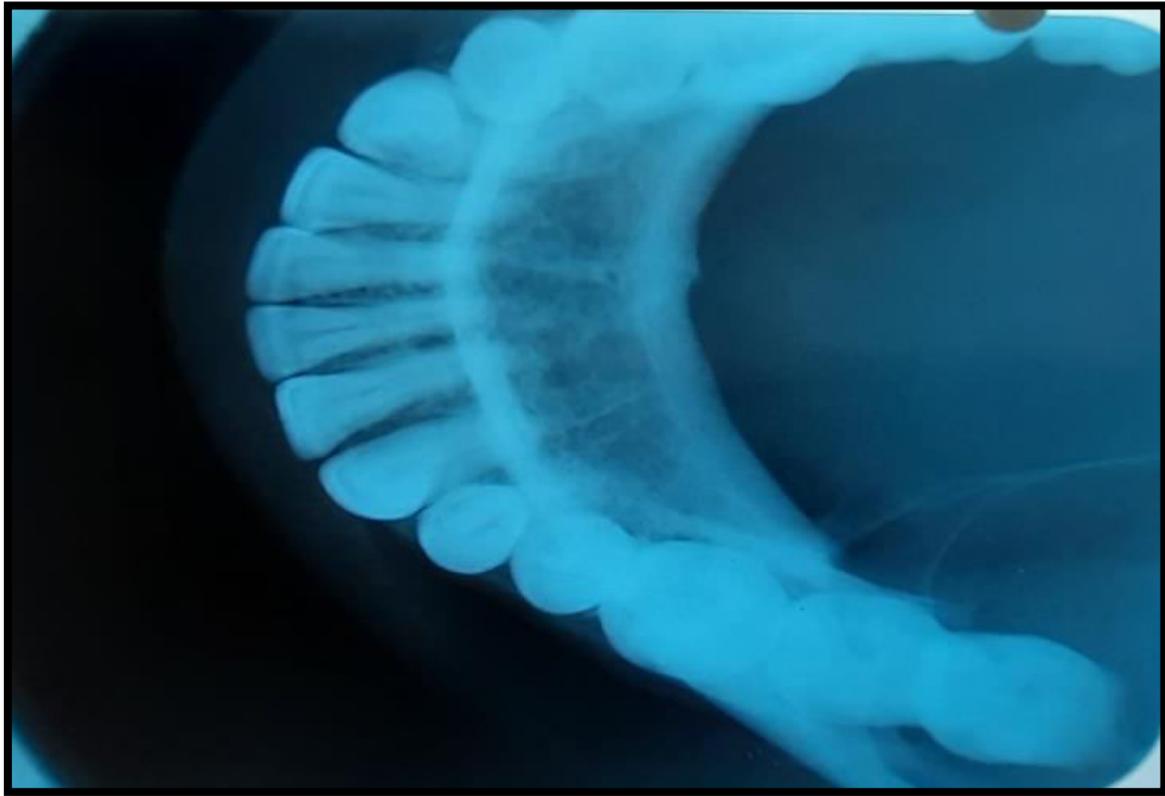
Solitary Swelling Present In Relation To Distal Aspect Of 38

Figure 4 :



Intraoral Periapical Radiograph Of 36,37,38

Figure 5 :



Mandibular Occlusal Radiograph

Figure 6 :



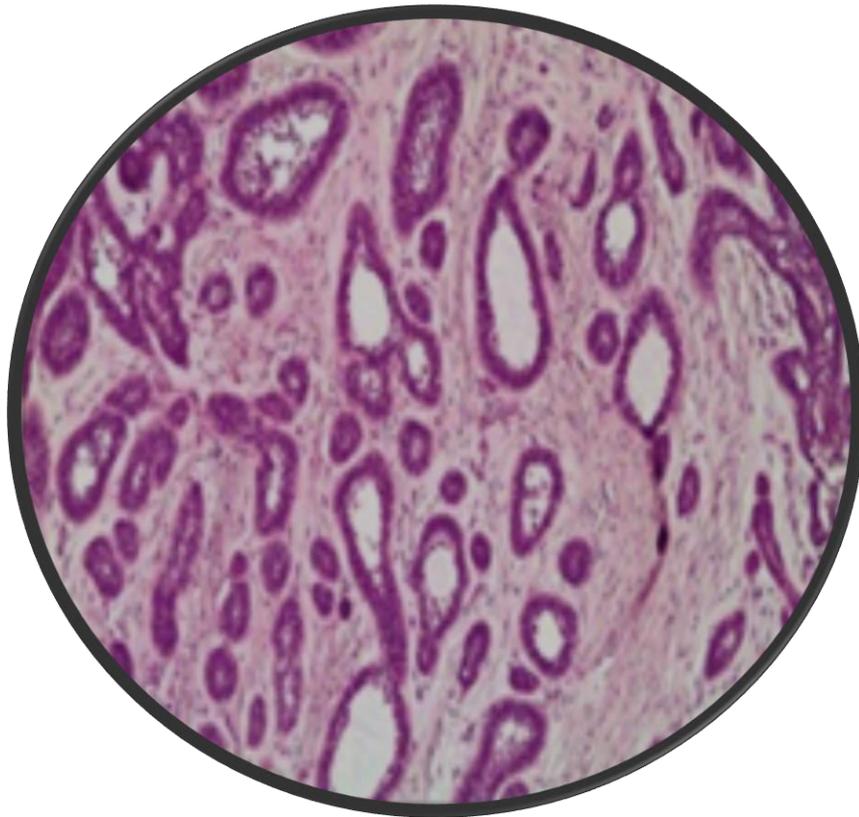
OPG Shows Multilocular Radiolucency Involving The Left Mandibular Region

Figure 7 :



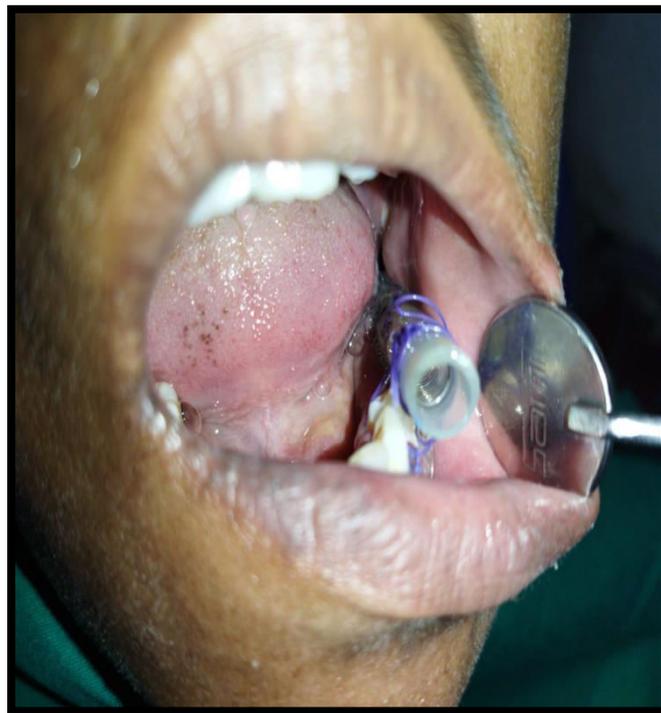
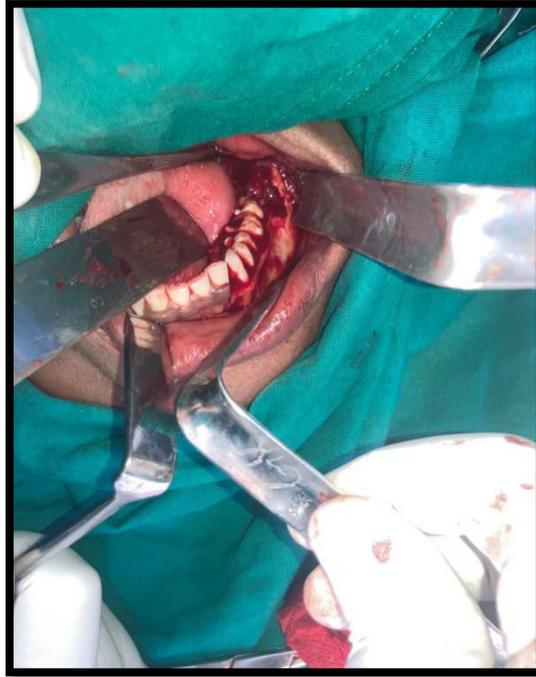
CT Ovoid Shaped Hypodense Area Occupying The Left Posterior Region Of Mandible

Figure 8 :



Histopathological Image

Figure 9 :



Marsupialization Done