

# Odontogenic tumors

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## ***Odontogenic tumors :-***

- Odontogenic tumors are unique to the jaw & alveolar mucosa, because they originate from tissue associated with tooth development.***
- Rare, less common than odontogenic cyst .***
- Odontogenic tumors arise from epithelium or from C.T of the dental apparatus, or may be mixed.***
- Most of the odontogenic tumors are benign***

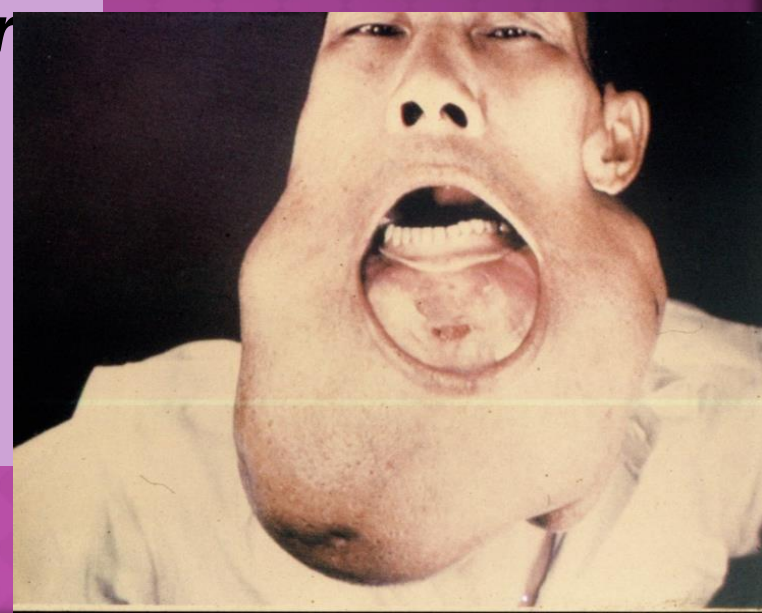
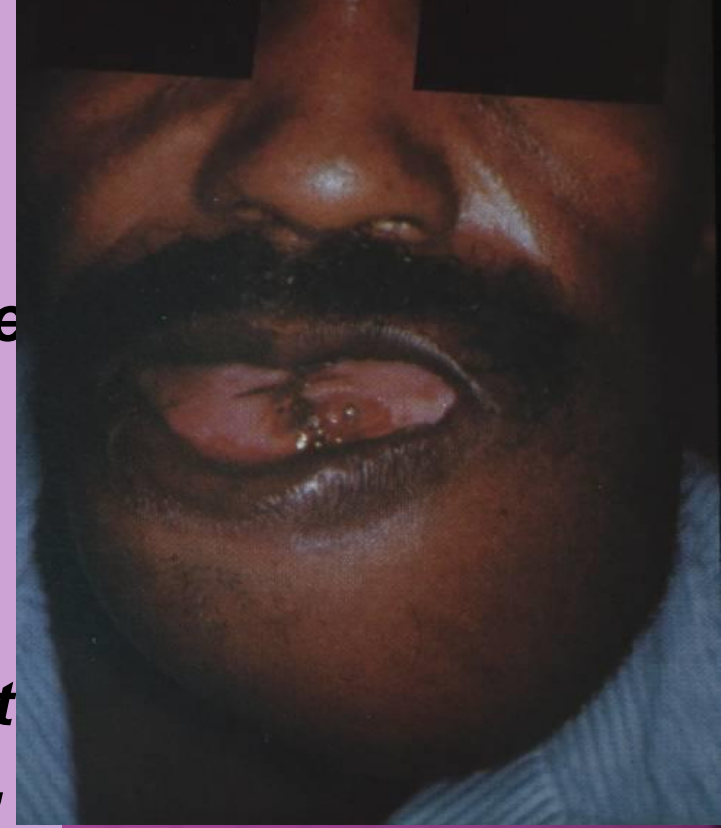
# **CLASSIFICATION OF ODONTOGENIC TUMORS :-**

- **A- Benign epith. odontogenic tumor**
  - 1- Ameloblastoma
  - 2- Adenomatoid odontogenic tumor
  - 3- Calcifying epith. odontogenic tumor.
  - 4- Calcifying epith. odontogenic cyst
  - 5- Squamous odontogenic tumor.
- **B- Benign mesenchymal odontogenic tumor :-**
  - 1- odontogenic fibroma
  - 2- odontogenic myxoma
  - 3- Cementoblastoma
- **C- Benign mixed odontogenic tumor :-**
  - 1- Ameloblastic fibroma
  - 2- Odontoameloblastoma
  - 3- Ameloblastic fibro-odontoma
- **D- Hamartomas :- odontomas .**
- **E- Malignant epi. odontogenic tumor :- odontogenic carcinoma**
- **F- Malignant C.T odontogenic tumor :- odontogenic sarcoma.**

# ◎ Benign Epithelial Odontogenic Tumors

# 1- Ameloblastoma :-

- **Rare but commonest oral tumor of the jaw, 1% of all oral tumor.**
- **Benign but locally invasive (not metastasize) neoplasm derived from odontogenic epith remain within alveolar soft tissue and bone (remnant of epithelial lining of dentigerous cyst, REE, rest of Malassez, basal cell layer of surface epi.)**
- **Slowly growing, locally aggressive growth producing bone expansion & facial deformity.**
- **High recurrence rate.**



**It presents in three clinico-radiographic types:**

**(Requiring different therapeutic consideration & having different prognosis)**

- A- Common, conventional solid or polycystic ameloblastoma- (intraosseou)**
- B- Unicystic ameloblastoma- (intraosseou)**
- C- Peripheral ameloblastoma - [in soft tissue]**

## a- Common ameloblastoma

- Most common type.
- No significant gender predilection
- Patient over 25 years age.
- Mainly in mandible, in molar region & ascending ramus, (rare in maxilla)

- It has tendency to expand bony cortices, due to their slow growth which allow time for periosteum to produce a thin outer shell of bone, that crack easily in palpation **"Egg shell cracking"**

(diagnostic for ameloblastoma)

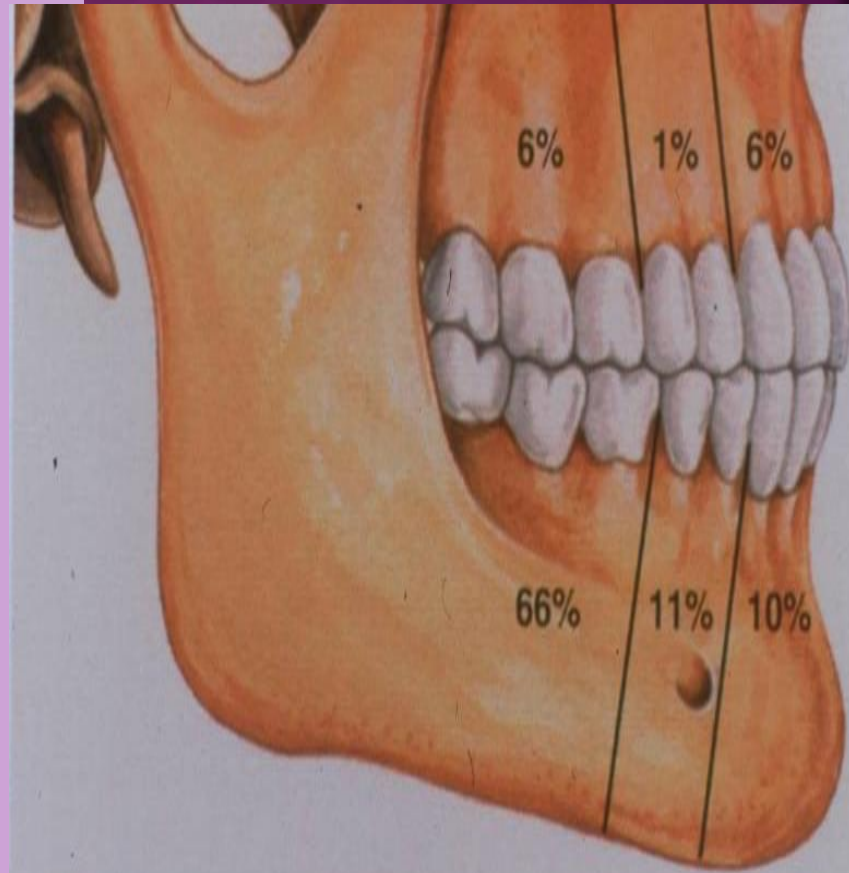
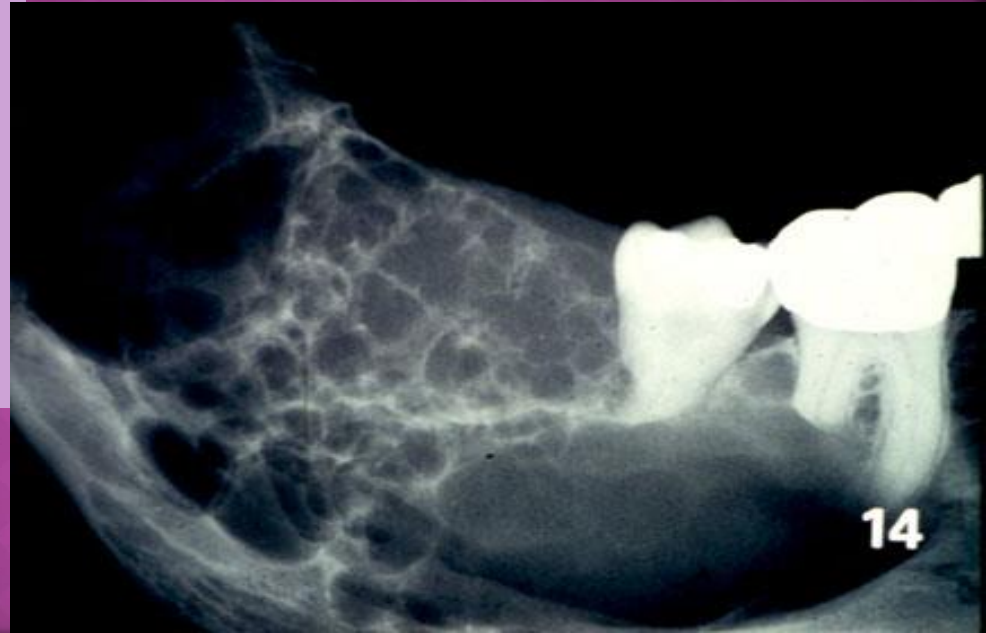
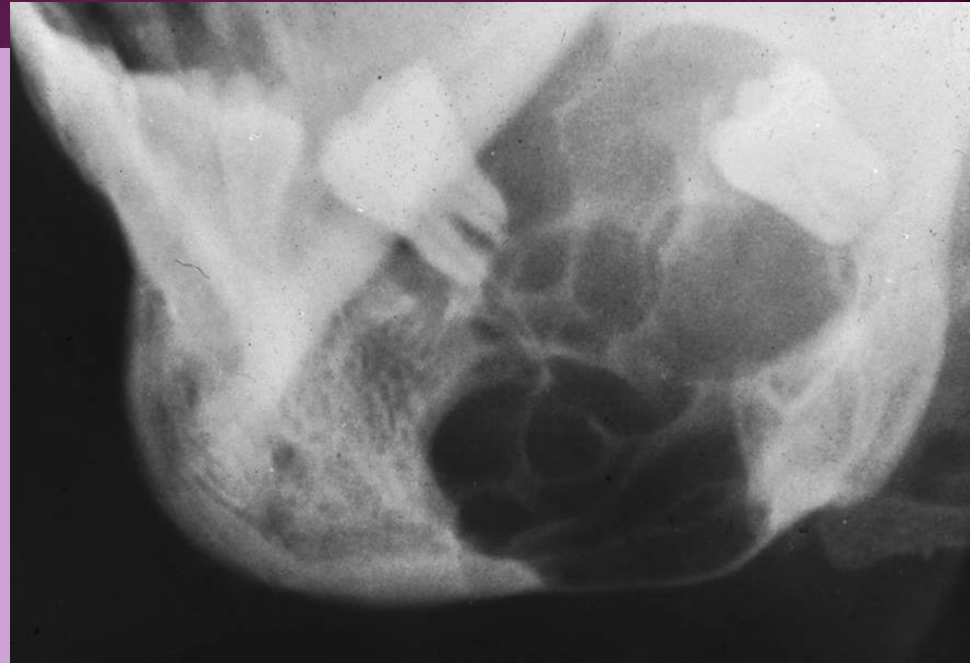


Figure 15-51 • Ameloblastoma. Relative distribution of ameloblastomas in the jaws.

***•Radiographically :-***

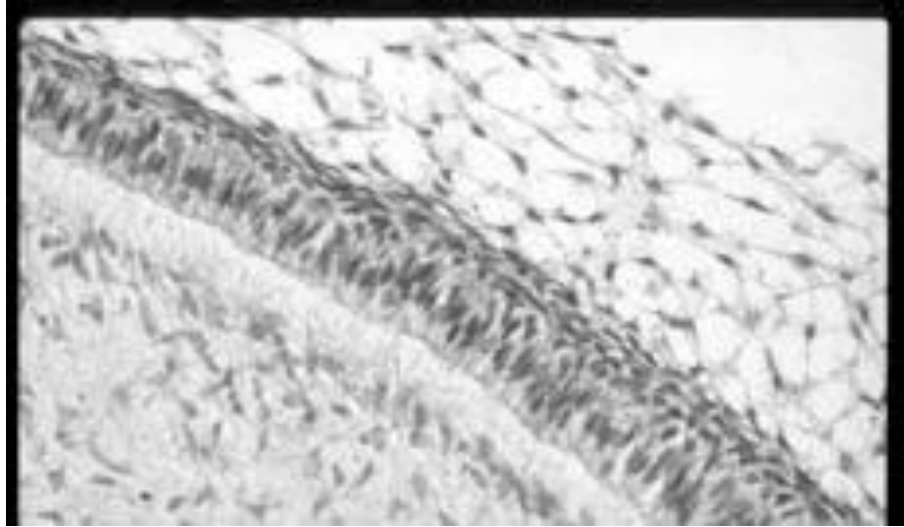
- Multilocular radiolucency with poor defined margin "soap-bubbles"**
- Root of adjacent teeth show varying degree of resorption**



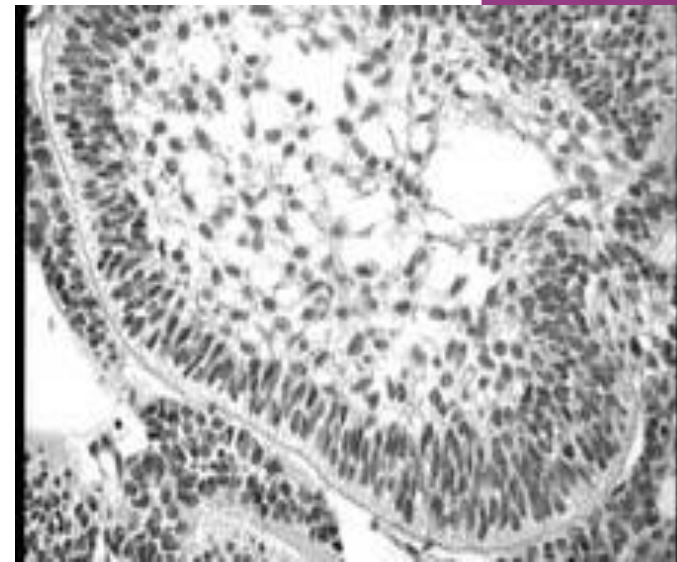
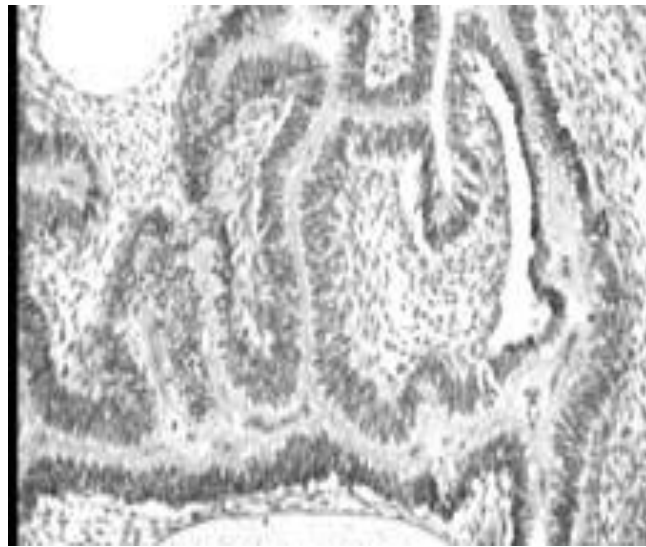
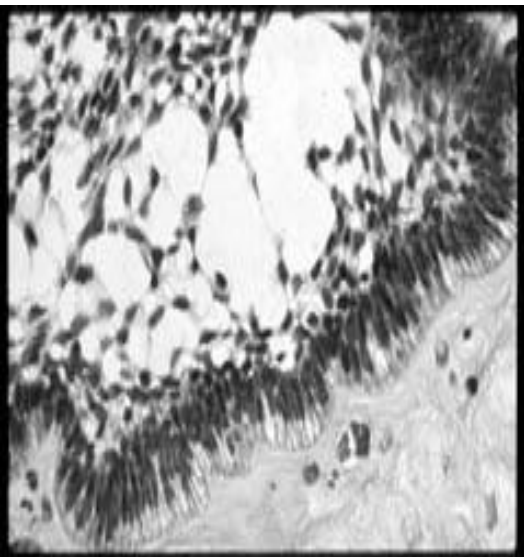
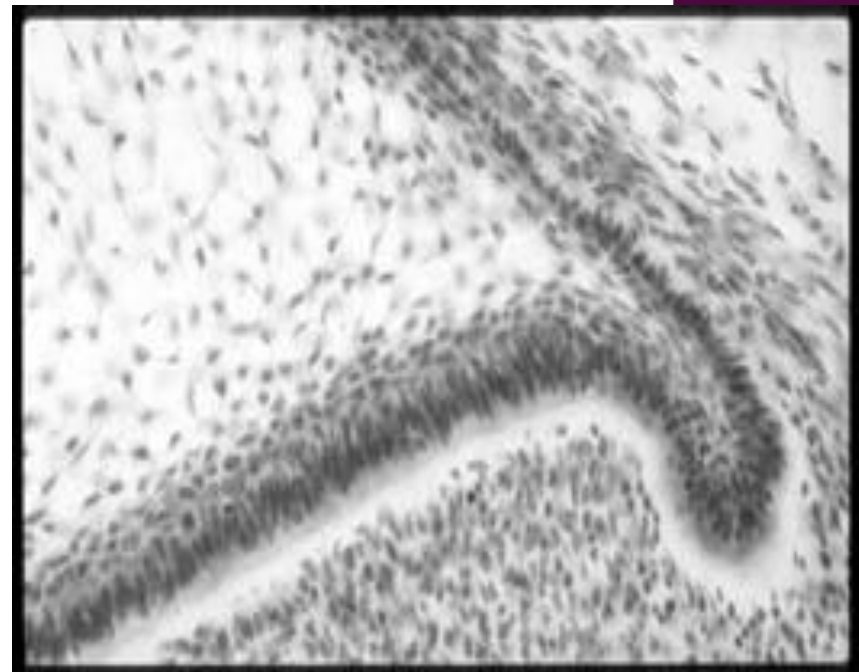


# *Histopathology :-*

- Islands and trabeculae of epith cells in C.T stroma
- Epithelium is composed of a well organized single layer of a tall columnar ameloblast like cells with nuclei at the opposite pole of the basement membrane  
    **"Revered polarity"**, which surround a core of loosely arranged polyhedral or angular cells resembling stellate reticulum



Peripheral, palisaded cells with nuclei polarized away from the basement membrane

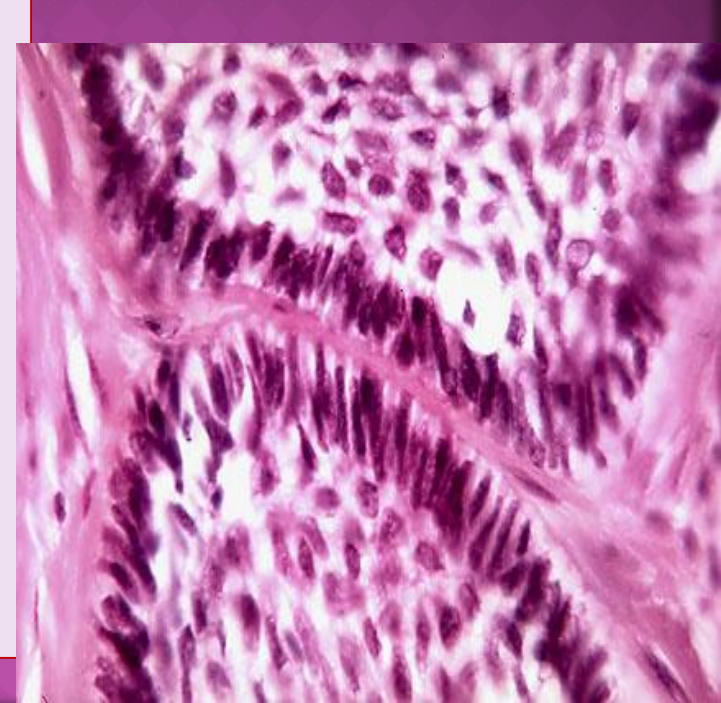
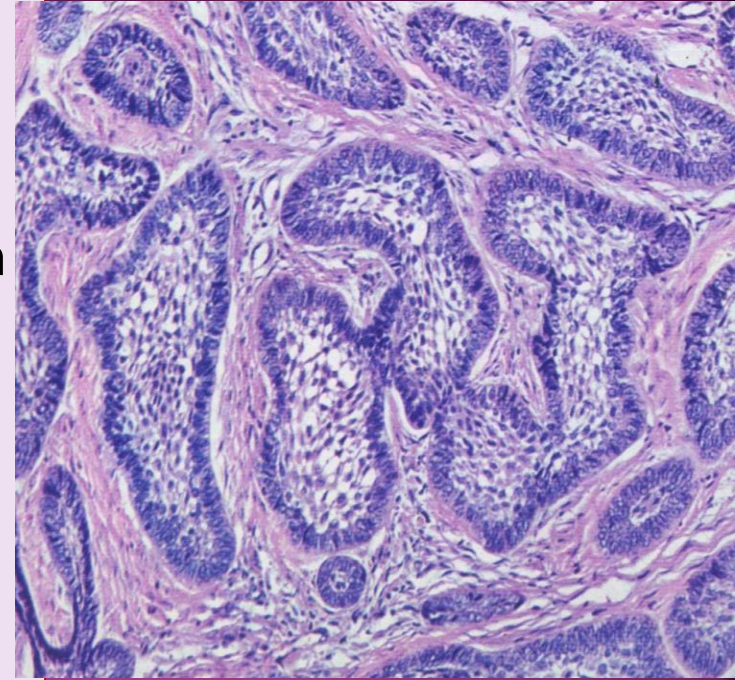


The most common histologic pattern of ameloblastoma :-

## **1- Follicular pattern :-**

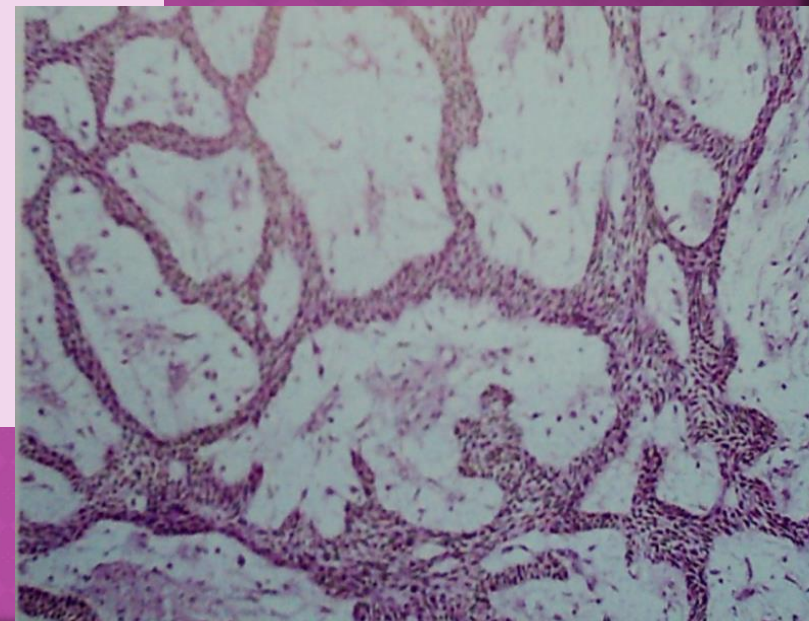
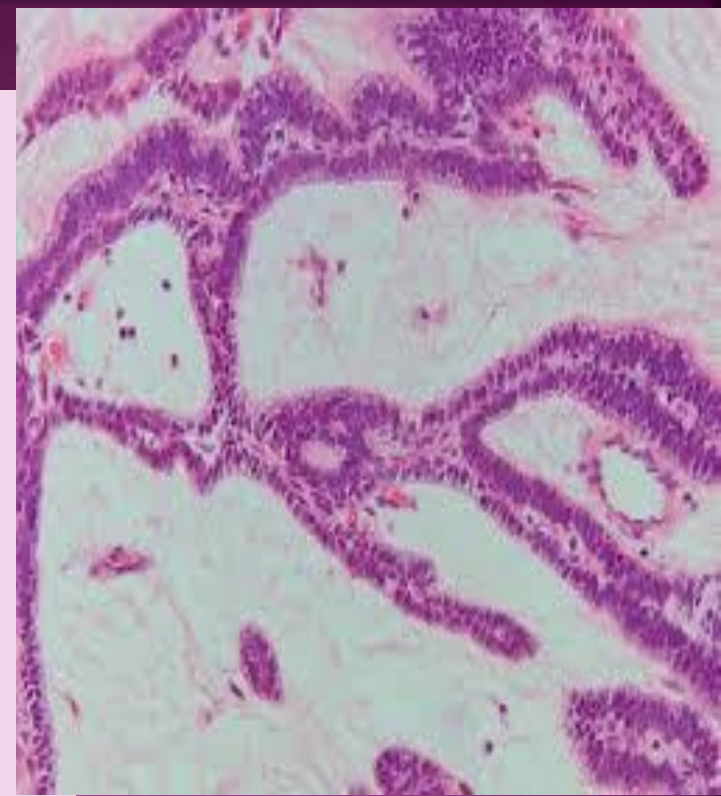
- Most prevalent ,resembling early stage of tooth development ( **the enamel organ** ).
- Consist of odontogenic epith in the form of islands & strands , arranged in a fibrous C.T stroma.
- The epith arrangement have an outer border of palisading ameloblast like cells with "**Reversed polarity**" & centrally a stellate reticulum-like cells are seen which sometimes undergo areas of degeneration forming central microcysts.

This degeneration may be due to ischemia within the large islands of epith proliferation.



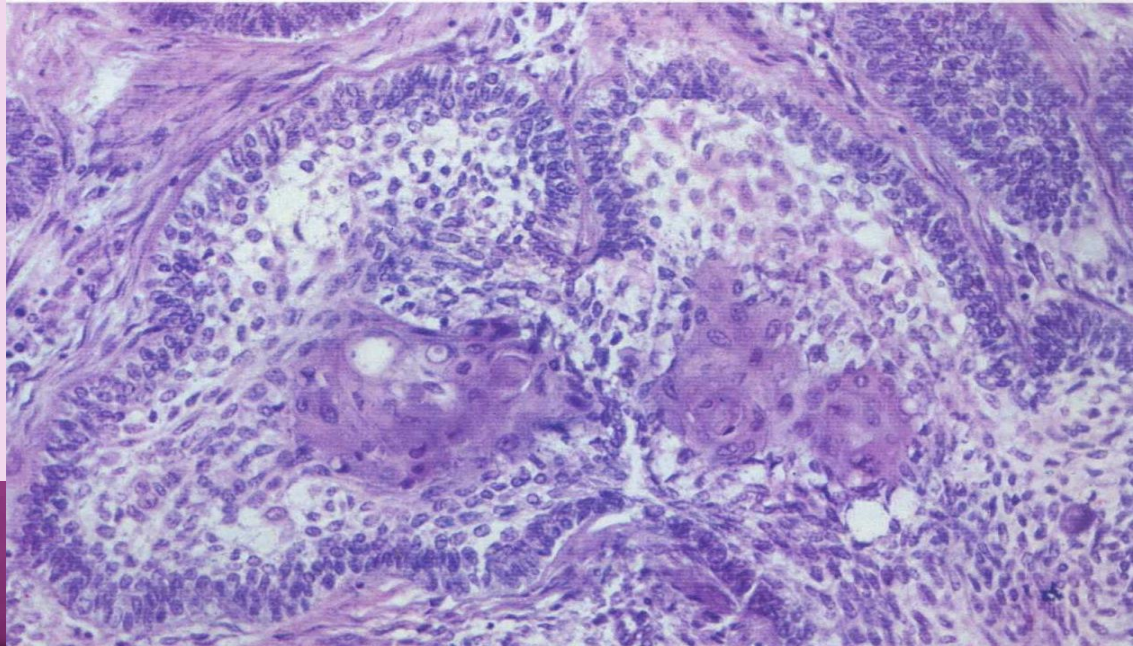
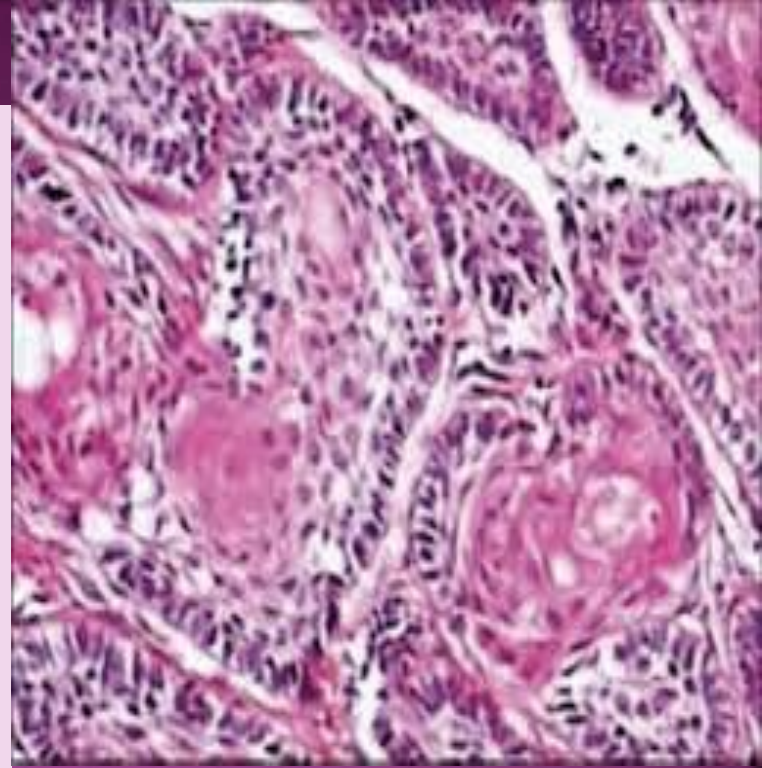
## 2- Plexiform pattern :-

- Odontogenic epith arranged in a tangled or a mesh pattern strands (thin long, anastomosing strands) in a fibrous tissue stroma.
- Small & large cystic areas due to degeneration of epith.& to the strangulation & degeneration of C.T stroma by the proliferating epith.



### *3-Acanthomatous pattern :-*

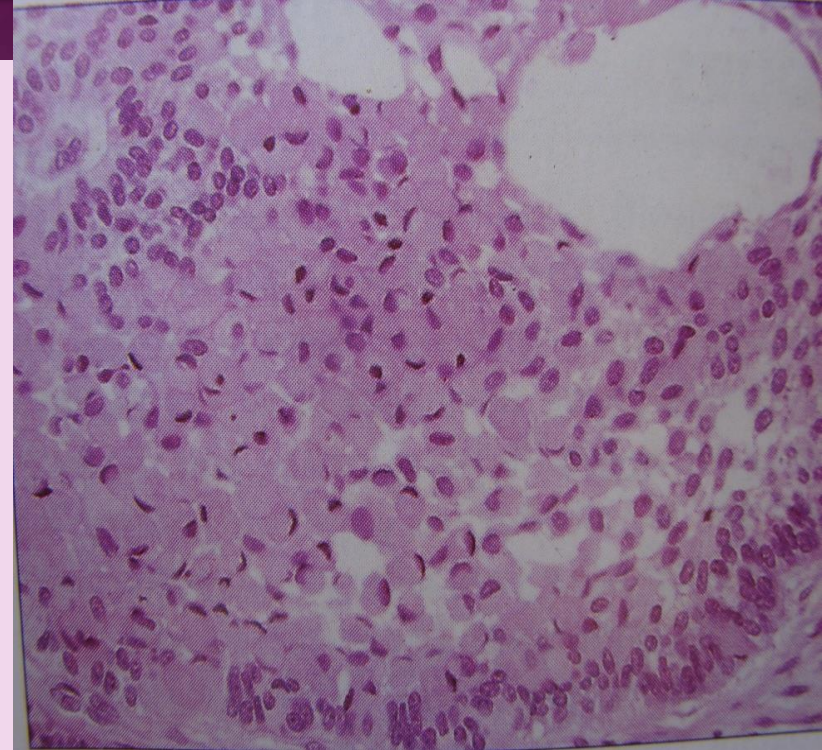
In the follicular pattern, the central cells shows squamous metaplasia which producing keratin within the individual cells or in the form of "**keratin pearls**".



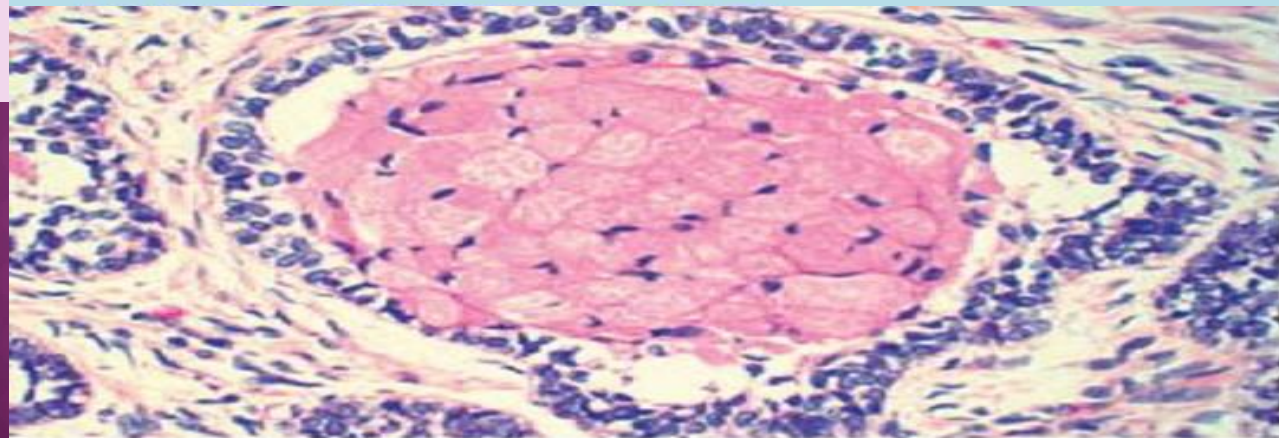
## 4-Granular cell pattern :-

Rare.

In the follicular pattern, the central cells swollen and densely packed, with eosinophilic granules in its cytoplasm.



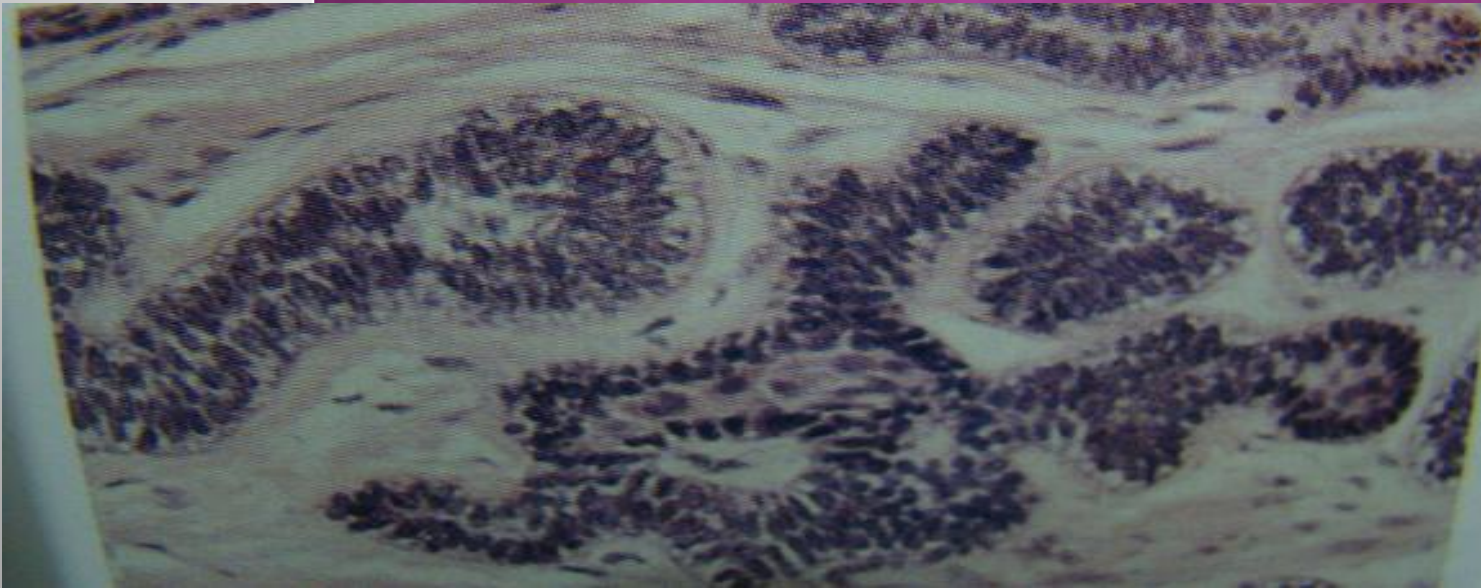
## Granular Cell Ameloblastoma



**Fig.** Ameloblastoma (granular cell variant). Tumor island exhibiting central cells with prominent granular cytoplasm.

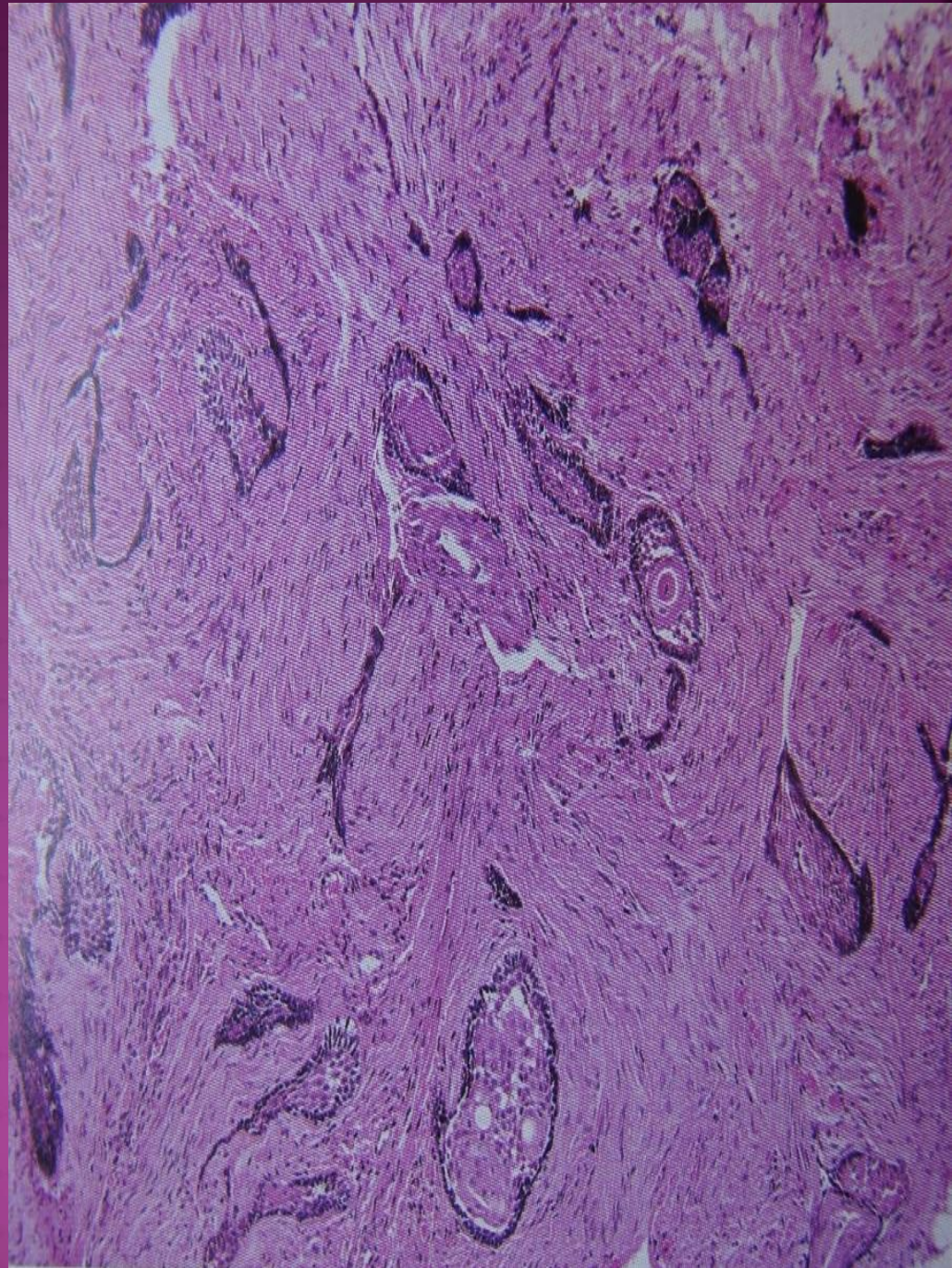
## ***5-Basal cells pattern :-***

- Composed of densely packed, darkly stained , cuboidal shaped cells in narrow strands without stellate reticulum presents centrally.
- Histologically, this type have been mistaken for basal cell carcinoma of skin



## 6- *Desmoplastic ameloblastoma :-*

- This composed of small epith strands which is widely separated by fibrous tissue, that is dense & collagenous ( scar- like)





All histological types of ameloblastoma have similar biologic behavior.

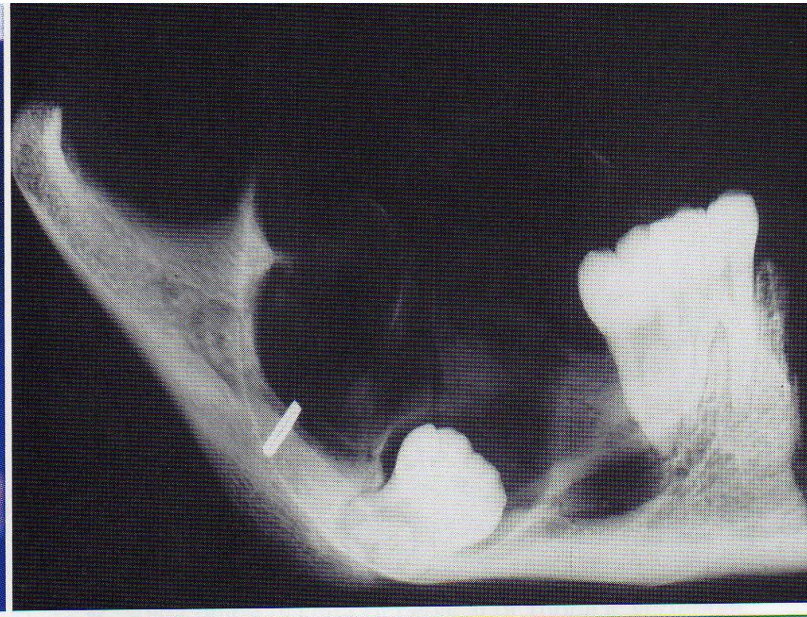
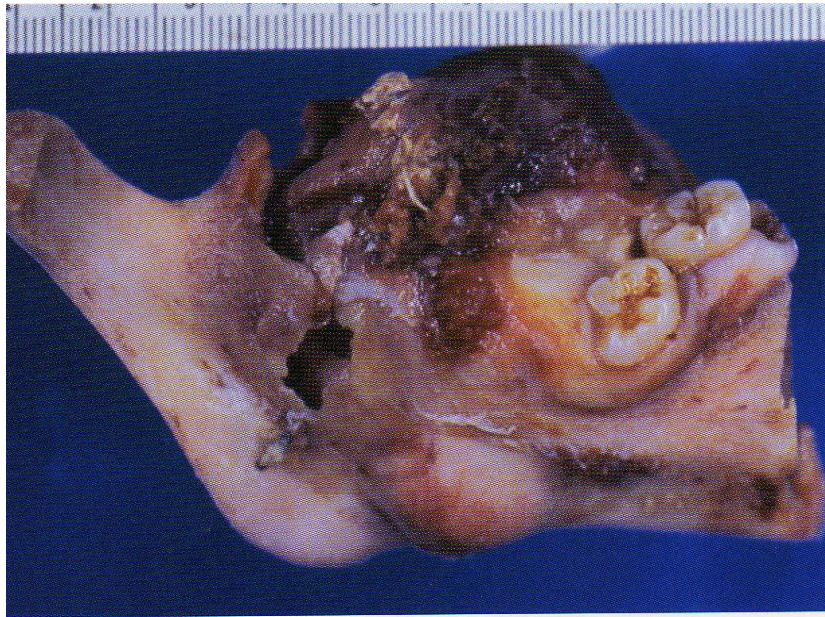
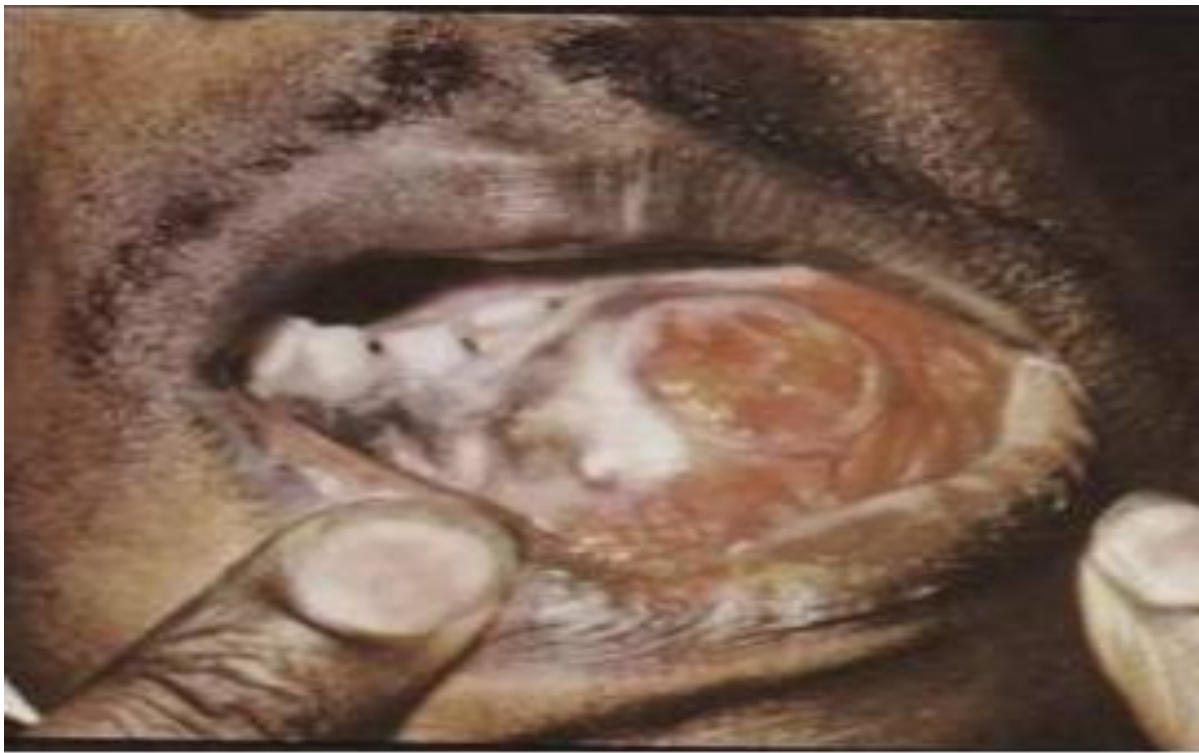
## *Behavior and treatment :-*

Never depend on histological pattern, all types are locally invasive and not encapsulated.

Islands of tumor may infiltrate the cancellous marrow spaces, can't be eliminated by simple curettage, high recurrence rate .

So extensive surgical removal is recommended by block resection.

**The lesion is radioresistant.**

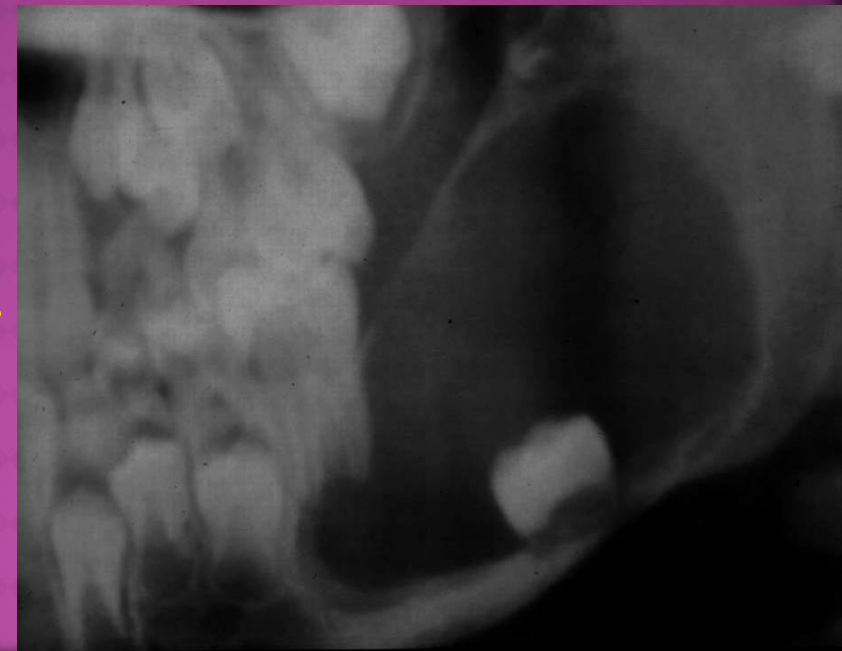


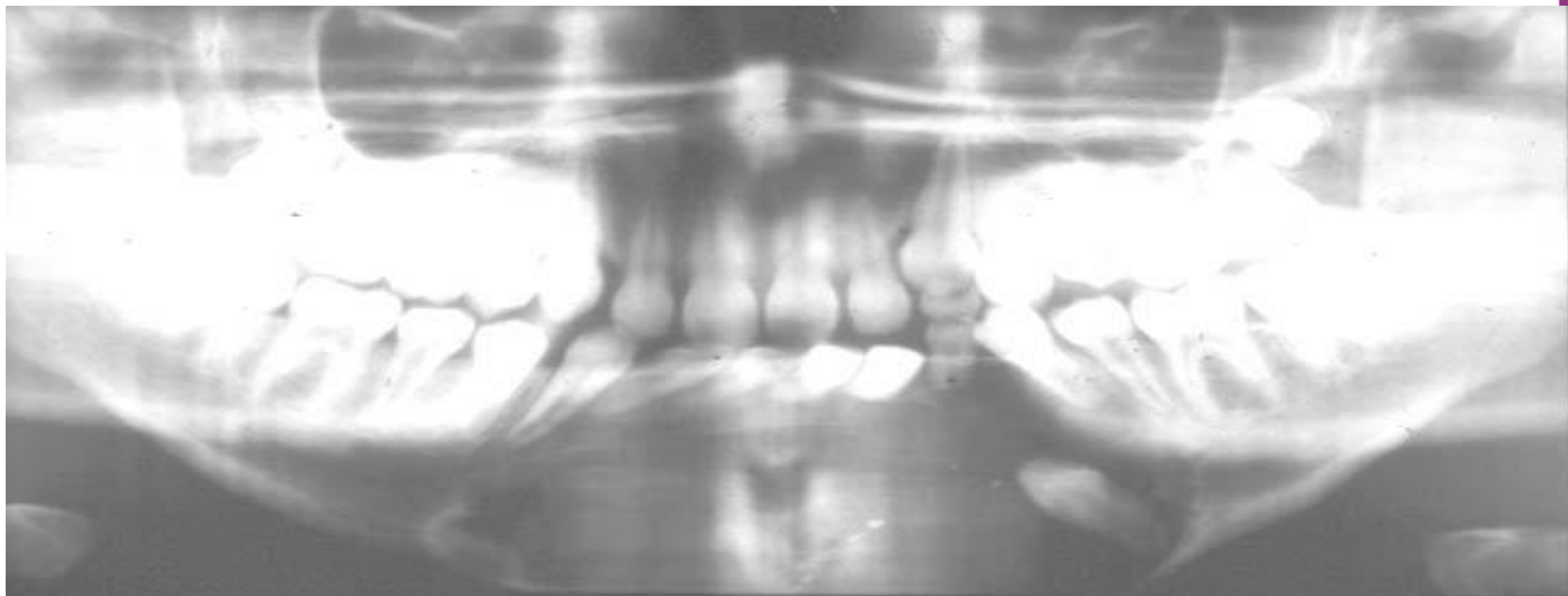
# *b- Unicystic ameloblastoma*

- Present in younger age group than conventional ameloblastoma (16- 20y).
- 90% in posterior region of the mandible, at 3<sup>rd</sup> molar area.

## \* *Radiographically :-*

- Well defined unilocular radiolucency, associated with an unerupted tooth (3<sup>rd</sup> molar area).
- Resembling dentigerous cyst.





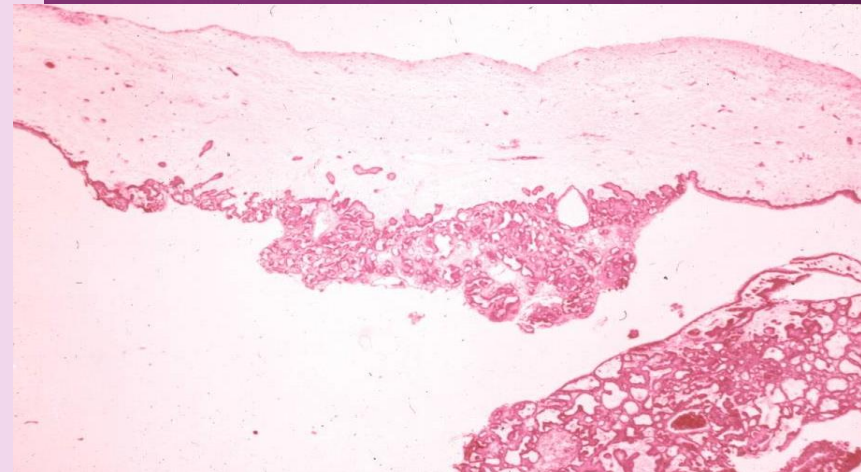
## \* *Histopathology :-*

- Thickened fibrous C.T capsule surrounding a solitary large fluid filled lumen.
- Epith. lining is of a uniform thickness of ameloblastomatous epith.

[Columnar basal cell layer with reversed polarization of nucleus and the remaining layer of stellate reticulum]  
**( luminal unicystic ameloblastoma)**

- Sometimes unicystic ameloblastoma contains areas with papillary epith. projection extending into the lumen  
**(Intraluminal unicystic)**

- Sometimes the thickened lining penetrating the adjacent capsule tissue  
**(Mural unicystic ameloblastoma)**



## *Pathogenesis :-*

- May be transformed from cystic epithelial lining of dentigerous cyst (or other odontogenic cyst)
- Or may arise from a preexisting odontogenic epith remnant

## ***Treatment :-***

- Enucleation for the first two types, no recurrence.**
- Resection for the mural type which extend to wall & interfere with bone**

## ***C- Peripheral (=extra osseous) ameloblastoma***

- Rarely, ameloblastoma may present in gingival tissue or alveolar soft tissue, without bone involvement. Not invasive
- Appears as a firm, sessile nodule of the gingiva with smooth surface .
- Resembling fibroma & pyogenic granuloma
- Common in mandibular than maxillary area
- Middle aged persons.





**\* *Histopathology :-***

Resemble follicular pattern of  
intraosseous common pattern.

**\* *Treatment :-***

Local excision including a small margin of normal bone .