Odontogenic tumors
-- 2 --

2-Adenomatoid Odontogenic Tumor (AOT)

- Earlier, believed to be a variant of Ameloblastoma with glandular elements and was referred to as **ADENOAMELOBLASTOMA.**

- Clinically, microscopically & behaviorally is clearly diffirent from ameloblastoma

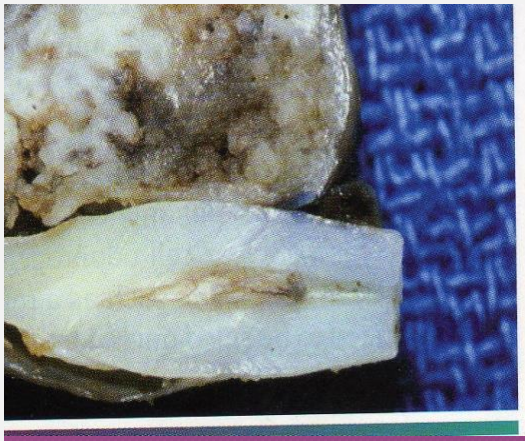
- Now believed to be a separate entity and thought to arise from odontogenic epithelial cells. **REE**

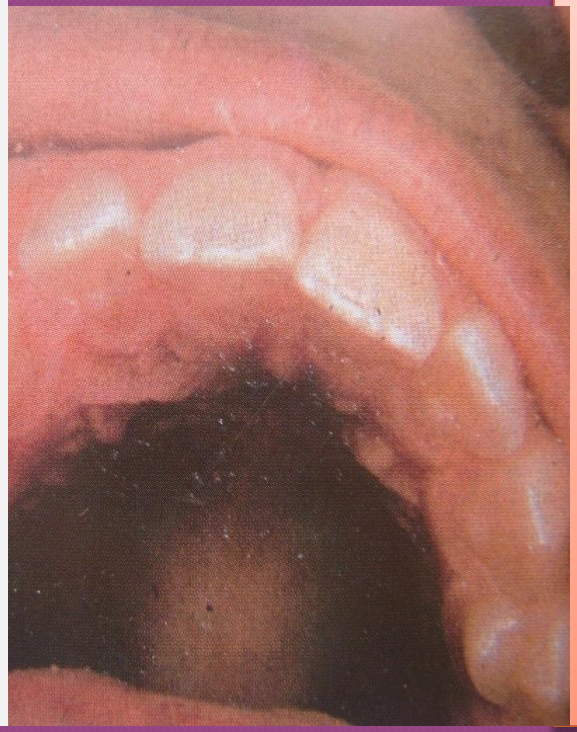
CLINICAL FEATURES: -

Age incidence: Young individuals, 1st & 2nd decades.

Sex incidence: More in females, twice more.

Site predilection: Lesions mainly appears in anteroir portin of the jaws, most often in anterior aspect of maxilla, generally in association with the crown of impacted teeth.





Signs & symptoms:

- Small asymptomatic , slowly growing lesion.
- Discovered accidentally during routine dental X-ray examination to ascertain cause for unerupted tooth.
- Larger lesions cause jaw expansion.

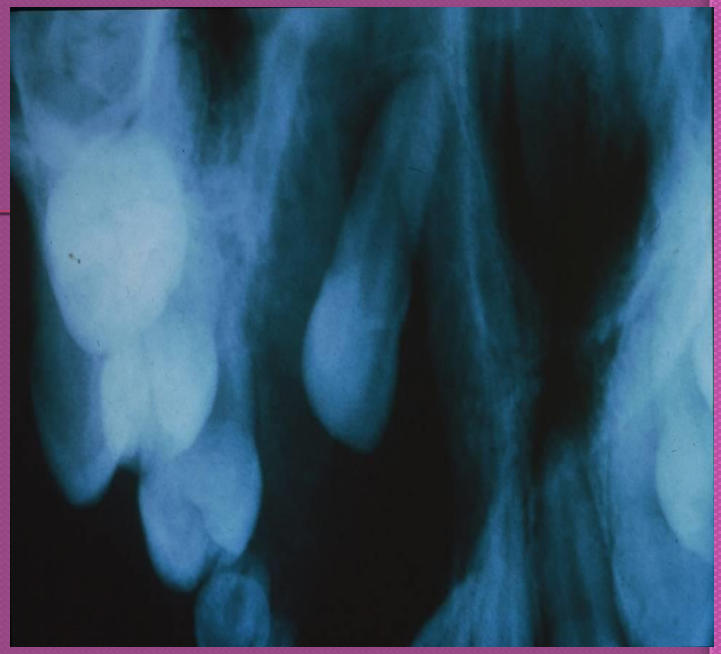
Radiographically :

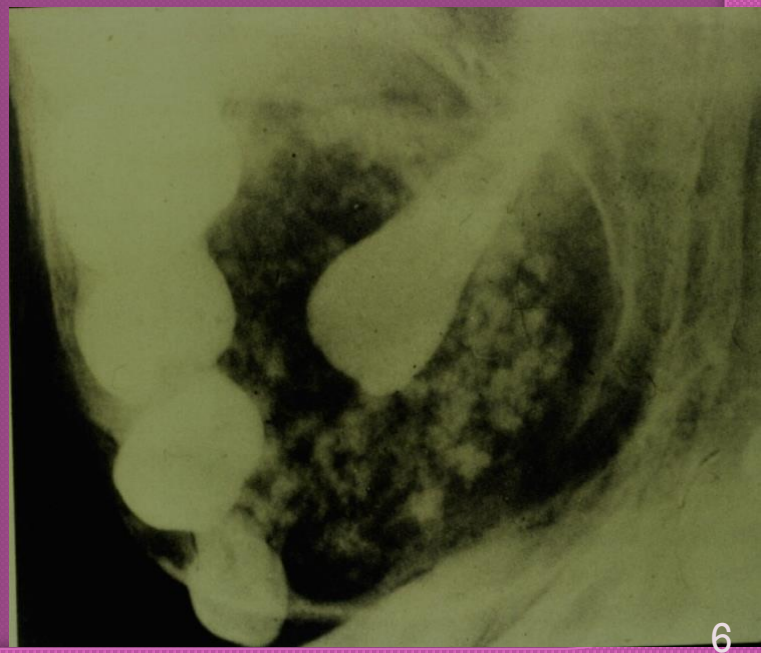
-Well-defined unilocular radiolucency , sometime calcification within tumor giving radio-opaque spot in radiolucent area (flecks of radiopacities), associated with the crown of an impacted tooth**(cuspid)**.

-It resemble dentigerous cyst , the difference is:-

1- R.L is beyond the CEJ .

2- The presence of fine calcification within the RL

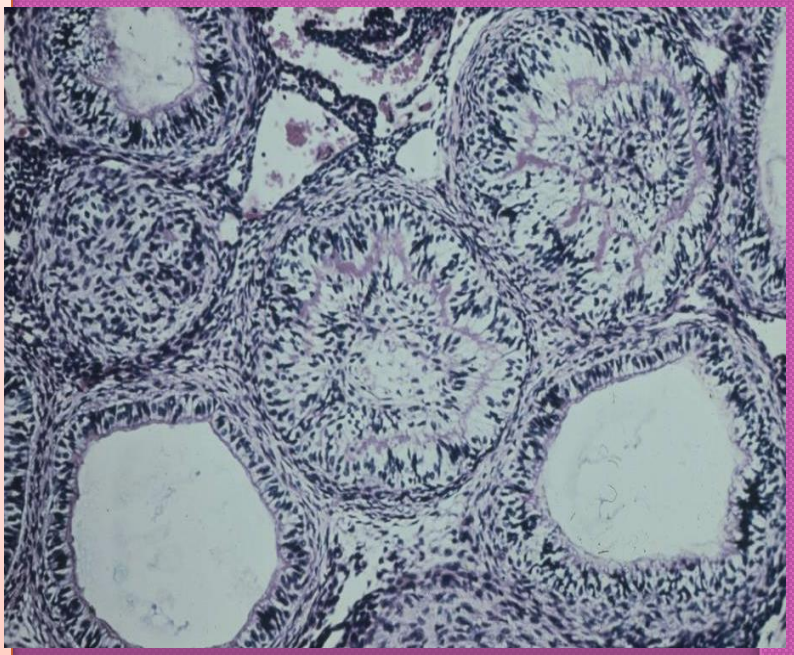


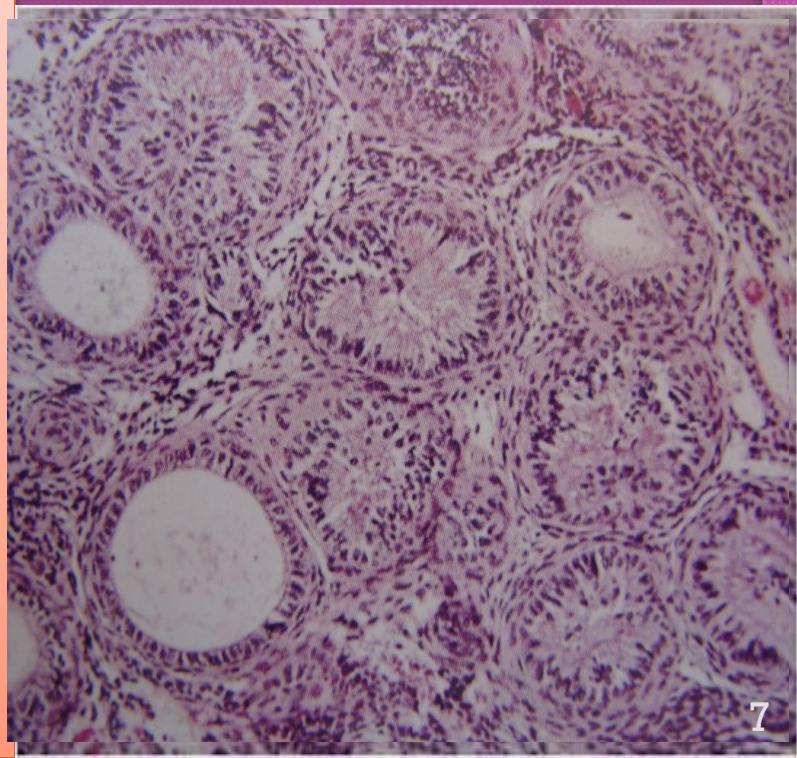


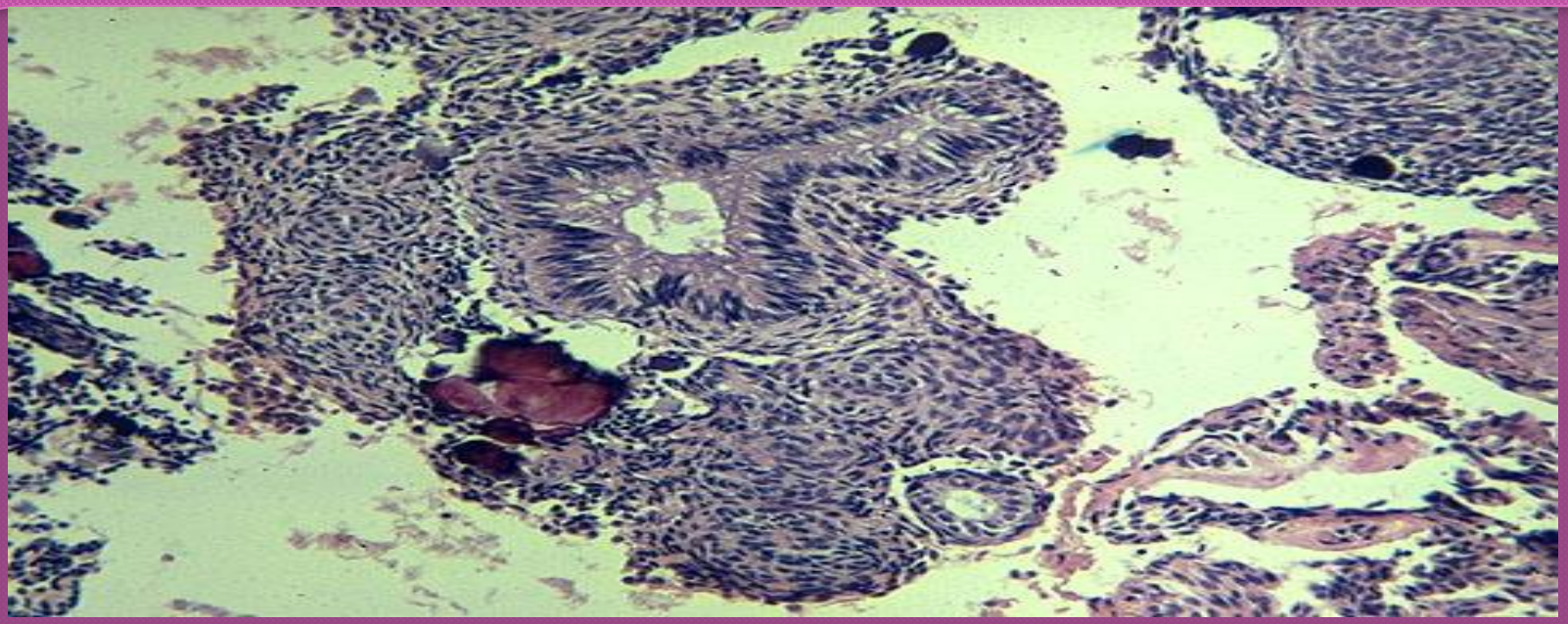
Histopathology :

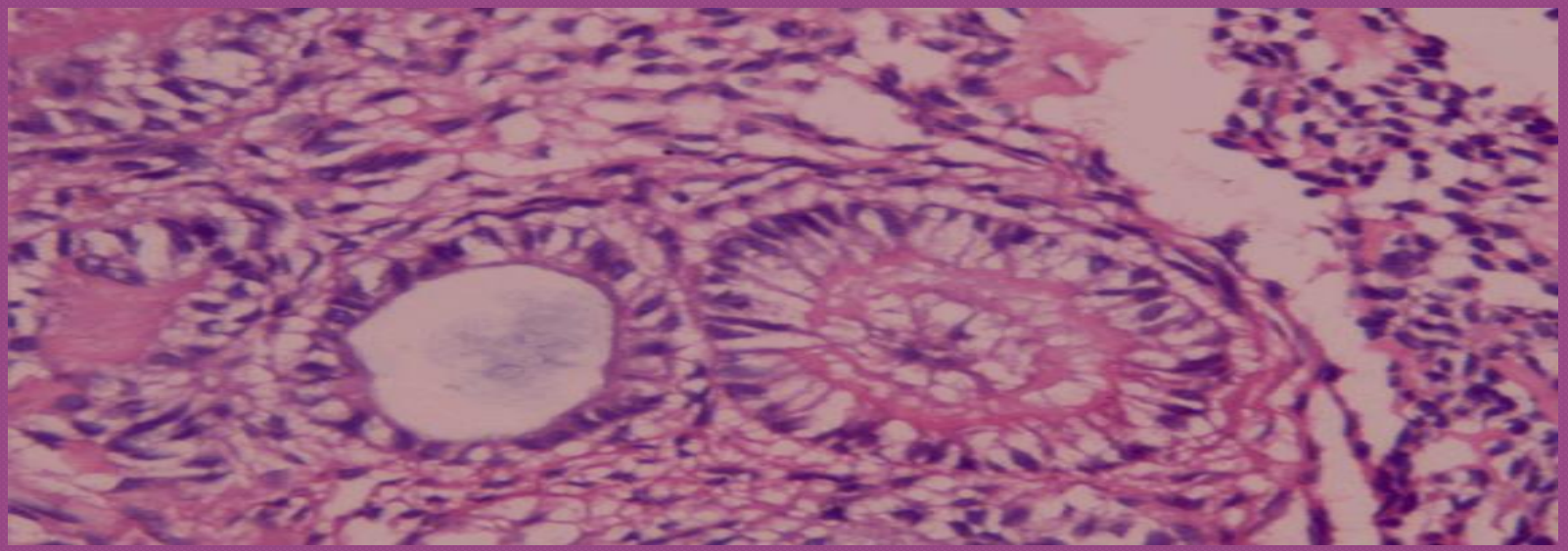
- - The lesion is usually surrounded by a thick fibrous capsule.
- - The tumor is composed of sheets, strands or whorled masses of epithelium with little connective tissue stroma.

  - The epithelial cells may form:-
    - **Rosette-like structures** with a central space either empty or contain some eosinophilic material.
    - **Tubular or duct-like structures** which show a central space surrounded by reversal polarized cells.
- - Small foci of calcifications may be observed in the tumor mass.









Treatment: Easily enucleated , No recurrence.

3-Calcifying Epithelial Odontogenic Tumor (Pindborg tumor) CEOT:-

-Rare, benign but locally invasive ,not capsulated.

DL

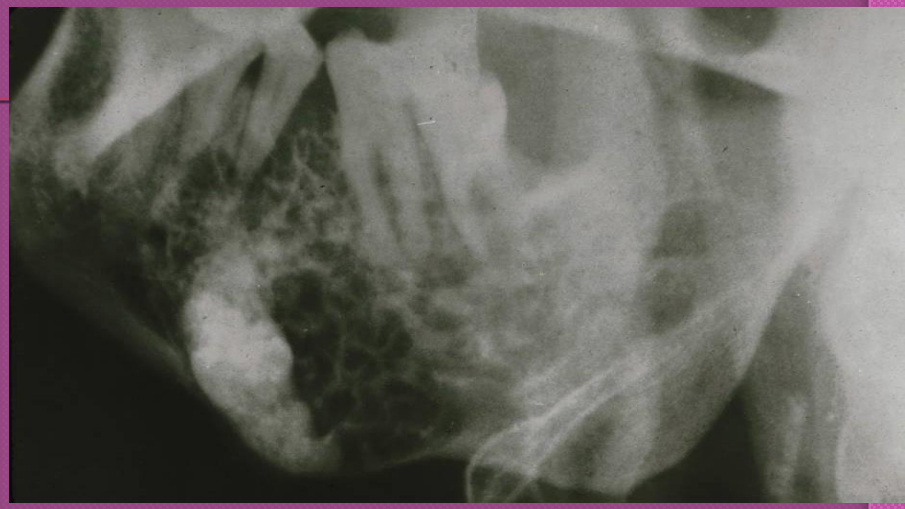
- Age: 30-50 years. Mean age about 40 years

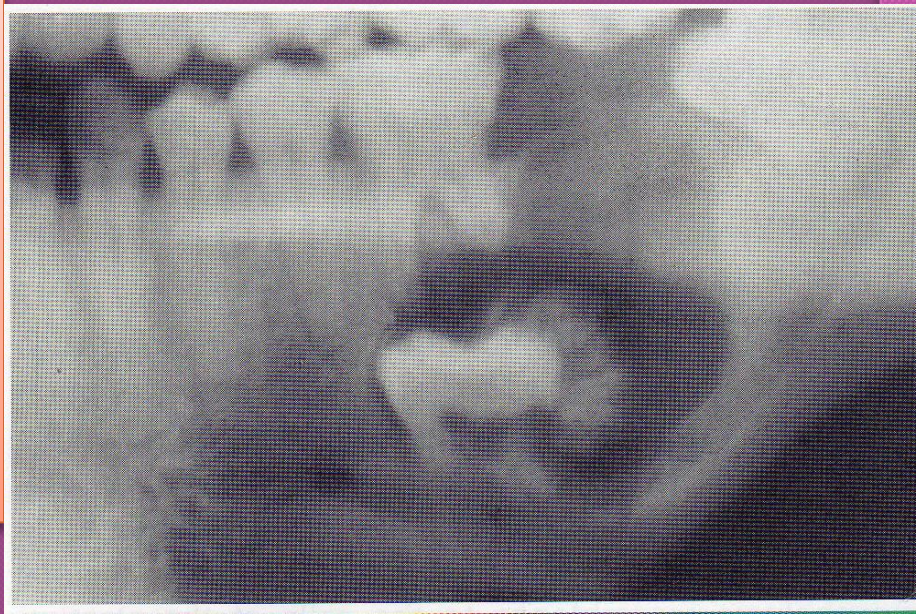
- No gender prediliction

- Mainly affect posterior body of the mandible (molar region), sometime associated with unerupted tooth.

CEOT: Radiographic Features

- CEOT occur as R.L lesions with/without opaque foci (due to calcification within the tumor)
- They are usually well-circumscribed and may be unilocular or multilocular.
- Slightly over 50 % of the CEOT are associated with an unerupted tooth.
- Calcification more prominent around crown of the impacted tooth

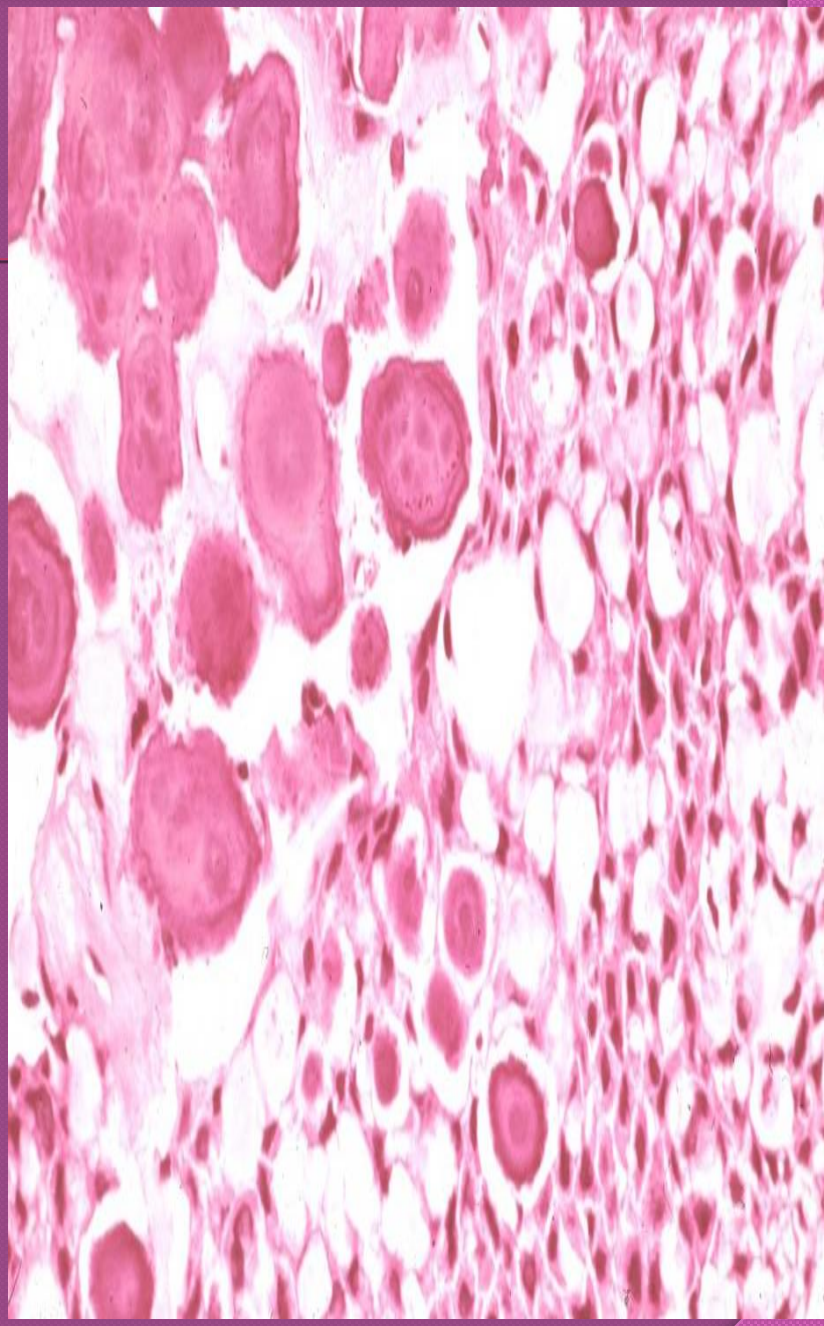




Histopathology :-

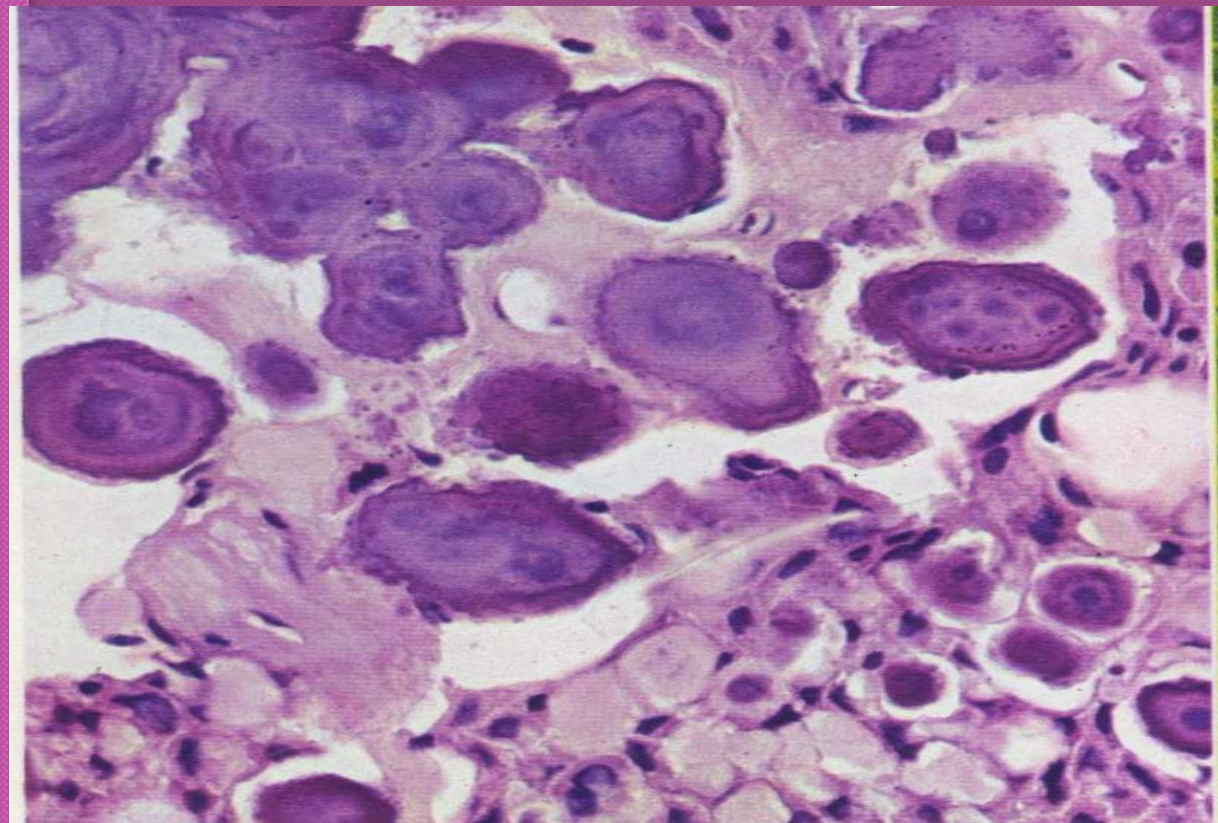
Sheets and strands of polyhedral epith cells with abundant eosinophilic cytoplasm lying in fibrous stroma.

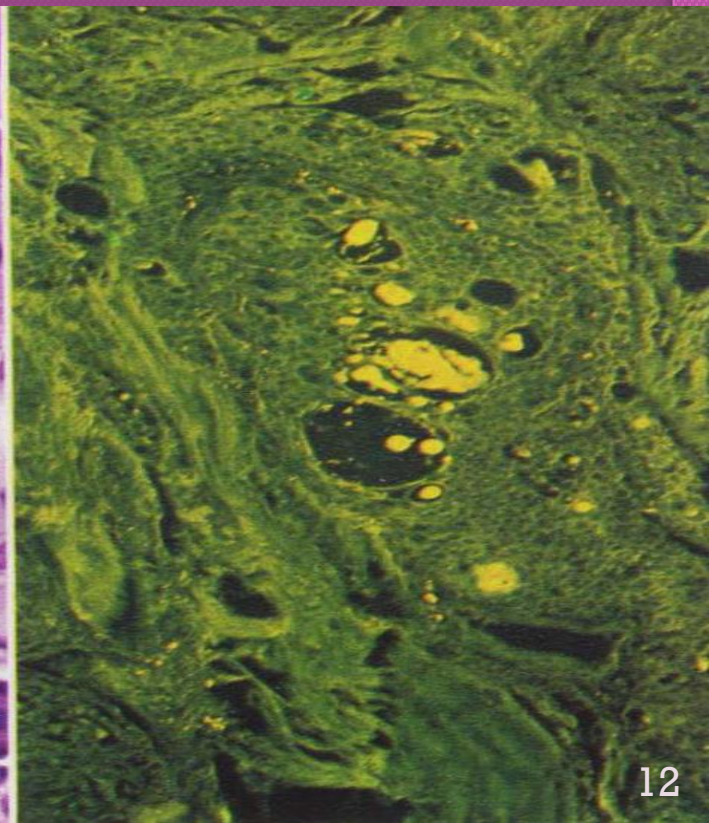
Presence of amorphous, eosinophilic, homogenous , amyloid- like, extra cellular material, this may be calcified & appear as a concentric laminated structures which may be fusede into a complex mass.



- Amyloid material stain positively with special stains of amyloid **“Congo-red” & “ Thioflaven T stain”**

Congo-red stain viewed through polarized light. Amyloid is apple green





- Although **CEOT** is locally invasive, but less aggressive than ameloblastoma, so

Conservative local resection including a narrow rim of the surrounding normal bone,,,is the best treatment.

Benign mesenchymal odontogenic tumor

1- Odontogenic fibroma :- P.L , D.P

Clinically:-

-Benign neoplams, derived from C.T of odontogenic origin containing widely scattered island of emberyonic epithelium & calcification.

- Asymptomatic, slowly growing causing jaw expansion , mainly in the mandible .

-Either intraosseous (central) or extraosseous (peripheral) lesion .

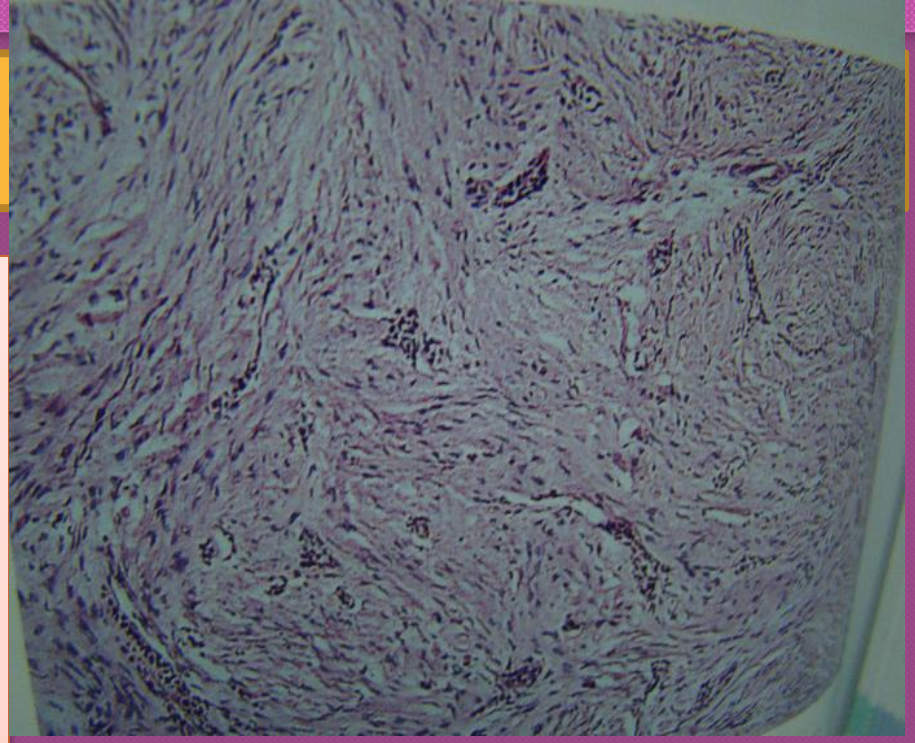
Radio graphically:-

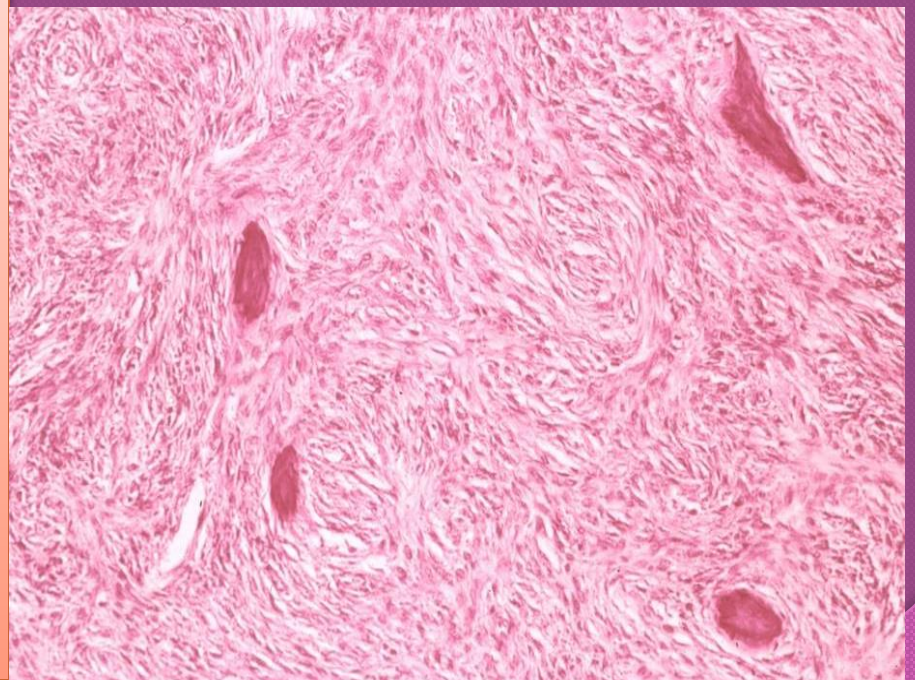
-Appear as a sharply defined, rounded R.L lesion in a tooth bearing area.

Histopathology

Odontogenic fibroma is composed of stellate fibroblasts arranged in a whorled pattern with fine collagen fibrils and a lot of ground substance.

- Foci of odontogenic epithelium may or may not be present.
- Occasionally, foci of calcification may be present.





Traetment

Excision → (peripheral)

Enucleation & curettage → (intraosseous)

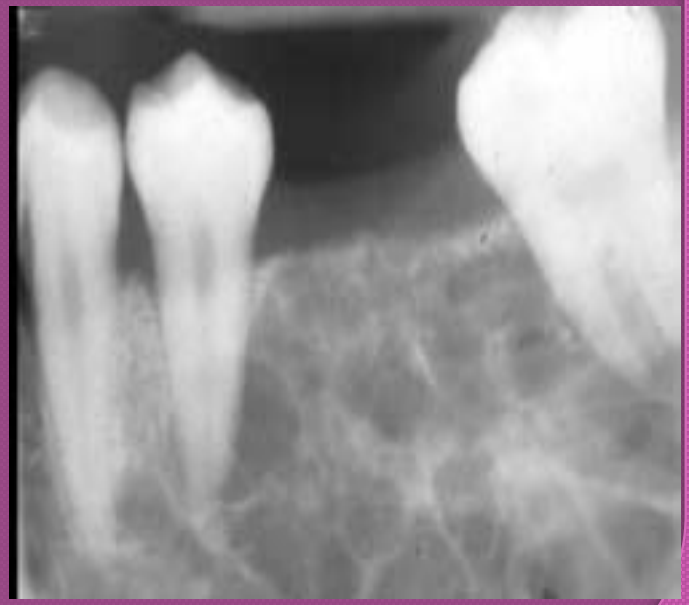
This will lead to good prognosis.

2- Odontogenic Myxoma:

- Benign tu, locally invasive, from emberyonic C.T associated with odontogenesis. **D.P**
- Rare, more common than odontogenic fibroma
- It occurs in tooth bearing area of either jaws
- Not capsulated so it infiltrate surrounding bone.
- Painless, slowly growing.

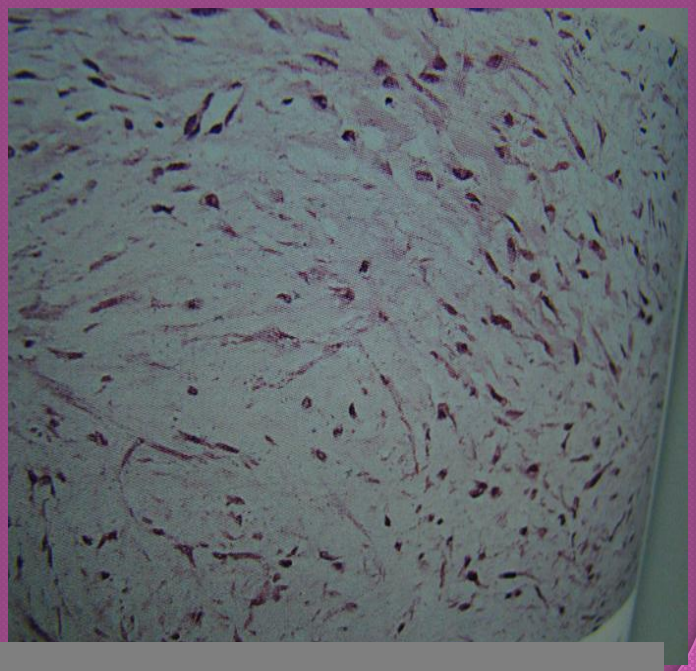
*Radiographically :

Multilocular R.L with "soap bubble" or "Honey comb" pattern. It cause resorption of the roots of teeth in the tumor area.



Histopathology :

-Grossly= gelatinous mass
-Microscopically= Tu composed of widely separated spindle or angular -shaped cells in abundant loose myxoid ground substance (stroma) contain few collagen fibrils
Islands of epith. cells may be seen



Treatment :-

Block resection.

Because of the loose gelatinous consistency of lesion, curettage may result in incomplete removal of the neoplasm.

High recurrence rate.

3- Cementoblastoma : (True cementoma)

-Benign odontogenic neoplasm of cementoblast (cementum).

-Uncommon, predominantly in children & young adult.

-Mostly in molar and premolar region of mandible, mainly involving the 1st permanent molar tooth (50%).

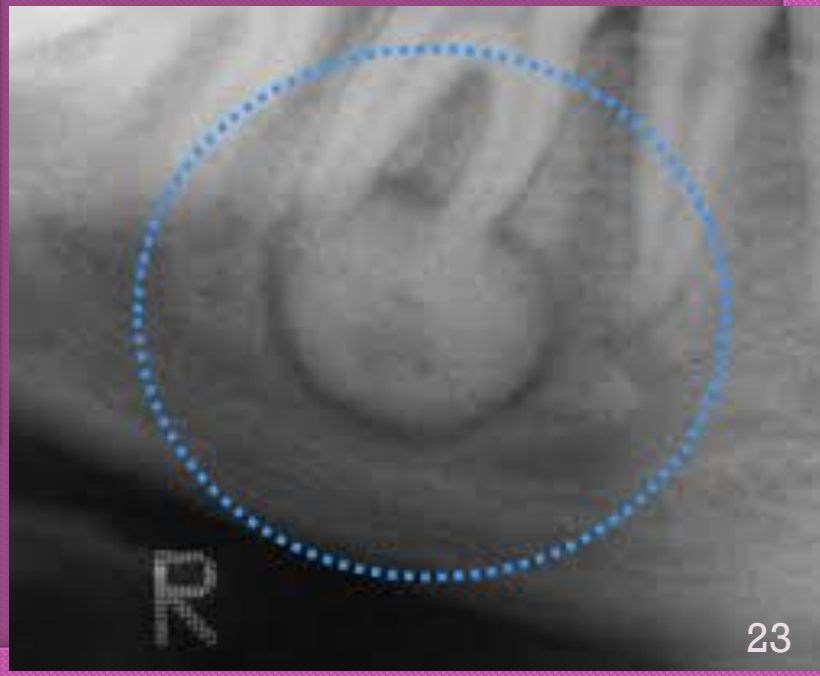
(Lesion attached to apical third of one of root).

-Slowly enlarging swelling, **painful**, involved tooth is vital.

Radiographically

Well demarcated dense radio-opaque mass with radio-lucent margin, contineous with the normal periodontal ligament space of the unaffected area of the tooth.

The mass attached to the root which shows resorption.

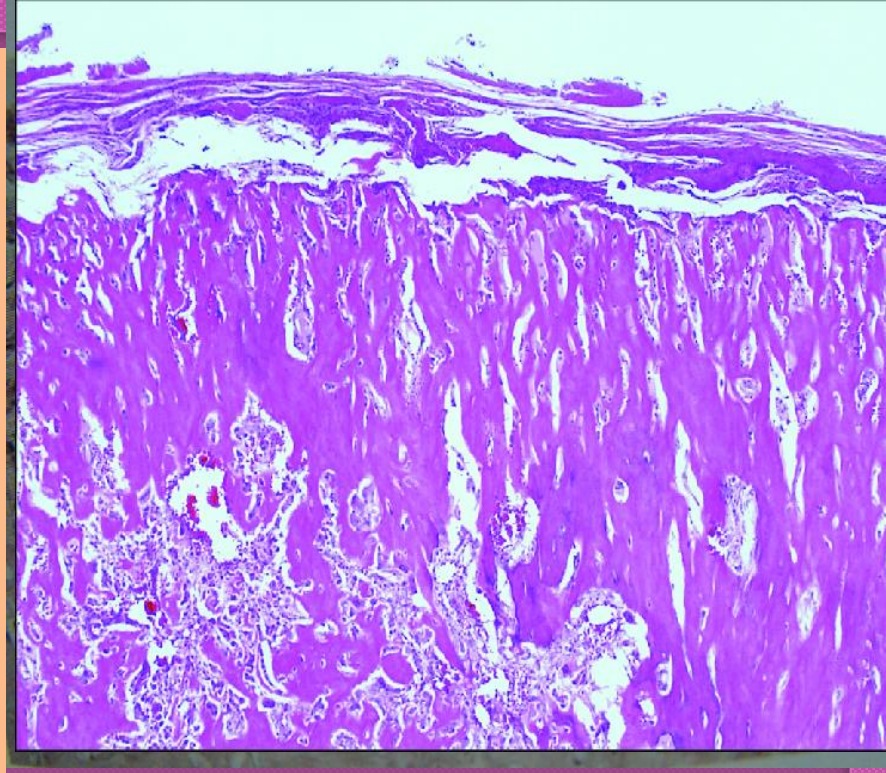


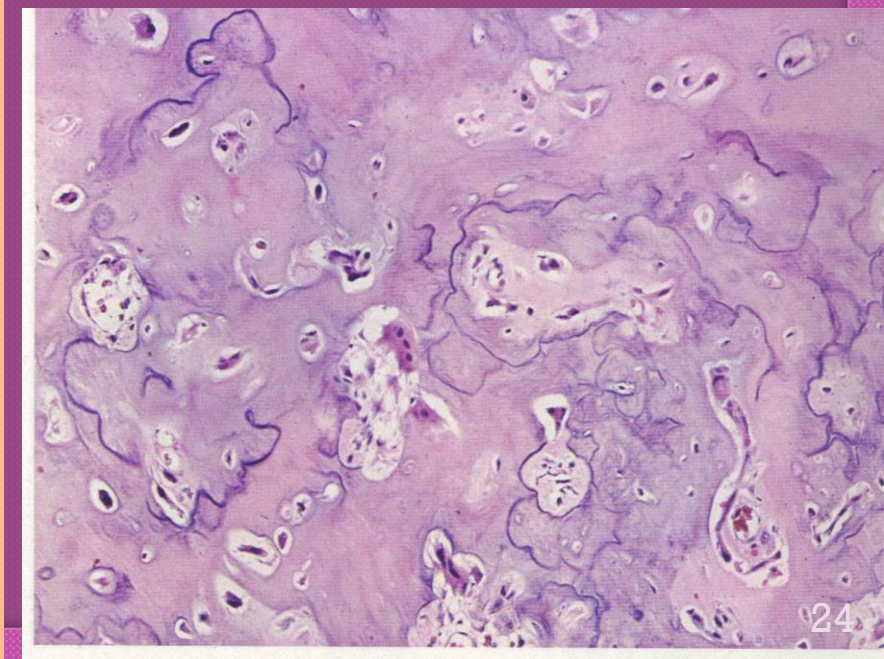
Histopathology:

- A prominent features is the presence of sheets of mineralized cementum-like tissue containing scattered cells lying in lacunae, surrounded by cementoblasts.

- Fibro-vascular tissue is present to a varying degree.

- A soft-tissue capsule may be seen at the periphery with cemental trabeculae positioned at right angles.





*Treatment :-

-Eucleation with tooth removal .

-No recurrence.

*Benign mixed odontogenic tumor:-

1- Ameloblastic fibroma :-

- Rare, benign odontogenic tumor, both epith. and mesenchymal element are neoplastic (true biphasic tumor).
- Well circumscribed (encapsulated), no local invasive pattern, no recurrence (unlike ameloblastoma) (no radical excision)
- Younger age than ameloblastoma .Mean age **14** y
- Painless slowly enlarging swelling in the body of mandible.

***Radiographically :-**

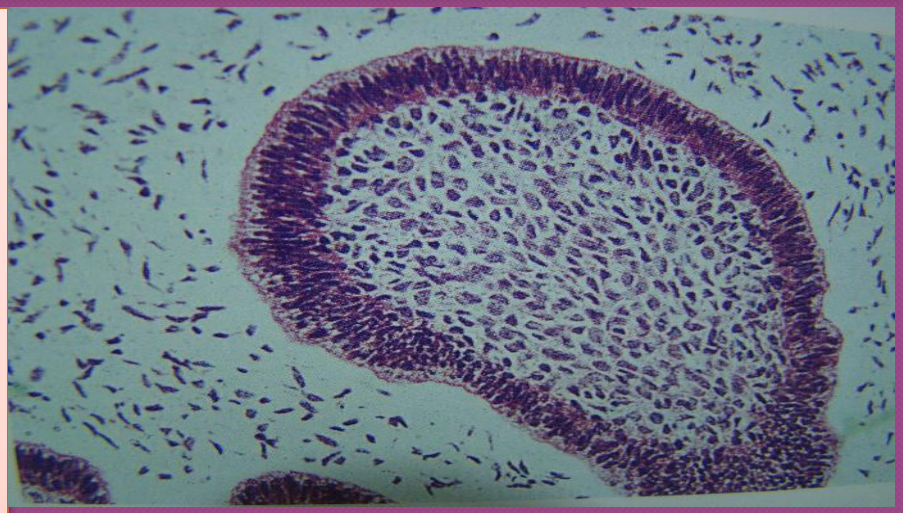
- Well-defined unilocular or multilocularR.L
- 50% associated with unerupted tooth

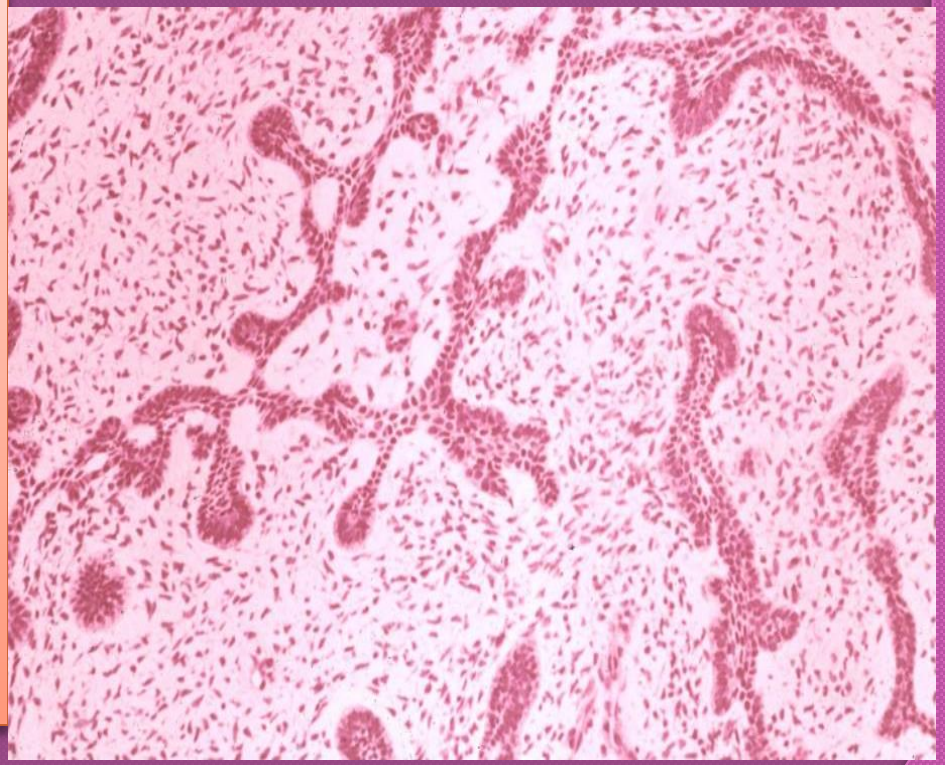
***Histopathology:-**

Proliferation strands of odontogenic epith. (resemble dental lamina that proliferate from oral epithelium in the early stage of odontogenesis).

lying in highly cellular fibroblastic tissue (resemble dental papilla) .

***Treatment:-** enucleation, with the removal of the associated tooth.





:*Odontoma :-

-Developmental malformation of dental tissue (hamartoma) . Not a true neoplasm.

-The most common type than other odontogenic tumors, repaesent 70% of all odontogenic tumor.

-Maxilla more than mandible at an early adolescence **(14ys age)**

- Asymptomatic, diagnosed often by routine x-ray as a reason of failure tooth eruption.

Occurs in two types:-

1- Compound odontoma:-

- Presented as a numerous small tooth- like structures.

-Occur in anterior maxilla as a painless swelling over crown of unerrupted tooth, or between roots of erupted one.

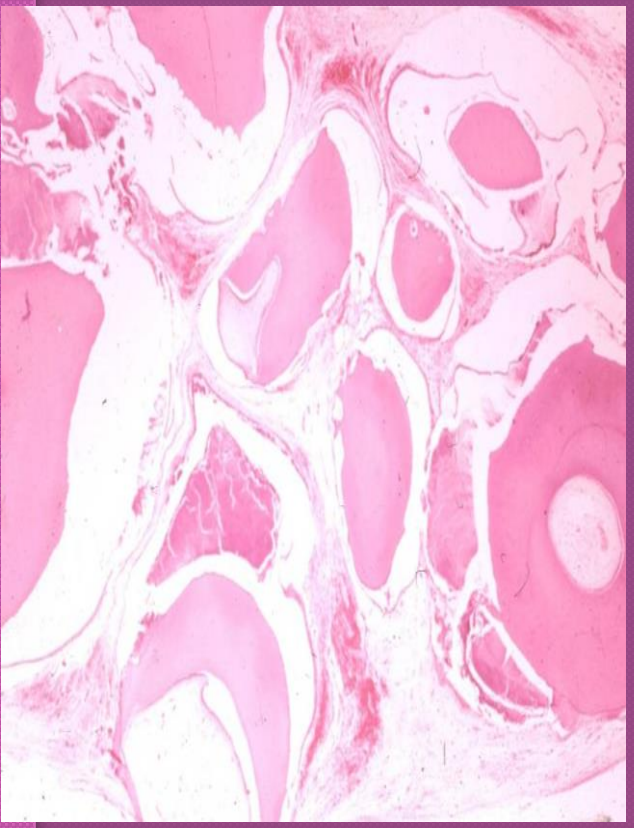
- Consist of many separate, small tooth like structure **(denticles),** produced by localized multiple budding off of dental lamina and formation of many tooth germs.

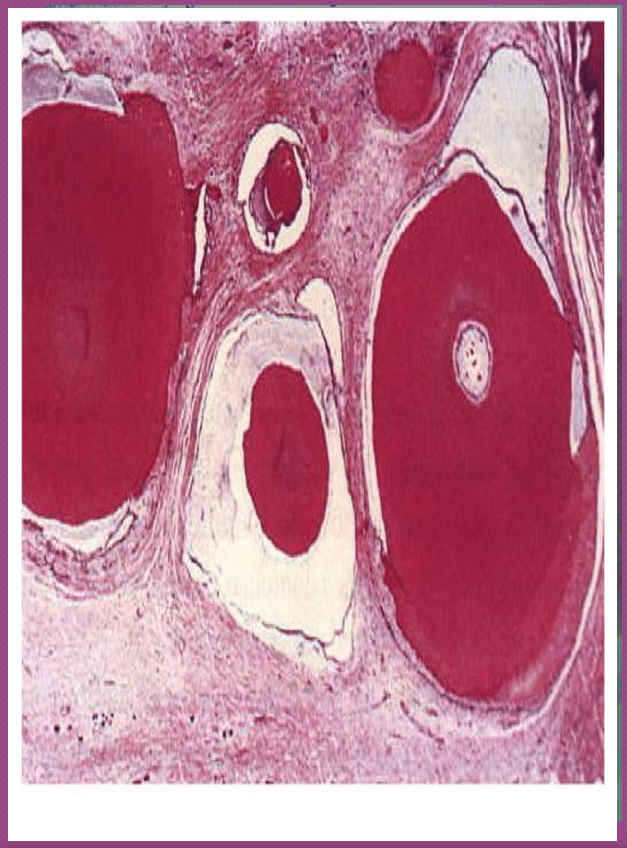
***Radiographically :-**

- Unilocular lesion composed of separate densely calcified bodies resembling miniature teeth.
- It is typically found in a tooth bearing area, between roots or over the crown of an impacted tooth
- Compound odontoma may contain (2-3) or(20-30) denticle

***Histopathology:-**

Composed of enamel, dentin, pulp, cementum (tooth tissue) arranged in an orderly pattern(normal anatomic relationship), with a surround capsule.





Higher magnification of compound odontoma. Follicular epithelium (black arrow), enamel matrix (blue arrow), mineralized dentin (star), dental pulp (arrowhead), 30x

2- Complex odontoma:-

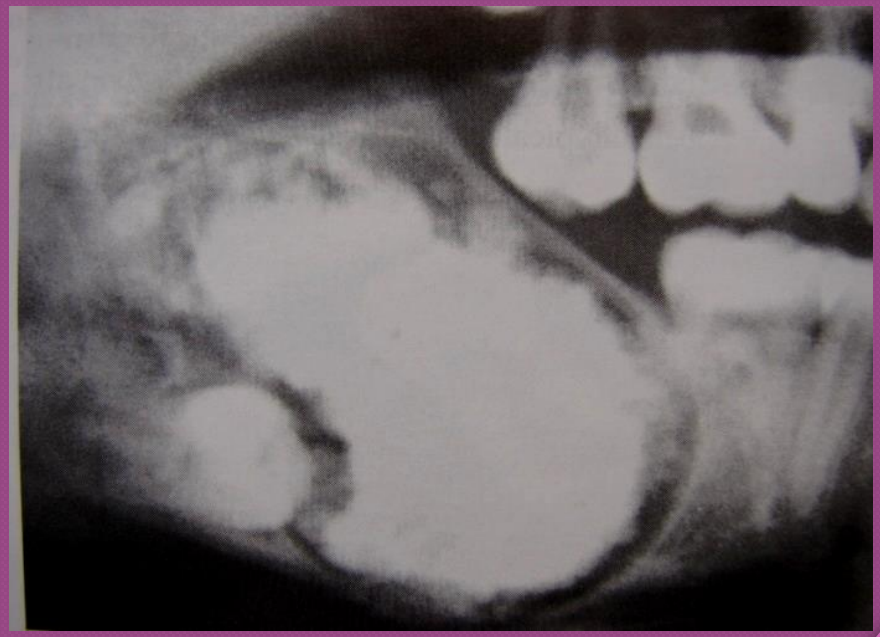
-Mass of enamel, dentin, pulp, cementum with no resemblance to tooth structure.

-Mostly found in posterior mandible, over impacted tooth .

-Irregular mass of hard and soft dental tissue with no morphologic resemblance to a tooth.

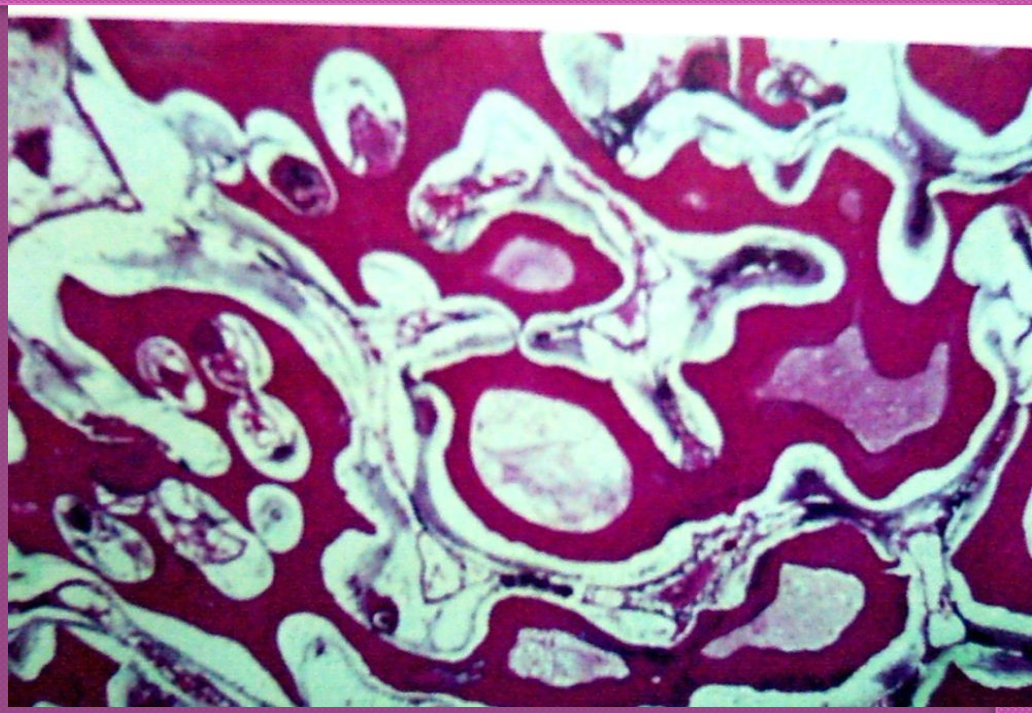
- ***Radiographically:-***

-Irregular solid R.O mass, separated from normal bone by distinct line of cortication.



*Histopathology:-

-Mass consist of all dental tissue in a disordered arrangement with no recognizable tooth shape



*Treatment :-

for both types, local excision, excellent prognosis.