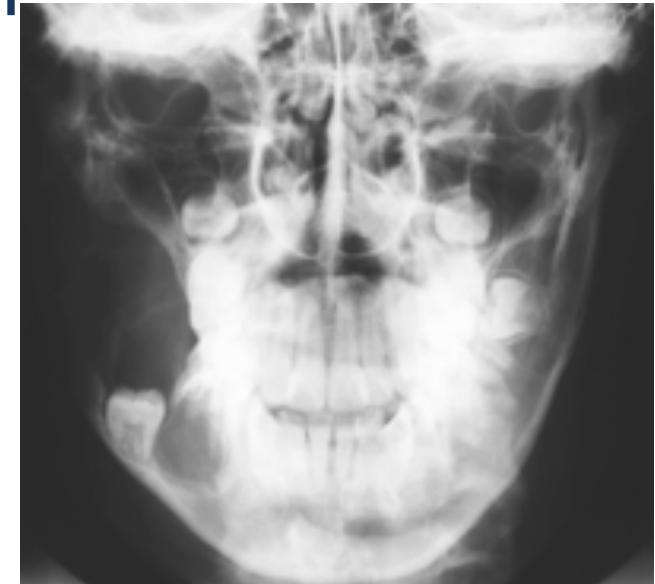
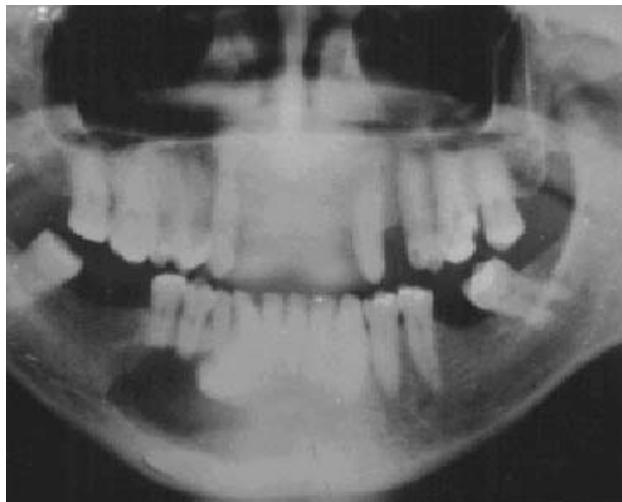


## 4. Calcifying Odontogenic Cyst/ Tumor ( Ghost cell cyst)

- Rare, neoplasm of odontogenic epithelium.
- Well-circumscribed, solid or cystic lesion
- Derived from odontogenic epith.
- Resemble follicular ameloblastoma, but contains "ghost cells" & "Spherical calcification" which is diagnostic for this lesion.
- It affects mostly areas anterior to the first molar.
- Extra osseous lesion appear as focal, localized swelling on gingiva.
- Intra osseous lesion produce generalized expansion of buccal & lingual cortices with
- no pain.



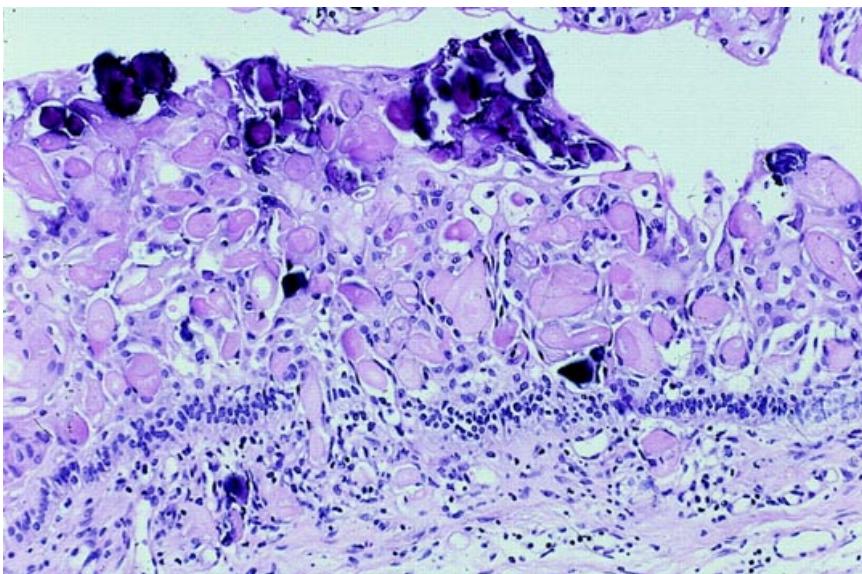
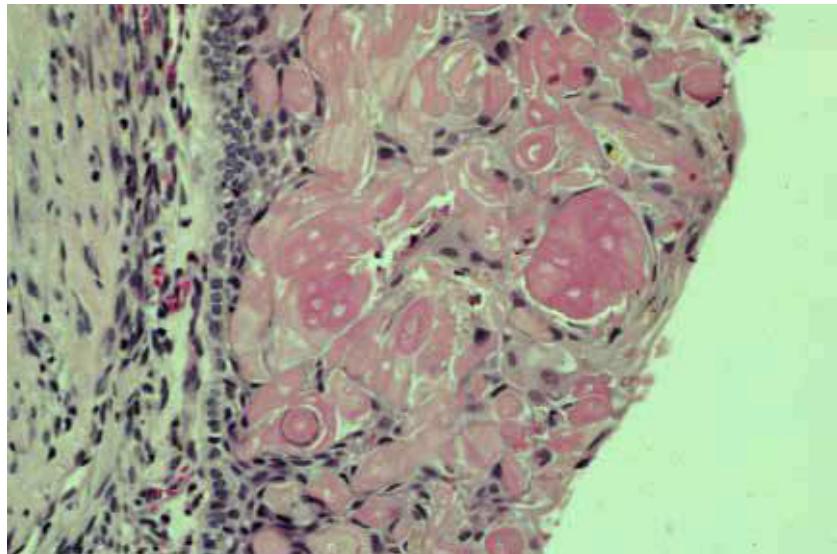
## Radiographically:

- **Unilocular radiolucency containing flecks of indistinct radiopacities.**
- **Associated with unerupted tooth (mostly canine)**



## Histologically:

- Some lesions have a cystic center & others are solid ( neoplastic).
- The epithelial components resemble that found in ameloblastoma.
- It is composed of outer layer of palisaded colouminar basal cells & an inner layer of stellate reticulum.
- Greatly enlarged eosinophilic keratinized , epithelial cells without visible nuclei referred to as "ghost cells" are present within the stellate reticulum-like area.
- Multiple spherical & diffuse calcification within the epithelia & C.T are also seen.
- Treatment:
- Cystic lesion by enucleation like a non-neoplastic cyst, whereas solid lesion may be more aggressive.



## 5. Squamous Odontogenic tumor



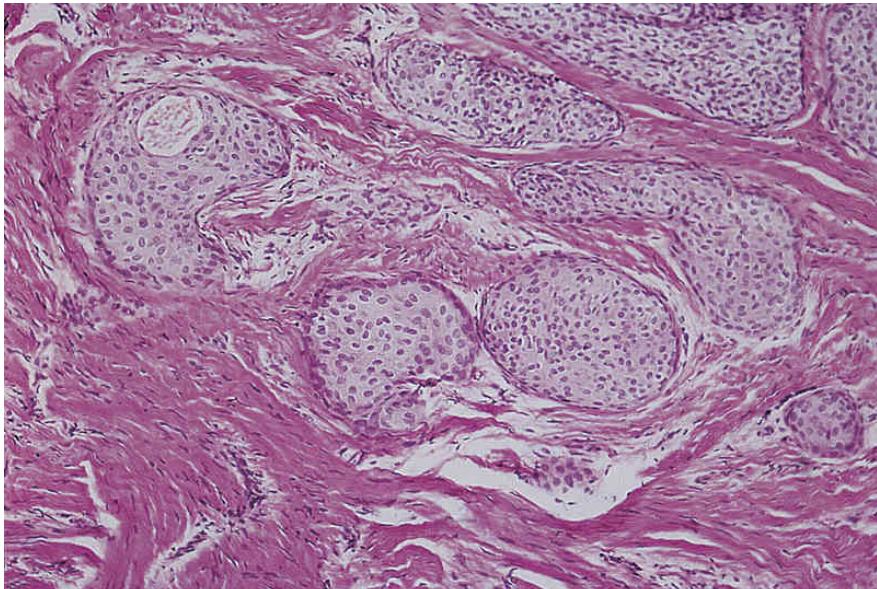
- Rare tumor mainly affects young adults
- Involves the **alveolar processes**  
**anterior to the molars of either jaw,**  
close to the roots of erupted teeth.
- Probably represent an atypical  
acanthomatous ameloblastoma or even  
SCC.
  
- Arise from neoplastic transformation of  
DL or Ep. Rest of malassez
- The tumor originates within pdl.
- Appear as **painless swelling** or as  
**looseness of teeth in a region.**
  
- **Radiographically:**
- **Triangular Unilocular radiolucency,**  
not exceed 1.5 cm in greatest  
dimension.



## 5. Squamous Odontogenic tumor

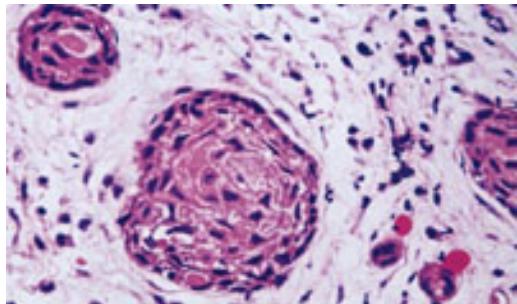
### Histologically:

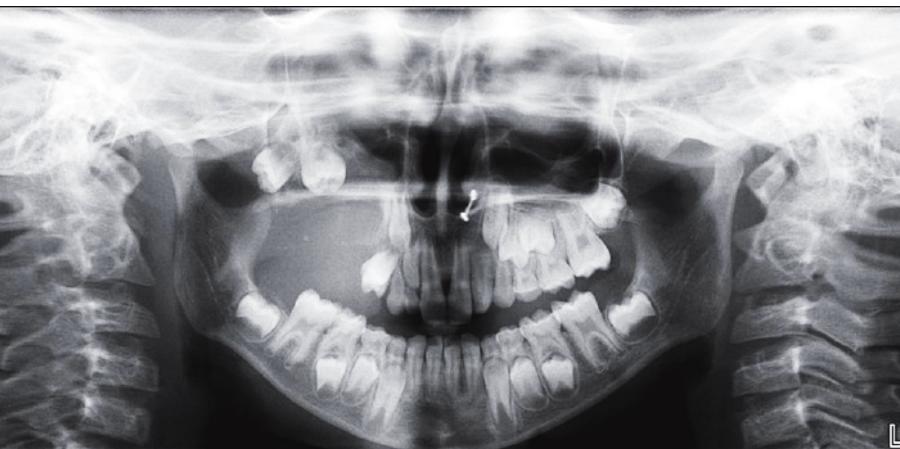
- Lesion is composed of rounded and elongated islands of relatively normal-appearing stratified squamous epithelia against cellular fibrous C.T background.
- peripheral cells does not show reverse polarization
- Many of the epithelial islands have central areas of microcyst formation.



### Treatment:

- Local curettage & exo of involved tooth.
- Some Sq Od tu have been misdiagnosed as ameloblastoma , resulting in unnecessary radical surgery.





## Mixed Odontogenic Tumors

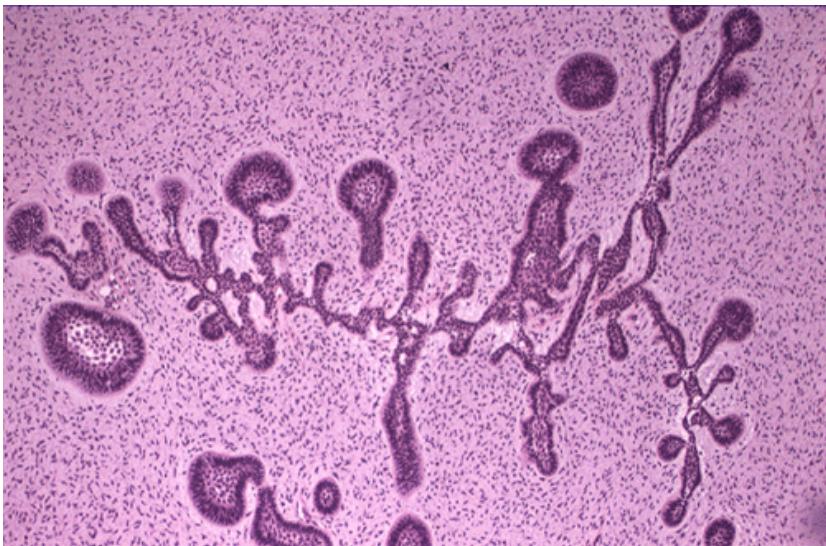
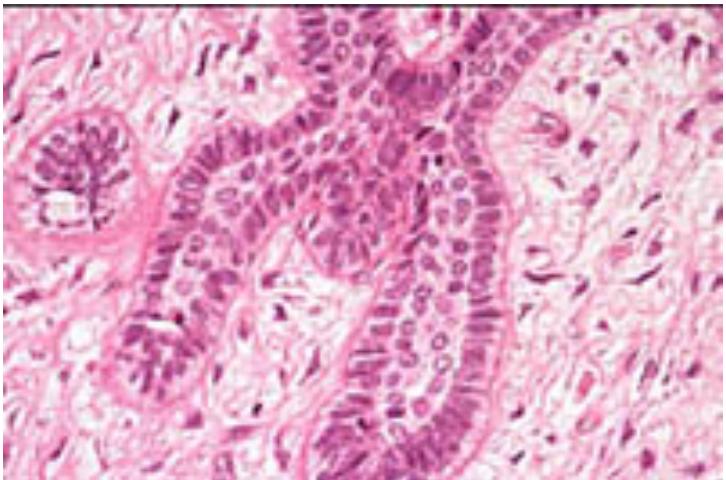
### 1. Ameloblastic Fibroma

- **True biphasic tumor?** because the epithelia & mesenchymal components are part of the neoplastic process.
- Slowly growing, asymptomatic jaw expansion affecting young patients, mainly located in mandibular or maxillary molar area, often over an unerupted tooth.
- Diagnosed at first 2 decades of life
- It may represent the early developing stage of Ameloblastoma

#### Radiographically:

- Unilocular or multilocular radiolucency with impacted tooth.

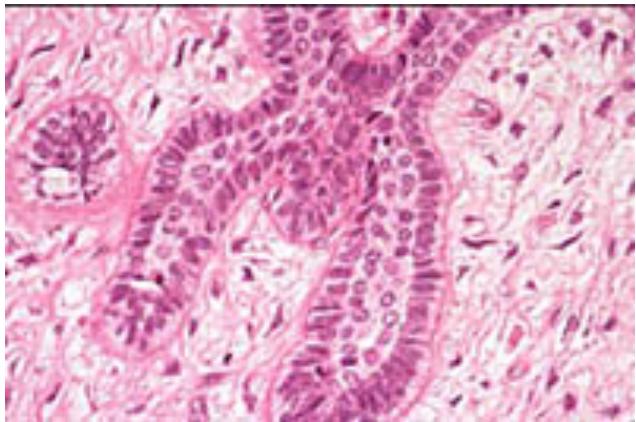
# Ameloblastic Fibroma



## Histologically:

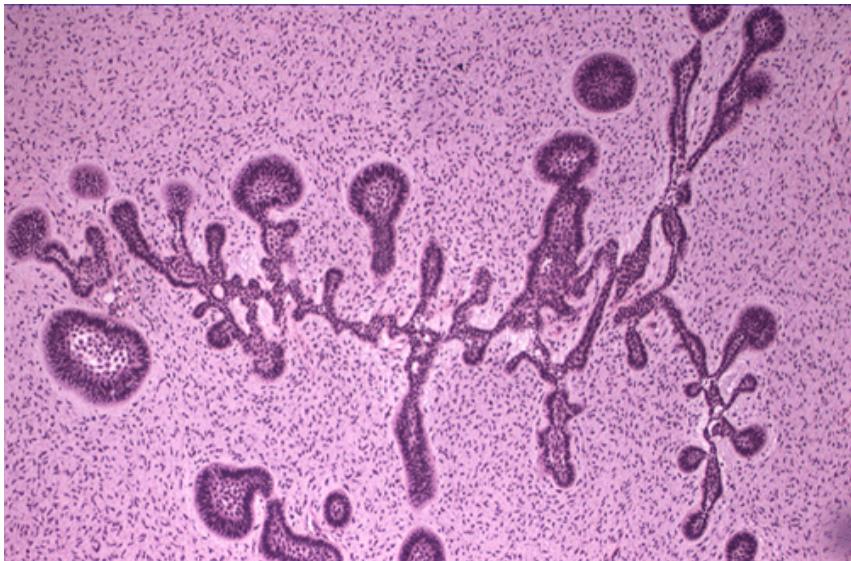
- Anastamosing, thin strands & cords of odontogenic epithelia ( 2 cells thickness).
- Other pattern resemble dental lamina & the Cap & Bell stages of early odontogenesis.
- No microcyst formation within od. Epith.(cf ameloblastoma).
- The background is composed of embryonic C.T containing randomly oriented & widely separated fibroblasts ( resemble developing dental papilla).
- Zones of hyalinization are often surrounding the epithelial component of the lesion.”  
juxtaepithelial “
- Few cases of AF occurring in conjunction with COC.

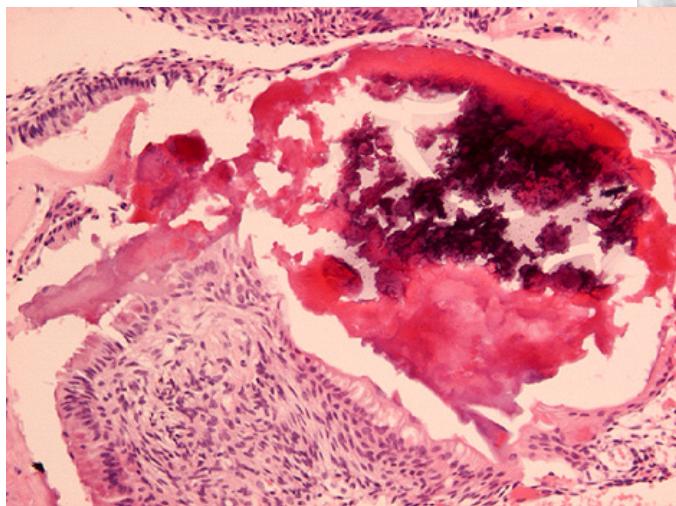
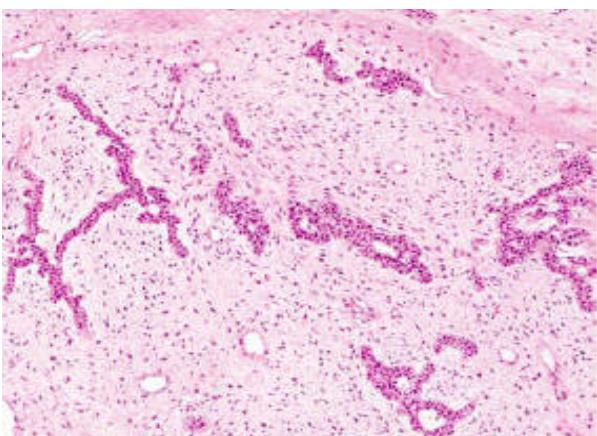
# Ameloblastic Fibroma



## Treatment:

- The **lesion is well-encapsulated** & easily separated from the surrounding bony crypt by **enucleation**.
- Recurrence is high due to inadequate initial removal of what are frequently multilocular lesions.





## 2. Ameloblastic Fibro-odontoma

- **True neoplasm** with general features of AF but contains enamel & dentin.
- **Affect children** (10 year of age), at posterior region of jaw
- **Asymptomatic**, discovered accidentally by radiographs taken for delayed eruption reasons.
- **Well-circumscribed** uni or rarely multilocular RL with variable amount of calcification with unerupted tooth seen at the margin of the lesion

### Microscopically:

- **Soft tissue component**: identical to AF.
- **Calcified element**: consist of enamel & dentin matrix in close relation to epithelial structures. More calcified lesions show mature dental structures (as rudimentary tooth or conglomerate masses of E & D)

### Treatment:

- Conservative curettage with excellent prognosis.
- It does not invade the surrounding bone.

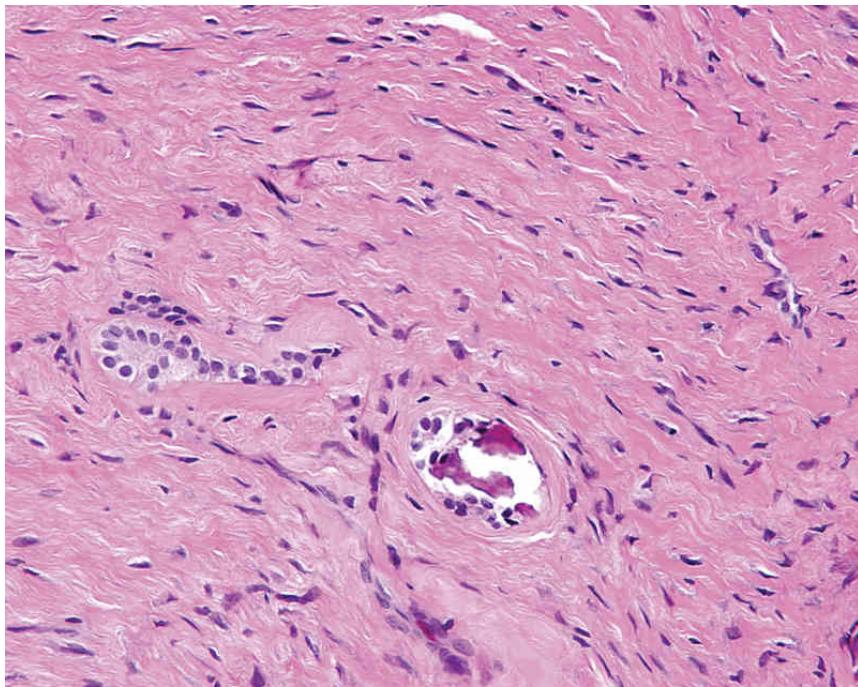


### 3. Central ODONTOGENIC FIBROMA:

- Benign neoplasm derived from C.T of odontogenic origin containing widely scattered islands & strands of embryonic odontogenic epithelia & calcification.

**It could arise**

- Intra osseously & without odontogenic epithelia which is quite rare & called "**Desmoplastic Fibroma**" or
- Extra osseously which is relatively common & called "**Peripheral odontogenic Fibroma**"
- **Small Lesion** : well defined Unilocular RL
- **Large Lesion**: Multilocular with root resorption with occasional radiopaque fleck within the lesion.
- **Treated by** enucleation & vigorous curettage.



# Peripheral odontogenic Fibroma



- It is derived from overlying gingival epithelia or rests of dental lamina remained in extra osseus location.

## Clinically:

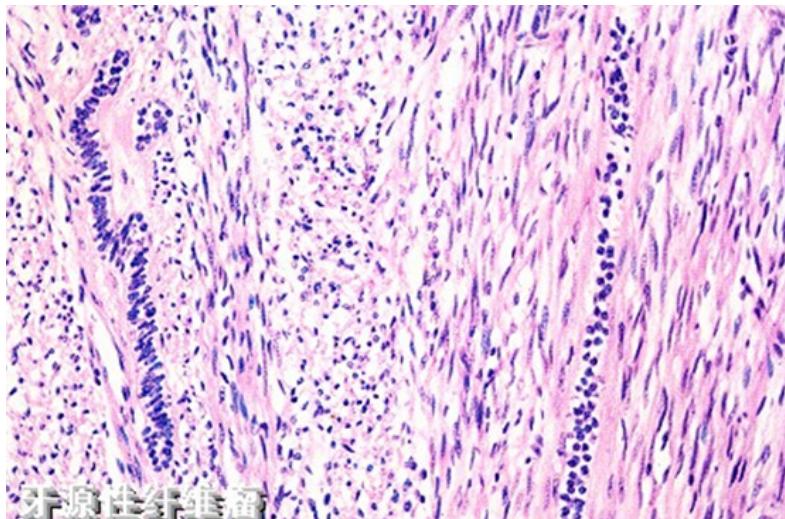
- Focal slow sessile growth of gingiva “0.5-1.5 cm in diameter” .
- Similar to peripheral fibroma.
- Mostly on anterior facial gingiva of mandible.

## Histologically:

- Cellular fibrous CT, interspersed with areas of less cellular, myxoid CT.
- Strands of scattered Od epith with vacuolization.

## Treatment:

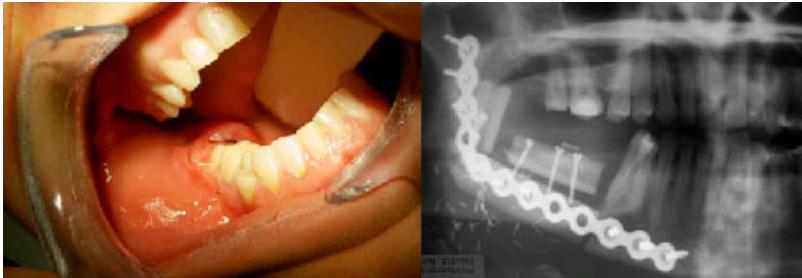
Local excision



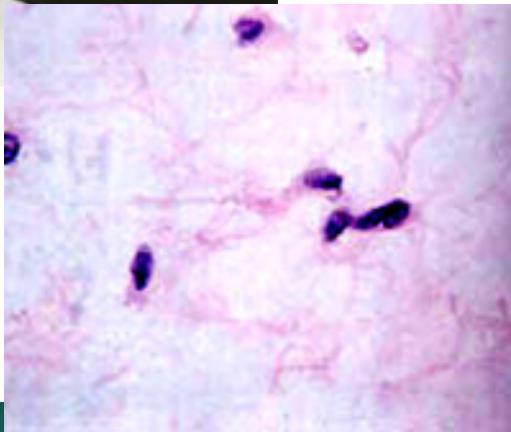
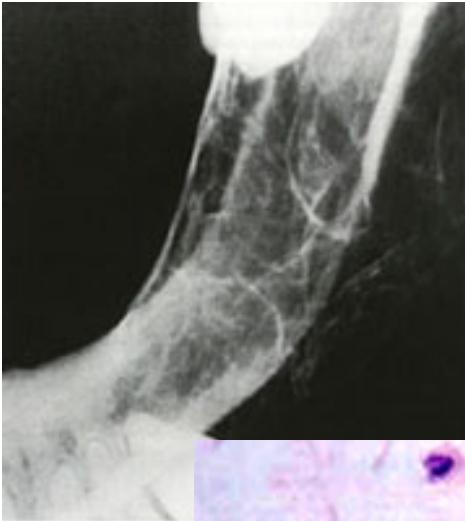
# Ectomesenchymal Od tu

## 1. Odontogenic Myxoma

- Locally aggressive intraosseous lesion derived from embryonic C.T ( ectomesenchyme) associated with odontogenesis.



- It occurs in tooth-bearing areas of either jaw of young adults.
- Maxillary lesion erodes into the sinus.
- Mandibular lesion is found in molar/premolar areas & often extend into the ramus.
- Slowly growing, painless swelling that sometimes displace & resorb teeth.



## Radiographically:

- Multilocular radiolucency with "Soap bubble" or "Honey comb" Pattern.
- The radiolucent defect may contain thin, wispy trabeculae of residual bone which often arranged at right angles to one another.
- **Histologically:**
- Widely separated spindle or angular-shaped cells against a background of mucoid, non-fibrillar ground substance.
- **In the periphery**, the myxomatous tissue penetrates the trabecular spaces producing islands of residual bone, this lead to difficulty in removing the lesion.
- It could be misdiagnosed histologically with:
- Chondromyxoid fibroma or, myxoid neurofibroma

## Treatment:

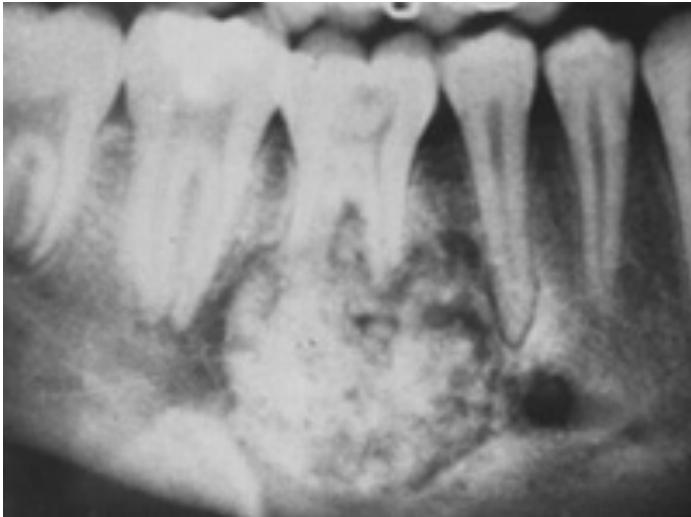
- Small Myxoma : Curretage with careful periodic evaluation
- Large myxoma : **Block resection**,
- Because of the gelatinous nature of the lesion, it is important to remove an intact specimen to reduce the chance of recurrence. (25%)

## 2. Cementoblastoma

- **Controversy? Od tu vs bone tumor**
- **Benign neoplasm of cementum-like tissue growing in continuity with the apical layer of a molar or premolar that produces expansion of cortical plates & pain.**

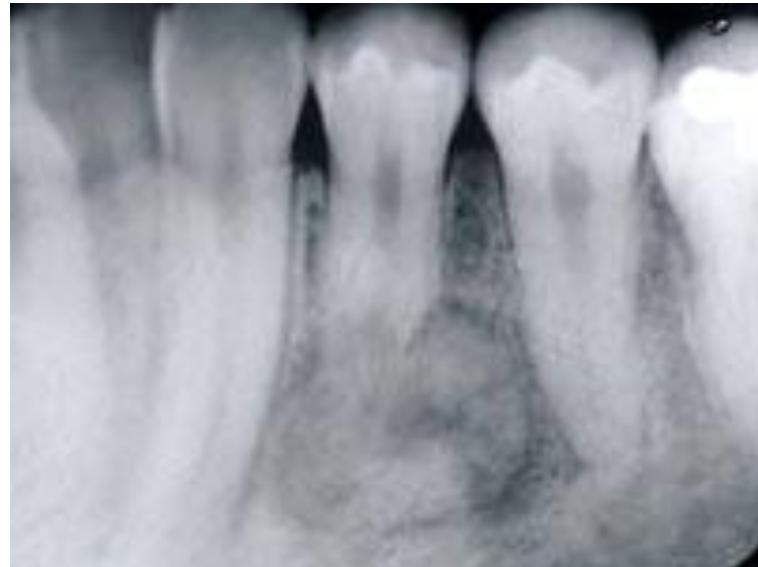
**Histological feature of cementoblastoma is similar to osteoblastoma & osteoid osteoma.**

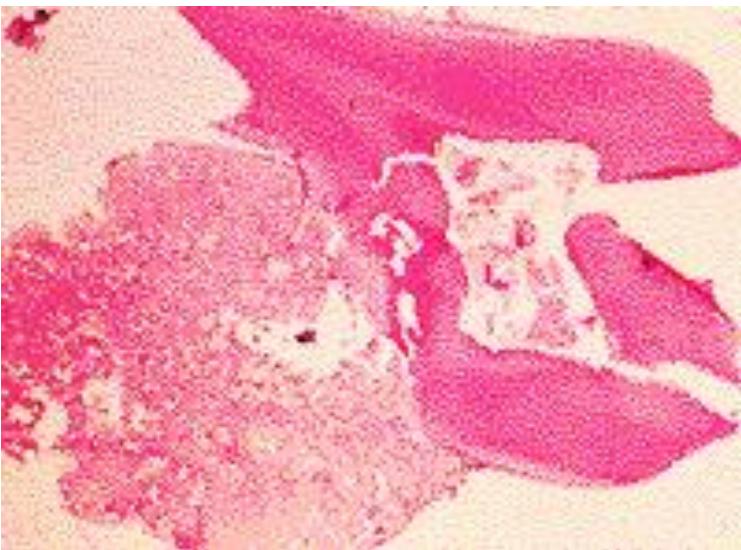
- **It affects young adults in molar/premolar area of mandible with lesions attached to the apical 1/3 of the vital root.**
- **Pain is a diagnostic feature** of this tumor which becomes more intense if the area is palpated, but the teeth are vital.



## **Radiographically:**

- **Unilocular well-demarcated radiolucency or mixed radiolucent/radiopaque or completely radiopaque**
- **Root resorption.**



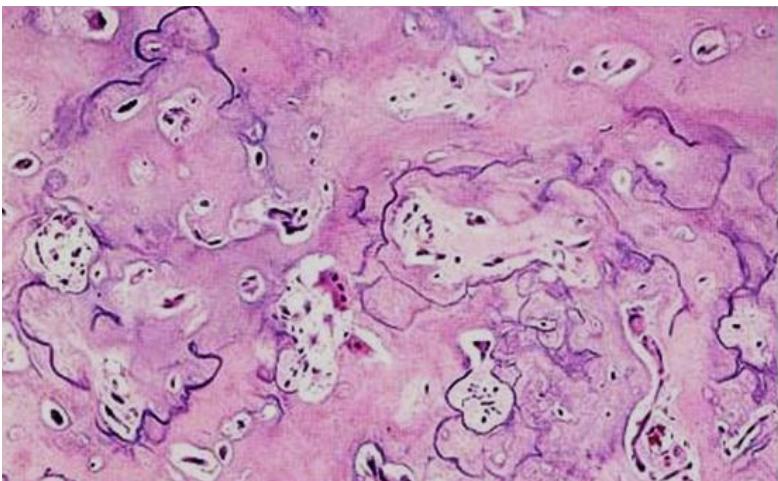


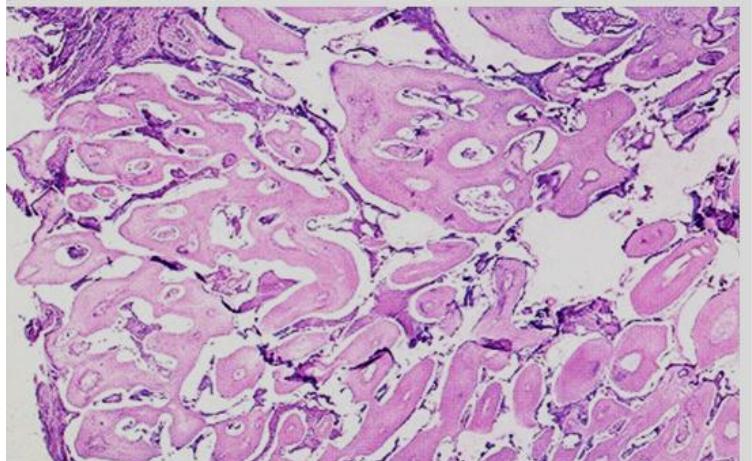
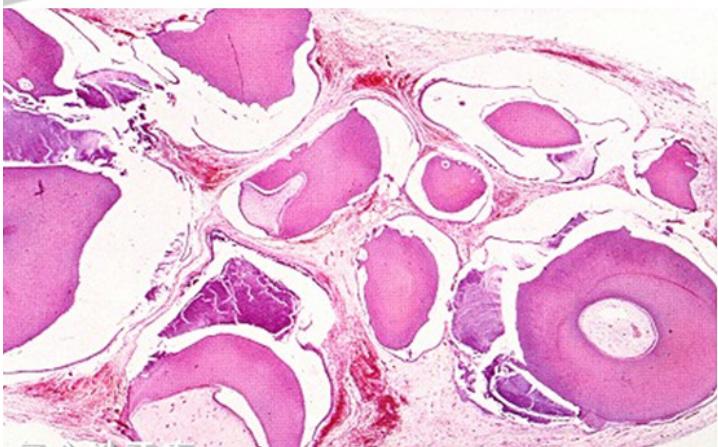
### Histologically:

- Features similar to osteoblastoma , but here with a fusion with involved tooth.
- Deposition of **unmineralized cementum matrix** that are continuous with the normal cementum layer of one of the tooth roots.
- Periodontal ligament adjacent to normal cementum follows the bulbous periphery of the lesion.
- The peripheral zone of the lesion is relatively acellular, whereas, the central zone is composed of more mineralized tissue that is loose, very cellular & exhibits an increase in vascularity.
- Multinucleated cells are abundant in cellular central areas.
- Mineralized tissue exhibits increased number of reversal lines which is indicative of extensive remodeling during growth of the lesion.

### Treatment:

- Since the lesion is well-encapsulated: enucleation is easily accomplished with no recurrence.





# ODONTO<sup>M</sup>A:

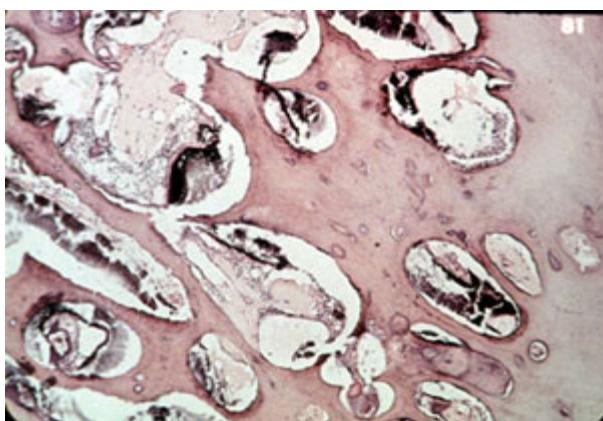
- Hamartomatous lesion found over unerupted teeth, containing enamel, dentin, pulp & cementum in either recognizable teeth shape (**Compound**) or as a solid mass (**complex**).
- It represents nearly 70% of all odontogenic tumors.
- Most commonly occur in maxilla than in mandible as asymptomatic swelling.
- Detected radiographically during the first 2 decades

## Compound Odontoma



- Commonly occur in **anterior maxilla** than in mandible as asymptomatic swelling either **over the crowns of unerupted teeth or between the roots of erupted ones.**
- Radiographically:
  - **Lesions are usually unilocular,** containing multiple radiopaque structures that resemble miniature teeth.
- **Compound odontoma may contain as few as 2-3 miniature tooth-like structures or as many 20-30.**

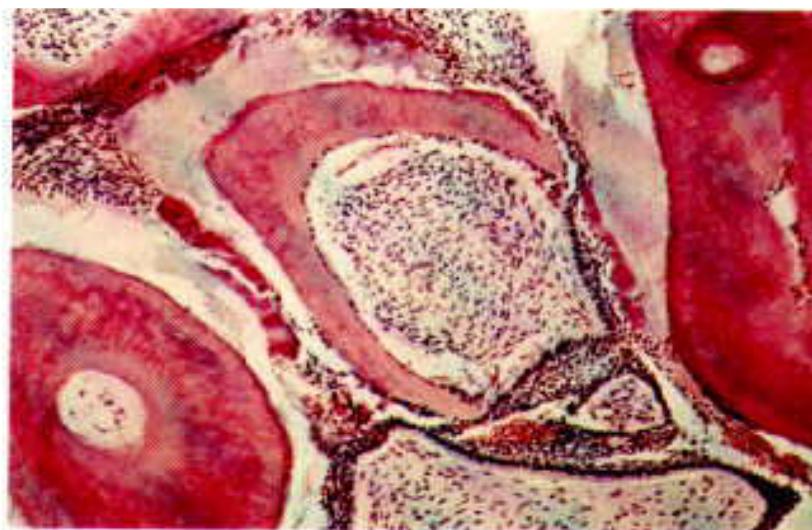
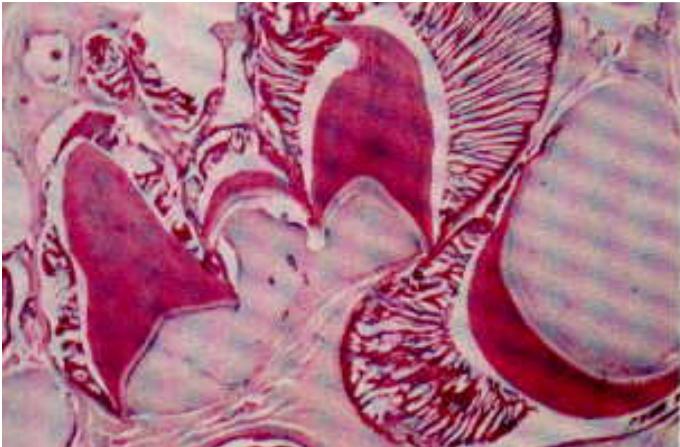
## Complex odontoma



- Found in **posterior parts of mandible** over impacted teeth & can attain sizes up to several centimeters.
- Appear as a solid radiopaque mass.
- Lesions are unilocular & separated from normal bone by distinct line of cortication.
- Individual tooth-like structures are absent.

### Histologically:

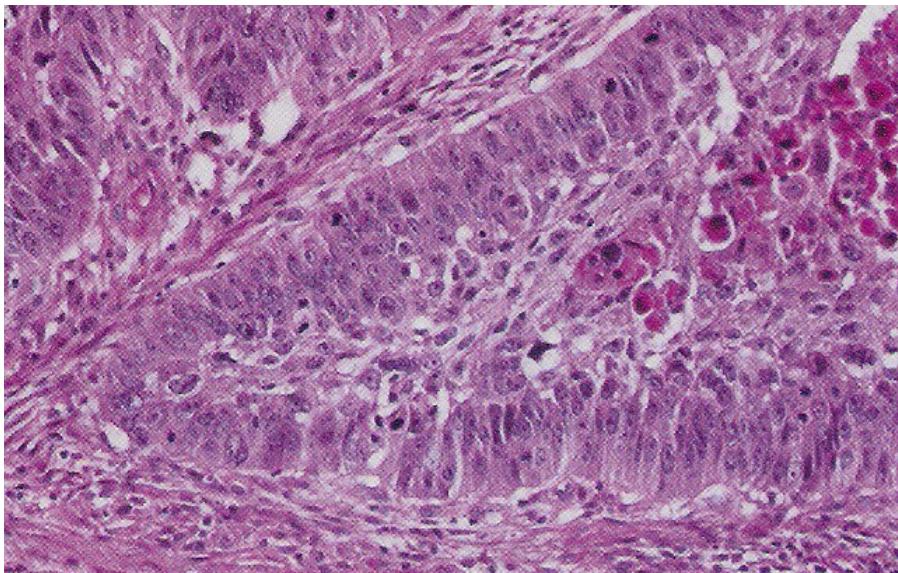
- Enamel, dentin & pulp tissue of the tooth-like structures of compound odontoma are arranged in an orderly pattern with a surrounding capsule.
- Complex odontoma differ by being composed of a single, disorganized mass of enamel, dentin & pulp with no recognizable tooth shapes.



### Treatment:

- Enucleation from surrounding bone.

## 12. Malignant Ameloblastoma & Ameloblastic Carcinoma



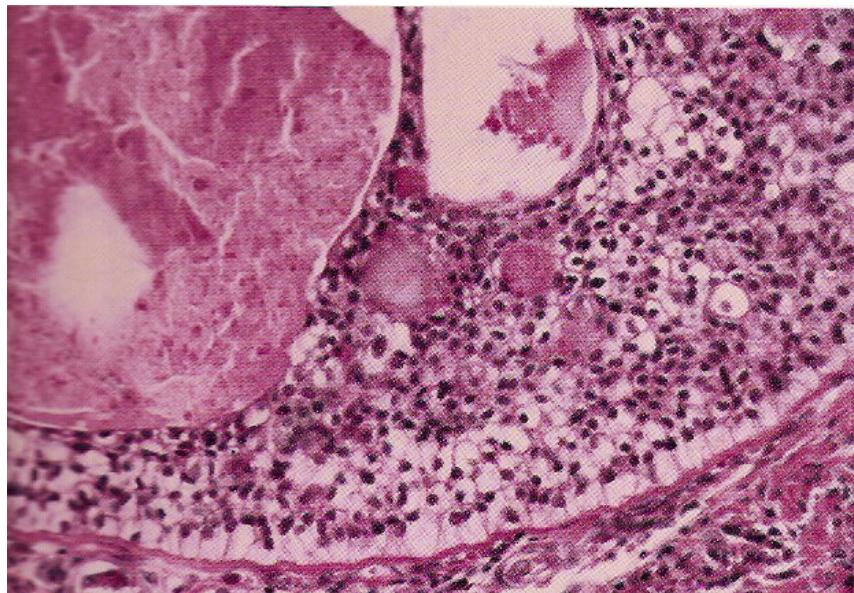
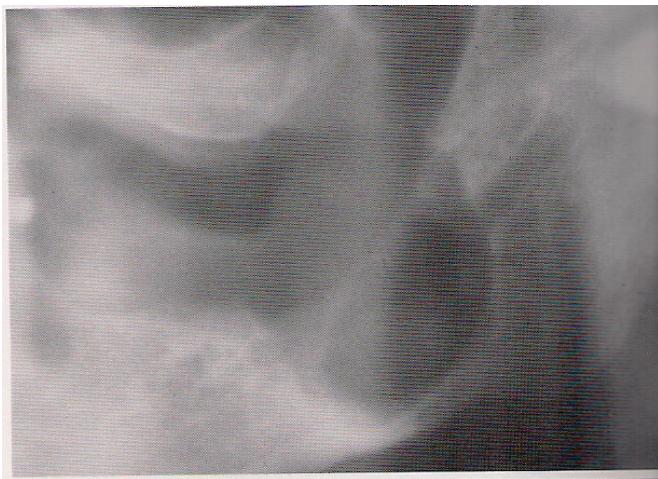
**Malignant Ameloblastoma:** Tumour that shows the histopathologic features of ameloblastoma, both in primary tumor & in metastatic deposits.

**Ameloblastic carcinoma:** Ameloblastoma that has cytologic features of malignancy in the primary tumor, in a recurrence or in any metastatic deposits.

- Both follow aggressive local course.
- Metastases from ameloblastoma mostly to the lung followed by cervical lymph nodes



## 13. Clear Cell odontogenic carcinoma



- Rare, affect patients over 50 years of age, mainly in mandible.

▪ pain, lip paresthesia & bony swelling are the CC. Soft tissue involvement in 60% of cases. Why?

- Uni or Multilocular RL with ill-defined margin.

### Histologically:

- ***It could be biphasic:***

▪ Varying-sized nests of epithelial cells with clear or faintly eosinophilic cytoplasm . ***"similar to glycogen – rich pressecretory ameloblasts"***. Admixed with more eosinophilic polygonal epithelial cells.

- ***Or monophasic:*** Only clear cells arranged in nests and cores with thin hyalinized CT.

▪ ***Third pattern:*** Peripheral cells of the clear cells with palisading pattern, insignificant mitosis and pleomorphism

- Difficult to distinguish from intra osseous Mucoepidermoid carcinoma , CEOT, Metastatic renal cell carcinoma, clear cell breast carcinoma or clear cell melanoma.

### Treatment:

- initial enucleation or curettage to radical surgery

▪ Metastatic involvement of regional lymph nodes and pulmonary metastasis has been reported.

# 14. Odontogenic Carcinoma



- Aggressive & destructive intraosseus lesion of the mandible or maxilla that composed of poorly differentiated epithelial cells & clear cells in a pattern that is reminiscent of early odontogenesis.

**Radiographically:**

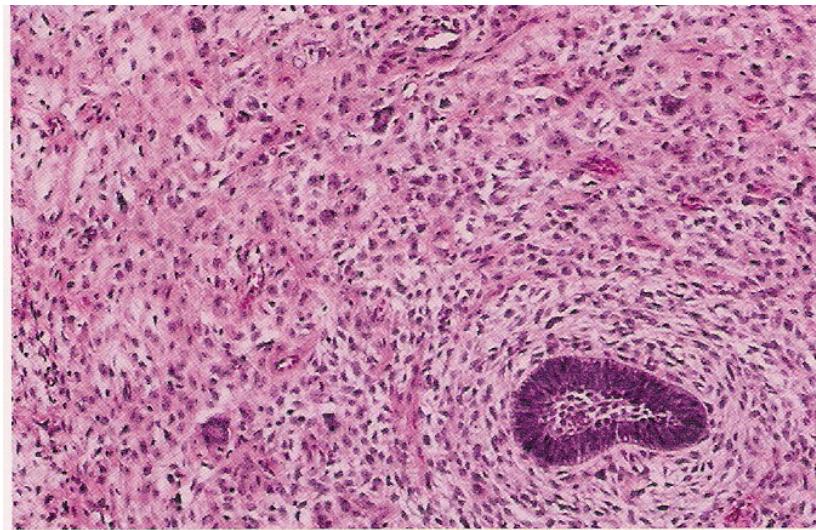
- Diffuse honey-comb radiolucency.

**Histologically:**

- Epithelial structures with malignant features are usually surrounded by zone of myxomatous connective tissue.

**Behavior:**

- Very infiltrative & has a high recurrence rate.



## 15. Ameloblastic Fibrosarcoma

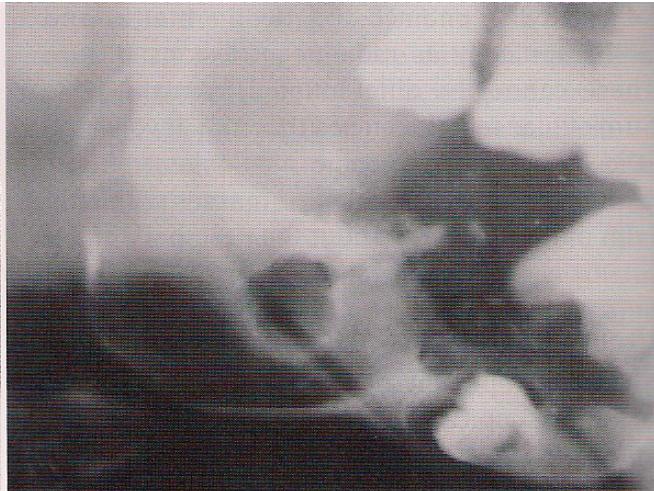
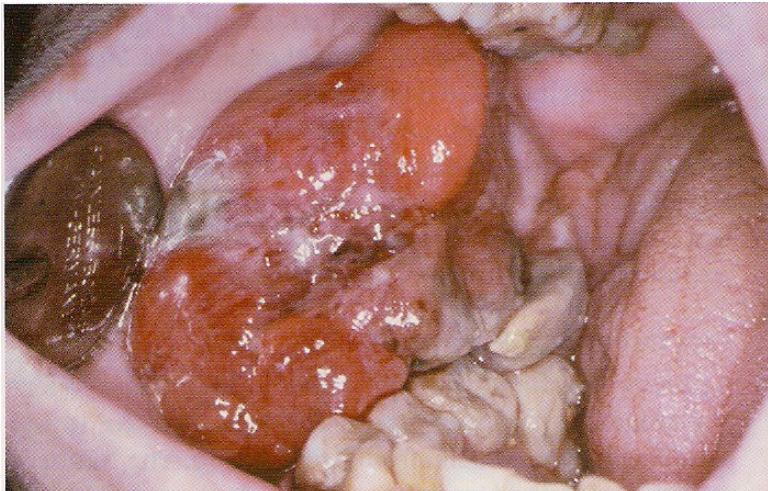
- Malignant counterpart of AF or arise *de novo*
- Only mesenchymal portion shows features of malignancy
- Affects young males , mostly in the mandible as rapid clinical growth.
- Pain , swelling and rapid growth with ill-defined destructive RL

### Microscopically:

- Epith. Components similar to that of AF
- Mesenchymal portion: Hyperchromatic, with bizarre pleomorphic cells & prominent mitosis

### Treatment:

Radical Resection



*That's all about it ??*

