Lec#10
Oral Pathology 2
Sarah Momani.
(Based on last year sheet)

Warthin's tumor

Another name for this tumor: papillary cystic lymphomatosum and it was named like this because of the cystic spaces with papillary projections from the wall and this wall contains lymphatic tissue
There's another name for the tumor: papillary lymphoma which is a wrong one (because it's not a lymphoma)
When you look at the wall it's like you're looking at lymph nodes
Note: there is normal lymphoid tissue in the wall and the proof is the active germinal cells you see when check the wall out, as we mentioned earlier it's like you're looking at lymph nodes.

- Second most common
- Origin, it most likely arises from epithelium entrapped within lymph nodes in salivary gland during development that's why it is sometimes called Adenolymphoma although it is wrong because actually this is not a lymphoma.
- Hamartoma, very benign tumor.

Clinically :

1) 7% of salivary gland tumors.
2) Occurs almost exclusively in the parotid gland, 9% of parotid tumors.
3) Slightly More common in females.
4) Bilateral in some cases
5) Multiple in the same gland (more than one focus).
6) Usually it appears in the tail of the parotid gland, near the angle of the mandible, you may diagnose it as cervical lymphadenopathy.
7) Smokers have an 8 folds greater risk than non-smokers

Generally, the **causes** of salivary glands tumors are multifactorial:
Genetics,toxic materials,radiation,viruses,cell phones and smoking.

- **Histologically :**
  a. **Grossly**
     I. Cystic spaces surrounded by fibrous capsule.
     II. Mucoid material inside cystic spaces.
     III. Papillary projections in the wall.
  b. **Microscopically :**

I. Two layers of epithelium; Basal cuboidal Cells & superficial columnar Cells.
II. Supporting connective tissue contains normal lymphoid tissue with active germinal centers, so you see lymph node and inside it epithelial proliferation.
III. Granular eosinophilic cytoplasm (Oncocytes).

Basal cell adenoma

-It was named like that because of the basal cells that are a component of this benign tumor-tumor
-75% in parotid
-Clinically similar to pleomorphic adenoma

Histologically:
Capsulated and composed of basoloid cells of different forms: solid, sheets and tubules
Oncocytoma: and it's a tumor that's
composed completely from oncocytes.

The main component of this tumor is prominent abnormal granular eoisnphilic cells **oncocytes ,** and this feature makes the tumor easy to diagnose.

-Mainly in the parotid gland
-Benign tumor
-Clinically similar to pleomorphic adenoma
-Could be bilateral as in warthin's tumor
-Histologically: it's a mainly cellular tumor (oncocyets arranged in solid sheets / cords or acinar pattern) with a thin capsule and it lacks a supporting tissue or a fibrous stroma

Canalicular adenoma:

-Benign tumor
-Note: it's different from all of the tumors mentioned earlier in its location (it's mainly in the upper lip and the others in the parotid gland)
-Almost exclusively in adults it's named canalcular because it's composed of canals almost exclusive in upper lip (different from the previous tumors which occur mainly n parotid gland)
-Rare in the major salivary glands, it's mainly a minor salivary gland tumor

Histologically:
1-epithelial proliferation arranged in elongated canals
2-capsule
3-cystic spaces as a result of degeneration of stroma

Differential diagnosis:
1-the first thing that crosses our minds as dentists is to explain the swelling in the upper lip with dental infection
2-cystic lesions such as mucocele and we might misdiagnose it as mucocele because of its locations, patients comes with a persistent chronic swelling in upper lip so you might think it's a mucoceleuse
Canals composed of cuboidal to columnar cells surrounded by a capsule and cystic areas caused by the degeneration of stroma (and when we open this tumor in surgery and look at it grossly it will look like a mucocele because of those cystic spaces but in fact these spaces contain remnants of tumor unlike mucocele)

Ductal papilloma :

-Rare tumor
-Similar to squamous papilloma that we took (in the oral cavity)

Types according the areas of appearance of papilloma:
A-opening of a duct in a gland *sialadenomapapilliferum*
B-inverted *ductal papilloma*
C-*intraductal papilloma*, usually inside the major ducts with signs of obstruction

Clinical presentations of ductal papilloma: obstruction of the duct of salivary gland

Malignant tumors of salivary glands:

Mucoepidermoid carcinoma:
The most common malignant salivary gland tumors
The most common major salivary gland malignant tumor
Not the most common minor salivary gland malignant tumor (the most common minor salivary glands malignant tumor is adenoid cystic carcinoma)
10% of all salivary gland tumors
10-15% of all salivary gland tumors
4^{th} to 5^{th} decade of life
50% in parotid 20% in palate
Clinically: it might appear as pleomorphic adenoma (swelling with normal skin or mucosa)
Or it might appear as signs of malignancy: (ulceration, invasion, destructions and neural manifestation paralysis in parotid gland / parasthesia or anesthesia in the palate, signs in the areas that the tumor reached if the invasion happened (bone resorption in teeth for example)

Histologically :
1-Since it's a malignant tumor it won't be well defined (without capsule) we can't determine grossly the end and the beginning of the tumor, this feature help us to differentiate between benign tumor and malignant ones without the microscope
2-invasion
3-composed of epithelium and spaces : mucous cells and cells similar to squamous epidermoid cells and the third type is intermediate between squamous and mucous and can be transferred to any of them
4-arranged as nests, diffuse sheets and cystic spaces

Prognosis: If we take a look at the tumor and we find more cystic spaces, more mucus cells, then it's a well differentiated low grade malignancy tumor with a local recurrence rate less than 10% and a 95% chance to a 5-year survival rate and a good prognosis.
But if the mucus cells were hard to detect and it took us a special stain (like PAS stain) and immunehistochemistry to see them then it's a poorly differentiated tumor and the epithelial cells will show signs of malignancy: pleomorphisim / hyperchromatic nucleus / large nucleus / high mitotic activity and abnormal mitosis.
The high grade mucoeperdmoid carcinoma has a local recurrence rate of 80% and a 5-year survival rate of 30%

Adenoid cystic carcinoma:

The second important salivary gland malignant tumor (after mucoepidermoid)
30% of minor salivary gland tumors
Most common minor salivary gland malignant tumor
3-6% of parotid gland tumors
Manly present as pleomorphic adenoma (at the beginning it will appear without ulceration as if it's a benign one but then there will be swelling and ulcers and those are the presentations that will push us toward thinking about malignancy , especially if the patient complained about anesthesia and parasthesia)
Signs of malignancy: pain, ulceration of skin and oral mucosa, facial paralysis and parasthesia because of nerve invasion
For example :Persistent ulcer of skin and oral mucosa / swelling in the palate with anesthesia or parasthesia and facial paralysis, when you see these signs and symptoms you must take a biopsy to confirm the diagnosis (knowing that ulcers are caused by several reasons ; for example : trauma, infection , benign tumor..Etc)

Patterns of the tumor:

1**-cribriform pattern:** the most common one
Epithelial cells, with lesser numbers of cystic spaces making it look like Swiss cheese or honeycomb (islands of cuboidal cells with hyper chromatic nuclei and multiple microcystic spaces that can't be seen grossly) and it has a poor prognosis
2**-tubular pattern:** ducal elements
3**-basaloid pattern**: islands of solid nests or sheets with minimal microcystic spaces, the worst prognosis
Neurotropism: Adenoid cystic carcinoma has poor prognosis because it has the ability to spared through marrow spaces easily and for a long distance (for example: in the maxilla) and it spreads around nerves (in lymphatic spaces around the nerve) increasing the local recurrence rate and causing surgical difficulties as well.
5-year survival rate of is 75%
10-year survival rate of 40%
20-year survival rate of 20% and this indicates that the recurrence can happen after a really long time (20 years) and that's why it needs a long-term follow up
Distant spread to lungs metastasis is more common than metastasis to regional lymph nodes , and it's a special feature fro this tumor which is the sequence of metastasis (sometimes distant places such as lungs witness earlier metastasis and regional places such as regional lymph node happen after that and this makes complete and general tests and scans a must)
Note: if there's metastasis then the prognosis will be worse.

Carcinoma ex pleomorphic adenoma:

And it happens to patients who had pleomorphic adenoma for long periods of time and left it untreated (long standing pleomorphic adenoma)
2-5 % of pleomorphic adenoma transform into malignant tumors:
1- Patients with pleomorphic adenoma present for 10-15 years
2-those with history of local recurrence (treatment followed by recurrence more than once)
Signs of malignancy: sudden pain, palsy, ulceration and rapid growth of tumor.
Most common site is parotid gland (because it's the most common site for pleomorphic adenoma)
Histologically: pleomorphic adenoma with signs of malignancy (carcinoma adjacent to pleomorphism)
Different types of carcinoma, adenoid cystic, mucoepedermoid, ssc and others
Prognosis:
Depends on whether the carcinoma is still inside the pleomorphic adenoma's capsule (good prognosis) or not (bad prognosis)

Polymorphous low-grade adenoCa:

- Polymorphous because there are variations in histopathology
- Low-grade : good prognosis
- mainly in the palate
- metastasis to regional lymph nodes occur in only 6-10 % of the cases so it is localized
- **histologically :**
  1) Cytologically benign-looking pale-staining Cells
  2) Different forms; Tubular, lobular, papillary, papillary cystic, Cribriform.

Acinic cell Carcinoma:

- acinar pattern
- low grade / high grade

Other carcinomas:

• AdenoCa (NOS)
• Basal Cell AdenoCa
• Squamous cell carcinoma
• Sebaceous Ca
• Undifferentiated Ca

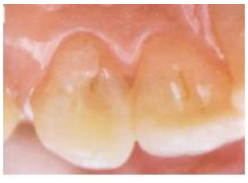
Salivary glands also have connective tissue component that makes tumors, e.g. lymphangioma, neurofibroma, and lymphoma.

Odontomes:

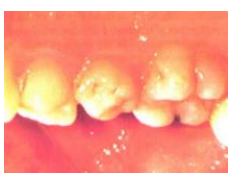
Defining Odontomes:
- They are developmental anomalies of teeth and some of them are hamartomas (collection of teeth substance that do not look like teeth).
- Not neoplasms
- *Few are classified as Odontogenic tumors (neoplasms).*

Types:

1. Invaginated odontomes:
case of an invaginated odontome:
The figure shows a deep lingual pit on the cingulum that is more extended than normal.



2. Evaginated odontomes:



- In other cases we can see evagination that opposes invagination where there is an accessory cusp coming out of the tooth structure, either in the cingulum area or between the cusps.
- This is sometimes associated with pulp extension.

3. Enamel pearl (enameloma)
4. Compound and Complex Odontomes

- **Invaginated Odontomes**

Clinically

- Most commonly seen in the upper lateral incisor.
Seen on the palatal surfaces, and when present they are associated with caries since they retain plaque and are difficult to clean.

- Most often occur bilaterally.
- Degree is variable; most cases are minor where clinically the shape of the tooth will not differ and we will only observe caries.
- Can sometimes be severe

So Invaginated odontomes have different types/degrees:

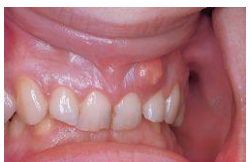
Type 1:
Observed as deep invagination within the crown and above the cementoenamel junction.

Type 2:
Is more severe and is below the cementoenamel junction; reaching the root.

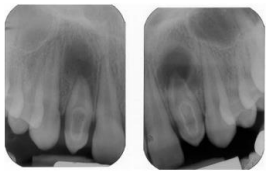
Type 3:
Extends towards the apex of the tooth reaching the periodontal ligament space.

Conclusion:
-The severity is variable.
-As the severity increases the shape of the tooth becomes more different and more dilated – called **dilated odontome**- The tooth becomes conical in shape.

Diagnosis:



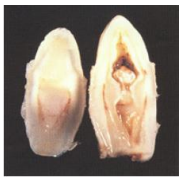
a- clinically caries are observed in the affected area.
b- Sometimes when caries are left for a long time the patient may present with pulpitis or a periapical lesion.
-The doctor showed an image of a patient diagnosed with a chronic alveolar abscess .Where we can see a sinus, parulis.
- Although the labial surface of the tooth appears normal, the palatal surface shows an invaginated odontome.
Note:
Invaginated odontome is a ***common*** *case, and we will come across it daily in the clinic.*
c- In other cases patients may present with dilated teeth.
d- Invaginated odontomes can also be found accidentally upon radiographic findings that were taken for another reason.



-This case shows type 2 invaginated odontome , notice that the extension is lined with enamel (opaque line).
-It is adjacent to the pulp therefore the accumulation of plaque leads to caries that will reach the pulp quite easily.
- As we said in severe cases the shape of the tooth becomes different.

So ***radiographic image*** *shows:*
- Invagination lined by enamel and is continuous with the surface.
- Appearance of a tooth within a tooth; known as dens in dent.

Histologically
- lined by hypomineralized enamel and dentine that is defective especially at the base; causing easy communication with the pulp.
- Before tooth eruption:
the follicle around the tooth shows connective tissue extending inside.



Notice how the root appears conical in shape.

Pathogenesis
- Unknown.
- Cingulum pit appears during the development of the dental papillae and

enamel organ.
- Proliferation of the enamel organ deeper than necessary into the dental papillae representing the early pulp.

- The type we mentioned affects the coronal part of the tooth (the crown).
- Another type affects the root and is called Radicular Invaginated Odontome and it is **rare**.

The radicular type is further divided into:
1. Axial infolding
- appears as an axial groove
- e.g. the tooth has only one root; it will appear as if it's dividing into two roots.

2. Saccular invagination
- extension of sac in root area, and is lined by enamel.

Q. what is the source of this enamel appearing in the root area?

- **Evaginated odontomes**

- As mentioned before, an extra cusp is seen possibly with an extending pulp.
-Can be seen in upper anterior teeth, where it is known as talon cusp which appears as a cusp on the cingulum area.
- There are some racial differences such as:
In lower premolars an extra cusp is commonly present in the groove between the buccal and lingual cusps in some areas in Asia.

Consequences of the extra cusp with extending pulp:

1.easy attrition
2.prone to early pulp exposure and pulpitis (before the root completion-open apex-)

-Most commonly seen in central incisors and premolars.

- **Enamel pearl (enameloma)**

-Small droplet of enamel most commonly seen at the bifurcation of maxillary molars.

Clinically

- It is below the gingiva so we can't see it, therefore it is asymptomatic**.**
- Seen after tooth extraction.
- <u>May</u> be seen in radiographic image as an area of radiopacity.
- In case of periodontitis, the progression in the area where the enamel pearl is located occurs faster and a deeper pocket is observed because this area will be more difficult to clean; the nodule aids in plaque accumulation.

✓ It is present in the root.
✓ May be completely made of enamel, or both enamel and dentine, and may also have pulp extension inside.

- **Compound and Complex Odontomes**

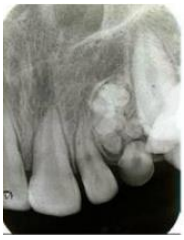
- Placed with the classification of **Odontogenic tumors**.
- They are not tumors but are hamartomas.

Q. what are hamartomas ?

- Hamartomas reach a fixed size; therefore do not resemble tumors in their growth.
- Growth usually occurs in the first and second decade in life.
- **Compound and Complex Odontomes** are usually associated with permanent teeth, mostly affecting 14 year old children**.**

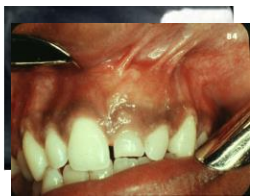
Compound odontomes

- Sac of several tooth-like structures/denticles, structure made of enamel dentine and pulp but are smaller and of a different shape than normal teeth.
-surrounded by radiolucent well defined margin; and this helps us in the clinical management and removal.



-Also they are not expected to recur after removal.
> Remember: Hamartomas are benign.
-Most common site is the intercanine area in the maxilla / anterior maxilla.

Complex odontomes



-Mass of haphazardly arranged enamel, dentine cementum and pulp. **(Age Calcification)**
-Do not resemble teeth
-surrounded by a radiolucent margin
-hard mass surrounded by a capsule so is easily removed by surgery
- cause complication of adjacent teeth, such as dilacerations, ectopic eruption or prevent the eruption of teeth.
- occur mostly in the premolar and molar region in the mandible, but may also occur in other areas.

Diagnosis

- patient may attend the clinic complaining from a missing tooth, impaction, or delay of eruption.
-odontome may replace missing tooth.
-in rare cases, patient may attend the clinic with an erupted odontome (looks like exposed bone).
- Patient may present with bone expansion in that region.
- Occasionally may appear accidently while taking a radiograph for another reason.

Radiographic image

- Initially there is no calcification (like teeth)
- In very early stage it presents as a radiolucent lesion with some radiopacity.
- As time passes calcification increases.
- At the end stage **complex odontome** appears as a complex, solid, radiopaque mass with a radiolucent zone.
-**Compound odontome** appears as a unilocular radiolucency containing multiple small denticles; variable in number.

Histologically

- **Compound odontome**

- Denticles are separated by fibrous tissue.
- Enamel dentine, cementum, pulp are normally arranged and surrounded by

follicles.
- All features resemble teeth, except that they are multiple with different shape and size.

- **Complex odontome**

-Very early stage appears cellular.
-Disorganized/haphazardly arranged well-formed mass of enamel, dentine, cementum and pulp.

Odontogenic tumors

*Odontogenic tumors are either benign or malignant**.***
Mainly epithelial tumors without mesenchyme and the most common one is AMELOBLASTOMA

- Benign tumors

further divided into epithelial or mesenchymal lesions.

Epithelial lesions :

1. without odontogenic mesenchyme.

- Origin is mainly from the odontogenic epithelium.
- Most important and most common type is **Ameloblastoma** -as important as pleomorphic adenoma in the salivary glands-
Ameloblastoma is the most important odontogenic tumor. It's benign bit locally invasive

-Other types that we might encounter:
2- Squamous odontogenic tumor.
3- Calcifying epithelial odontogenic tumor.
4- Adenomatoid odontogenic tumor.
5- Keratinizing cystic odontogenic tumor (according to WHO classification)

Recall: This is the Keratocyst that we have studied before; it is the most important cyst in regards to prognosis; with a high recurrence rate.
There was a debate about this cyst; it was placed under the title of odontogenic tumors, but
this year after many studies they agreed that it more closely resembles cystic

lesions.

2. with odontogenic mesenchyme

- Ameloblastic fibroma
- Ameloblastic fibro-dentinoma & fibro-odontoma
- Odontoameloblastoma
- Calcifying cystic odontogenic tumour
- Complex & compound odontomes

note: the tumor originates from both odontogenic epithelium and the mesenchyme of teeth.

Some tumors are purely from mesenchymal origin such as:

- *Odontogenic fibroma*
- Odontogenic myxoma
- Cementoblastoma

Note: This is the only tumor of the cementum.

- **Malignant tumors:**
- **Like ameloblastic carcinoma**

A. Odontogenic carcinomas

There are two malignant types of ameloblastoma
- Malignant ameloblastoma.
- Ameloblastic carcinoma.

*Other types of **odontogenic carcinomas**:*

-Primary intraosseous squamous cell carcinoma.

This is a lesion inside the bone, and sample from this lesion (not from the surface) shows features of squamous cell carcinoma.

-Malignant variant of other epithelial tumours.
-Clear-cell odontogenic carcinoma.
-Malignant change in odontogenic cysts.

B. Odontogenic sarcomas

- Ameloblastic Fibrosarcoma

- Ameloblastic fibro-odontosarcoma

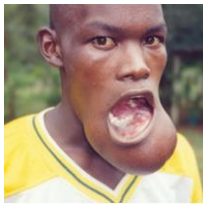
- **Tumors of debatable origin**

-Melanotic neuroectodermal tumor of infancy

-Congenital gingival granular cell tumor (congenital epulis)

recall: there is a granular cell tumor that affects the tongue.

✓ **Ameloblastoma**



-Most important

-It is the most common odontogenic tumor.

Recall: most common oral tumor is SCC.

- Benign but locally aggressive-local invasion-

-local invasion indicates a high recurrence rate and more difficult surgery where safety margins need to be considered.

Clinically

- Most commonly occurs in the 4th and 5th decade in life (middle-aged), but can also occur at any other age.

-No gender variations.

-Most common site is the posterior mandible -like keratocyst- .

- Slowly and gradually growing over time. (big size that grows in several years)

- If not dealt with, it might perforate the bone and extend into soft tissue; making the management more difficult in locating the margins.

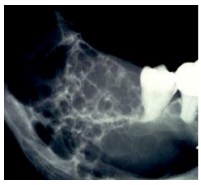
- Malignment, Displacement, resorption, impaction of nearby tooth might occur.

-Might affect occlusion.

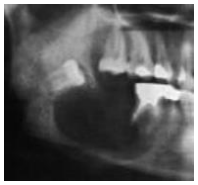
-Even in very severe cases, ulceration of the skin will not happen since it's not malignant.

- ✓ bone swelling not soft tissue in the mandible

Radiographic image



- ✓ -Mostly shows multilocular radiolucency, soap bubble appearance.
  -Root resorption.
  -May find impacted teeth.

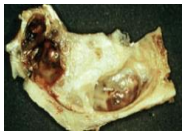


-In some cases it might appear unilocular
- This case might be confused with cystic lesions, but biopsy verifies ameloblastoma.

- ✓ Differential diagnosis= keratocyst but the difference is in swelling and expansion that's observed here and we don't see this in the keratocyst

- The solution is resection and grafting.
- Since it is invasive as we mentioned we take safety margins and therefore part of the mandible is also removed.

Grossly

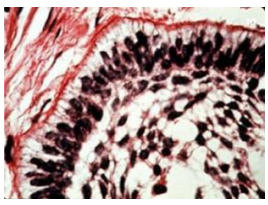


-It is not solid
- cystic spaces (multilocular appearance and not more than one tumor) ***containing*** mucoid or fluid material.

- It consists of more than one cyst that's why it appears multilocular on the radiograph.

Histologically

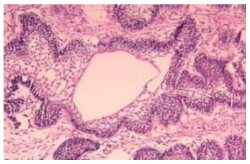
- Many patterns but **mainly two**



- ***Follicular pattern***

- Most important one and it looks like tooth germ

- Islands or follicles of epithelium against fibrous connective tissue stroma.
- Periphery of these islands differs from their centre; periphery contains columnar or occasionally cuboidal cells and the center contains angular cells.
Recall: in teeth development the enamel organ also showed this pattern where in the periphery we find columnar cells and in the centre we find angular or stellate reticulum.
- At a closer look at the columnar cells, the nucleus is seen away from the basement membrane, and this is known as **reversed polarity**.
-These columnar cells with reversed polarity resemble ameloblasts.

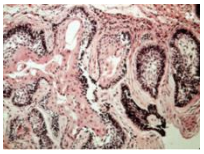


-degeneration of the angular cells in the centre causes the formation of **cystic spaces**.

-Then these cystic spaces soon grow causing the previously seen gross appearance.

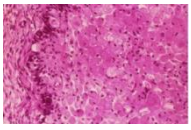
Note: the beginning of cystic spaces starts in the stellate reticulum like cells region in the follicles causing multilocular spaces.

-in some cases stellate reticulum do not undergo degeneration but undergo transformation into other type of cells such as squamous cells and form keratin.



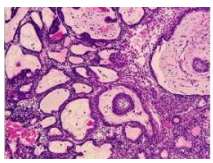
-The centre shows squamous cells
-this type of ameloblastoma is known as **acanthomatous** type of ameloblastoma. ***(Acanthomatous pattern)***
-keratin may be seen inside of the tumor.

- Some may show granular cell pattern as that seen in granular cell tumors.



Granular cell variant

- The other type is the ***plexiform pattern***
-the arrangement differs slightly but the cell content is the same.



- **Fishnet** arrangement of epithelium.

-same cell layers; periphery contains columnar or cuboidal cells and the centre contains angular / stellate cells.

-cystic changes do not occur inside of the follicles, but in the surrounding connective tissue between the cells (difference from the follicular pattern).

- **Rare** variants of ameloblastoma are the **desmoplastic variant and the basal cell variant.**

Pathogenesis of ameloblastoma:

- Since it resembles the enamel organ it is thought to be a result from the remnants of the dental lamina.

- **Are not ameloblasts**; if they were fully maturated ameloblasts they would have stimulated adjacent tissues to form dentine (note: dentine forms before enamel).

-Therefore, they are **Preameloblasts**.

Behavior:

no distant metastasis (benign tumor)

1-It is locally invasive causing destruction and perforation of bone**.**

Also causes displacement of teeth.

2- Acanthomatous pattern shows less recurrence rate, while other types have high recurrence rate.

-they should take safety margin in surgery because it might enter BM spaces

3- Pulmonary metastasis, *how can this happen if it's benign?*

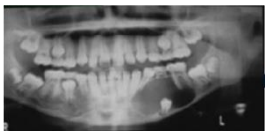
-here we have ameloblastoma and the same lesion in the lung

-*Explanation:* since it is locally invasive, recurrence is high thus surgery is performed more than once for the same tumor; as a result during surgery some parts might invade the lung and proliferate and cause the same focus of tumor (aspiration during surgery).

This condition is known as **malignant ameloblastoma -It is not a malignant tumor-**

Unicystic ameloblastoma:

Clinically



-It only contain one cystic space.

-We have to differentiate between this type and the multicystic type.
Note: the multicystic type is sometimes called solid tumor, although it is not really solid.

- **Unicystic ameloblastoma** (less severe than multicystic) is confused with and sometimes treated as if it's a cyst since:
- It occurs in younger patients
- Its' site is in the posterior mandible -the same as the keratocyst-
- appears unilocular in the radiograph.
- Might be found surrounding an impacted tooth.

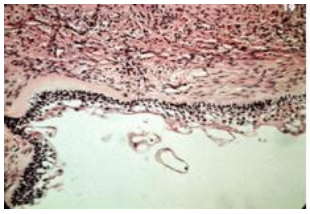
*all these resemble cystic lesion such as the radicular cyst, keratocyst or dentegerous cyst.

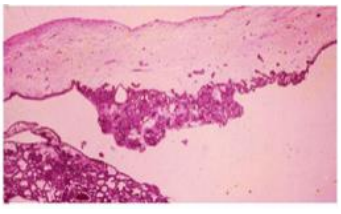
Histologically

- We will find <u>ameloblast like tissue</u>, and it has three different types of proliferation:

1. **lumina**l: found only in the lining.
2. **Intraluminal:** proliferation moves inwards.
-It is a good type since the mass can be entirely removed in surgery.
3. **Mural:** this is the worst type. Ameloblast like tissue proliferates towards the capsule.
It might invade surrounding structures; therefore some parts might be left behind in surgery causing a **high** recurrence rate/it has the highest recurrence rate.

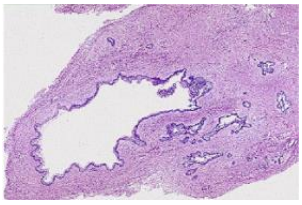
- Histological section shows dense fibrous connective tissue capsule, surrounding solitary fluid filled lumen.





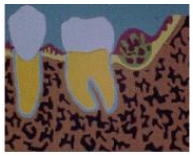
- Histological sections help us differentiate unicystic ameloblastoma from cysts

Important things that help us differentiate:
-In keratocyst we find pseudocolumnar parakeratinized epithelium.
-Ameloblast like cells with reversed polarity and stellate reticulum are features of ameloblastoma.



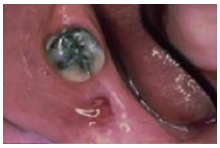
When a histological section indicates the mural type, pathologist must inform the surgeon to take a safety margin; in order to prevent the recurrence of this lesion.

Peripheral ameloblastoma



Solid and Unicystic ameloblastoma occur inside the bone while peripheral ameloblastoma occurs in soft tissue/gingiva.

Clinically



- **Peripheral ameloblastoma** is a solid, firm sessile nodule that might be confused with bony or benign connective tissue tumors (e.g neuroma, shwannoma)

Origin

-There are different theories regarding the origin; it is either originating from the basal oral epithelium or from the remnants of dental lamina.

Histologically

-Similar to intraosseous appearance seen before; can show follicular pattern, plexiform pattern and etc.

Prognosis

- It is less aggressive than the intraosseous type.

- ✓ *Note: If peripheral ameloblastoma is large, it might compress bone.*
- ✓ *Note: we won't be able to see it in the radiograph unless it was bone.*

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