**Principles of surgical management of jaw tumors (continued)**

Dr Zaid Baqain

**page5 in the slides :**

- The dr showed a picture that illustrate The marginal or segmental resection : here you take the margin with healthy border around it and we left the continuity of the lower border (no loss of continuity )

But in other aggressive tumors (where there's a perforation in the cortical plate) we do a partial resection and remove a full thickness portion of the jaw which lead to loss of continuity

the dr showed 1) a picture of a mass / swelling

Differential diagnosis : dental infection , tumor

how to exclude the dental causes of swelling :

1-vitality test

2-check mobility

3-check the presence of a cavity /recession

4-percussion test

We start by taking periapical x-ray to ensure that there's no dental causes of the swelling ,then you can take a panoramic x-ray or CT scan

MRI imaging is used in maxillofacial surgery only for : 1-TMJ problems or 2-soft tissue tumors .

We found that the previous pic is related to odontogenic tumor so we took a CT scan

2)axial cut of CT scan showing the mandible

There's a radiolucent , multilocular , poorly demarcated lesion located in the anterior mandible

We reach the **definite** diagnosis by taking a **biopsy**

The surgical procedure done was segmental/marginal resection

Frozen section 🡪 to know the diagnosis (when you haven't taken a biopsy before the surgery and you want to know the diagnosis on spot) you take a specimen and send it to the lab where they froze , section it and they tell you the diagnosis within 15-20 minutes .

3-panoramic x-ray showing a lesion that’s large , radiolucent , involving left ramus angle and body of the mandible, multiloculated causing resorption of the roots ,and impaction of 3rd molar

CT scan showed expansile tumor with evidence of perforation

All these are signs of aggressive tumor that require partial resection

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The WHO classification of odontogenic tumors :

1. Odontognic epithelium tumors without odontognic ectomesenchyme
2. Odontognic epithelium tumors with odontognic ectomesenchyme
3. Odontognic ectomesenchyme tumors ± Odontognic epithelium

Keratocystic odontogenic tumor ; it was classified as a tumor but recently they reclassified to a cystic lesion

Odontognic epithelium tumors without odontognic ectomesenchyme

**Ameloblastoma**

The most common odontognic neoplasm

Soild ,multicystic or unicystic

Aggressive Benign tumor

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**1- Soild ,multicystic**

Presentation : painless jaw swelling like most tumors-

-The most common site : Posterior mandible

4th-5th decades-

-Rx : signs of expansile radiolucent lesion but with aggressiveness , (multilocular , root resorption )

The following x-rays show different presentations of Ameloblastoma

\* periapical radiograph showing a radiolucency that’s extended in the periapical region in the posterior of the mandible , upon clinical examination if you noticed that it’s a hard mass with no fluctuation you should refer this case to the oral surgery ( as a GP you shouldn’t deal with these cases )

\* lateral oblique x-ray of the mandible (used in emergency rooms where there's no panoramic imaging)

Large , poorly defined , septated , mutilocular 🡪 signs of aggressive tumor

\*panoramic x-ray showing a radiolucent mass located in the left ramus angle and body of the mandible , its expansile

CBCT or CT scan?

In CT scan: You can modify the contrast to check the soft tissue , so we use it here to check if there's any perforation of the cortical plate

As in composite resection , soft tissues are resected so a conventional CT is needed

\*panoramic xray showing a Large, multilocular , lesion in the right ramus and angle of the mandible , causing displacement of teeth ,and ectopic wisdom position

\*coronal cut in a CT scan , you can see the same lesion and how its expanded to the cortical plate (its an ameloblastoma)

Subtypes :

* Follicular(the most common)
* Plexiform
* Desmoplastic (the most aggressive)

Clinical behavior : - slowly growing , causes bony expansion and even soft tissue perforation

Treatment :

Depending on the size of the growing mass you can choose the proper technique ( enucleation with curettage is not recommended as you have to take a safety margin )

They are recurrent but If you want to guarantee the lest recurrence rate do a segmental/partial resection .

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**Unicystic ameloblastoma**

More benign

Happens in a younger age groups

Unilocular and appear as a dentigerous cyst

Associated with unerupted teeth , thinly corticated can cause jaw expansion , histologically classified to : 1-luminal 2-intra luminal 3- mural (like solid)

The problem is that you discover the real diagnosis After excision ( its misdiagnosed as follicular or dentigerous cyst first )

You don't inform the patient unless its mural type of Unicystic Ameloblastoma

Peripheral Ameloblastoma : the doctor didn’t mention anything about it

Squamous odontognic tumor

* Very rare
* Located in Lower 3rd molar area
* Aggressiveness varies
* Tx :local resection

**Pindporg tumor \ calcifying epithelial odontognic tumor**

* You have to differentiate it from calcifying cystic odontognic tumor (in the mixed type of Pindporg tumor they look similar )
* Very rare
* More in men
* Lower premolar area/anterior maxilla
* Uni/multilocuar radiolucency , associated with impacted teeth
* Or it could be mixed ( with signs of calcifications)
* A pic of this tumor in the lower premolar area with signs of aggressiveness (resorption)

If you check the mobility , periodontal status ,vitality you'll find that teeth are vital 🡪 refer to surgery and don't do anything in such case as a GP

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 Histology : you need a good pathologist to differentiate it from intralveolous SCC

One of the signs of malignancy : the presence of abnormal mitotic activity , atypia and variation in the nuclei site , in the Pindporg tumor there's no abnormal mitosis but there's a variation in the nuclear size and staining so you need a good pathologist to tell you that it's not SCC

Clinical behavior :

* It varies so the treatment differs 🡪 if it was small ( enucleation with good solid curettage ) but if its larger you might need marginal/segmental resection depending on the size

**Adenomatoid odontognic tumor**

* Rare
* maxilla and anterior region
* Affects young group ( F>M)
* Could be superimposed on dentigerous/ follicular cyst ( it's so difficult to know which pathology has formed before the other one )
* The dentigerous/ follicular cyst could turn into tumor but
* If a patient present with an impacted tooth and an enlarged polyp you have to suspect the presence of a dentigerous cyst inside the tumor

Very benign and never infiltrates ( you just move it by enucleation and the patient will be fine as they never recur ) not like the previous two tumors .

* A picture of canine that has a follicular cyst around it , you take it out and notice that there's something solid in it ( adenomatoid tumor ) you don’t have to do anything in addition due to the presence of this tumor .

Epithelial odontogenic tumor with ectomesenchyme tissue

Ameloblastic fibroma

* Very rare
* Only one that doesn't show mineralization ( that helps in the diagnosis)
* Young age group
* Lower premolar area ( as in Pindporg tumor ) , mostly in the mandible
* Very likely to be associated with unerupted teeth , multilocular , causes jaw swelling

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* an example of ameloblastic fibroma that’s associated with unerupted teeth (young age ) and causes resorption

Treatment : complete excision vs preserving jaw bone and dentition (unlike adenomatoid odontognic tumor this is an aggressive tumor so the surgeon has to discuss the case with the parents decide whether to resect and damage teeth or just to enucleate and preserve tissue )

**Ameloblastic fibrodentinoma and ameloplastic fibro-odontome** ( they look similar **but behave differently )**

-the name indicates the histological components

-late adolescents /early adulthood

Ameloblastic fibrodentinoma :

-Associated with lower teeth (3rd molar region )

-symptomless but radio-opaque

Tx: removal of the associated tooth along with the tumor

 ameloplastic fibro-odontome:

* mixed( radiolucent +radio opaque) and unilocular
* limited growth potential after completion of tooth formation
* occasionally aggressive course casing resorption and expansion( the patient tell you that it grew fast in the last weeks )
* Tx : depending on the size if it was small you might treat it more conservatively

Odontomes ( complex and compound )

Compound : small denticles

Complex : arranged haphazardly

Radio-opaque , They can form anywhere , in young age goup

Tx : just take them out

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**Calcifying cystic odontogenic tumor**

* A mix ( mesenchyme + epithelium )
* unilocular
* occur in the anterior mandible and maxilla
* Histology : ghost cells ( read about it )
* Tx : more benign in comparison with the epithelial type so you just enucleate it and its very rare to recur ( you need a good pathologist to determine the type as the follow up differs between the two types)

Tumors originating from odontogenic ectomesenchyme

Odontognic fibroma

-stroma; unencapsulated mass of cellular fibrous tissue(no dental epithelium)

-wide age range

-more in the anterior region , unilocular , may cause resorption and displacement in teeth

Tx ; you just enucleate it ( if it was large and causes signs of aggressiveness you may do resection but fibroma is usually more benign than the myxoma )

Odontognic myxoma

-More common

-older age group

-More in the posterior mandible

-Radiological features depend on the size ( small🡪 unilocular , large 🡪 soap bubble appearance /multilocular )

* Pics showing different presentations of the myxoma

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**-**the recurrence is high

-gelatinous consistency

-tumor extend into neighboring marrow

- (the surgeon must have a safety margin )

Cementoblastoma

Tumor arises from cemenoblasts

The tumor has a continuous margin that’s surrounded by PDL space

Tx: extract the tooth along with the tumor , recurrence is rare

The dr advice us to study his lectures in a comprehensive manner (along with related radiology and pathology topics )

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