**Benign odontogenic lesions of the jaws**

**Lecture num. 9**

**Dr. Zaid**

Basic surgical goals : 1. Eradication of the pathological lesion

 2. functional rehabilitation of the patient

* Signs of inflammation: redness, hotness and swelling .
* Differential diagnosis for swelling :
1. Dentoalveolar abscess **: most common cause of swelling in the oral cavity** .( we can exclude this diagnosis by **testing the vitality, mobility, and measuring the PDL depth .**
2. Cysts
3. Tumors
* Most commonly taken X-ray in dentistry is an **OPG**
* Signs of aggressiveness: large , crossing the midline , causing resorption .

How to know the type of pathology :

1. FNA aspiration: has a problem with **specificity** and **accuracy**.
2. Biopsy**: before** biopsy we do **aspiration** to make sure that it is not filled with blood , **if filled with blood** refer the patient to do **CT with contrast or MRA** .

If we are not sure about the resorption we take a periapical xray or CBCT. (Differential diagnosis: A. root canal problem B. cysts C. tumor.)

When we have large lesion we need 3D images (CT)

Factors must be considered to determine the most appropriate type of therapy :

1. Aggressiveness of lesion : prognosis is related more to the **histologic diagnosis** , which indicates **the biologic behavior** of the lesion .
2. Anatomic location of lesion: A) maxilla vs mandible : maxilla, can grow to large size 🡪 late presentation.

B)proximity to adjacent vital structures

C)size of the tumor 🡪affect the surgical procedures

1. intraosseus vs extraosseous location 🡪 cortical perforation and soft tissue invasion indicates aggressive tumor.
* extraosseous lesions are more dangerous than intraosseous lesions.
1. Duration of the lesion : slowly growing 🡪 benign
2. Reconstructive efforts : reconstruction should be considered in the **planning phase,** (may affect the surgical procedure )
* (In reconstruction, we should have an area that receives at least 3 screws).
1. Origin of the tumor
* Enucleation : is the process by which the total removal of a cystic lesion is achieved (shelling –out of the entire cystic lesion without rupture) , mainly used for cysts.
* Enculeation with curettage : means that after enucleation a curette or bur is used to remove 1 to 2 mm of bone around the entire periphery of the cystic cavity .

**Advantage:** of curettage : eliminate remnant cells , reducing risk of recurrence .

**Disadvantage :** damage of neighboring vital structures.

* **Resection:** make cuts with a saw or fissured bur , we remove the pathology with a littke bit of the surrounding tissues.

Types according to severity :

1. Composite resection : **most severe one** , used for **malignancy** and when **safety margins are needed**
2. Marginal or segmental :**maintain continuity of bone** .

It’s a **subperiosteal resection** , we elevate **periosteal flap**

1. Partial resection : here there **is loss of continuity**
2. Total resection : **early malignant tumors like ameloblastoma.**

For keratocyst : we **don’t** do for sure **composite resection and enucelation** , at least for a small keratocyst we go for **enucleation with curettage** . **0% recurrence can be found with partial/segmental (complete) resection.**

* **Jaw tumors treated with enculation , curettage or both** :Tumors with **low rate of recurrence** can be treated with **enucleation or/and curettage** (odontomas, ameloblastic fibromas, ameloblastic fibro-odontomas, keratinizing and calcifying odontogenic cysts, adenomatoid odontogenic tumors, cementoblatomas and central cementifying (i.e., ossifying fibromas)).
* **Jaw tumors treated with marginal or partial resection:** lesion determined to be **aggressive** , by **histopathologic determination or by its clinical behavior** , or if it is of such a **consistency that total removal by enucleation , curettage , or both would be difficult** , removal may be facilitated by resecting the lesion **with adequate bony margins .**
* **Technique :** the resected specimen should include **the lesion and 1-cm bony margin around the radiographic boundaries of the lesion .**

If this can be achieved with the inferior border of the mandible left intact , marginal resection ( i.e.., segmental ) is preferred .

If the lesion is close to the inferior border , the full thickness of the mandible must be included in the specimen, which disrupts mandibular continuity **( partial resection)**

|  |  |  |
| --- | --- | --- |
| **Enucleation and/or curettage**  | **Marginal or partial resection**  | **Composite resection**  |
| Odontoma  | ameloblastoma | Malignant ameloblastoma |
| Ameloblastic fibroma | Calcifying epithelial odontogenic tumor | Ameloblastic fibrosarcoma |
| Ameloblastic fibro-odontoma |  | Ameloblastic odontosarcoma |
| Adenomatoid odontogenic tumor | myxoma | Primary intraosseous carcinoma |
| Calcifying odontogenic cyst | Ameloblastic odontoma |  |
| Cementoblastoma | Squamous odontogenic tumor |  |
| Central cementifying fibroma |  |  |

* **Surgical technique for marginal (i.e., segmental ) resection**

A **full thickness mucoperiosteal flap** is developed and stripped from the bone to be removed .

**Air-driven surgical saws or burs used to section the bone .**

**Whenever marginal or partial resection is** used the clinician must determine whether **the tumor has perforated the cortical plates and invaded adjacent soft tissue** in which case **it is necessary to sacrifice a layer of soft tissue to eradicate the tumor and a supraperiosteal dissection of the involved bone is preformed .**

**Immediate reconstruction is more difficult because enough remaining soft tissue may not be available to close over the bone grafts.**

* **Flaps:** **Zigzag flap** which is indicated in **lesions occupying at least 2/3 of the full length of the lower lip.**

If the lesion occupies just **one third of the lip**, other types of flaps are indicated like: **Abbe flap**

* **Frozen section :** to check the adequacy of the soft tissue surgical margins around the lesion.

It is preformed in **20 min** by freezing the tissuein **liquid carbon dioxide or nitrogen.**

**Benign odntogenic lesion of the jaws**

**Lecture num. 10**

**Dr. Zaid**

**In any lesion** you have to describe the following:

* Size of the lesion (small/ large).
* Site of the lesion (max./man., ant./post.)
* Proximity to vital structure and its effect on them (nerves).
* Effect on teeth (resorption, displacement).
* Shape of lesion (uni/multi locular, well defined or not, corticated or not, expansile or not, if expansile does it invade the soft tissue or not).
* You have to take an incisional biopsy for the lesion And do further radiography (CT or soft tissue projections) to reach to more detailed information about the lesion, and if you find tissues inside the lesion then it’s a tumor not a cyst.
* Note: In the maxilla mainly we do partial or total maxillectomy ,but notice that if we did not enter the maxillary sinus it’s a Marginal resection, but if we do, it’s a Partial resection, and if we remove the whole maxilla it’s a Total resection.
* Not in all radiolucent lesions you take a biopsy, specially if it was small and looks benign.

**1 . Ameloblastoma** : **most common** **odontogenic** neoplasm , it is benign but sometimes it's locally aggressive

* The **most common** benign odontogenic lesion is **Odontomes** which is considered as hamartomas not tumors
* 2 categories : 1) **solid/multicystic** : jaw swelling , painless, mandible/3rd molar region , 4th and 5th decade.

Cortical expansion/thinning/erosion/multilocular radiolucency, **and root resorption is common .**

**Clinical behavior :** slowly growing , bony expansion , even soft tissue penetration **.**

**Treatment: excision with 1 cm clearance beyond radiographic margins .**

 2**) unicystic**: 2nd or 3rd decade , dentigerous, M3 regoin

 (any dentigerous cyst we find and LEAVE it without treatment will either expand more and weaken the bone OR developed into a unicystic ameloblastoma).

**RX** : Unilocular, unerupted tooth , thinly corticated+/- jaw expansion .

**Treatment**: diagnosis usually after excision.

**2. peripheral ameloblastoma** : painless, slowly growing gingival swelling , adults

**Treatment**: **curettage**

* **Epithelial odontogenic tumors that include a contribution from odontogenic ectomesenchyme :**

**Complex and compound odontomas** : both are **hematomas**

Formed by all components of teeth , different stages of development and disorganized

**Complex : odontogenic tissue arranged haphazardly**

**Compound : tooth –like structures ( denticles)**

**Radio-opaque**

**M3 , PM and midline regions**

1st and 2nd decade of life

* **Tumors originating from odontogenic ectomesenchyme**
1. **Odontogenic myxoma : more common , peak 2nd – 4th decade , posterior mandible**

Small unilocular , large multilocular ‘soap bubble appearance’

**Aggressive**

**Why recurrence is high**? 1. Gelatinous consistency , spillage 2. Tumor extend into neighboring marrow 3.spillage when performing incisional biopsy .

1. Cementoblastoma : wide age range usually 10-30 yrs , lower 1st M , **Slowly enlarging , teeth vital .**

**RX: radio-opaque , fused with apices, surrounded by PDL space**

**Treatment : surgical removal with the associated tooth , recurrence is rare .**

**Management of non-odontogenic tumors**

**Lecture num. 11**

**Dr.shayyab**

* Benign tumors or even malignant ones don’t show any signs or symptoms until later stages or if they got super infected
* **Radiographic features:**

 1. Well demarcation or cortication is characteristic of benign tumors..

2. displacement (whether mild or severe): benign feature, non cystic

 3. Clinical picture: benign tumors do respect the neurovascular bundle, it may push them (displace them) but never penetrates them. **So when a parasthesia (neuro) or a non-healing ulcer (vascular) is detected, malignancy here is more probable than a benign tumor**. These signs are considered very important to check when dealing with any tumor clinically

**Malignant Tumors of the Oral Cavity**

**Types & Presentations**

**Lecture num. 12**

**Dr. Ashraf**

Approximately **90%** of oral cancers are **primary squamous cell carcinomas** arising from the lining mucosa of the mouth, most **commonly the tongue and the floor of the mouth.**

**Early signs and symptoms of oral cancer**

Include :1. persistent mouth ulcers (frequently painless)

 2. warty lumps and nodules,

 3. white, red, speckled or pigmented lesions

**Lymph nodes enlargement and difficulty in swallowing mostly appear as a late signs**.

 **Any new oral lesion that persists longer than 3-weeks should be referred for an urgent specialist opinion and possible biopsy**

Adjunctive use of 1% Toulidine Blue mouthwash can assist in the identification of high-risk patients/lesions.

 Approximately 6% of patients with oral cancer **present with an enlarged cervical node** as their only symptom. **All such neck lumps require fine needle aspiration cytological (FNAC) examination** which in expert hands FNAC has diagnostic accuracy of over 94%.

**What are the characteristics of an ulcer caused by malignancy?**

* Ill-defined
* Painless
* Indurated
* Elevated borders
* Fixed to the underlying tissue

These characteristics get the clinician to suspect a malignant cause

* If it was a coloured lesion and ulceration or colour changes started then this may also make the clinician to suspect a malignant tumour
* **A typical site of the cancer in the oral cavity is the lateral borer of the tongue**
* **Risk factors**
1. Tobacco
2. Alcohol is an independent risk factor for oral cancer and also acts synergistically with tobacco in an additive or multiplicative fashion. **Because alcohol causes thinning and erosion to the mucosa, and this causes absorption of chemicals such as the “TAR” found in the tobacco smoke** **causing greater risk.**
3. Sun Light:
4. Chronic irritation
5. Lack of fruits and vegetables in diet
6. Alcohol-containing mouthwash
7. Human papillomavirus (HPV) infection
8. Premalignant conditions
9. Immune system suppression
10. Chronic iron deficiency : is related **to Plummer-vinson syndrome that causes malignancy in the esophagus and pharynx**
11. Oro-dental factors such as poor oral hygiene, dental neglect, dental caries, periodontal disease and ill fitting dentures may be risk factors but the evidence is largely anecdotal
12. Previous treatment with radiotherapy to the head and neck region (for example for Hodgkin's disease) may be a risk factor in the subsequent development of a primary head and neck carcinoma, eg thyroid cancer
* **Prognosis:**

**The status of the cervical nodes is the most important prognostic indicator of survival for patients with oral cancer.**

* **The development of nodal metastases halves the 5-year survival rate.**
* Oral cancer can **metastasize** to multiple areas in the body like the lungs **but the most common site is the lymph nodes**.
* **Factors influence the Prognosis:**
* Early Vs late diagnosis
* Extent of disease
* Site: **the more anterior the better prognosis as it’s detected earlier**
* Pathology depends on the differentiation of the cells, **the more differentiated is better than poorly differentiated**
* Age
* Treatment
* **Most important point in the prognosis for oral cancer is the early detection**
* the level of differentiation of the cells, **the more differentiated the better prognosis**