

Carcinoma of Tongue

- * **Incidence:** Usually in males above 50 years.
- * **Predisposing factors:**
 - A) Sepsis, spirits, smoking, syphilis, spices (**5S**), tobacco chewers & lack of oral hygiene.
 - B) **Precancerous lesions:** Dental ulcers ,Leukoplakia, benign tumors, chronic superficial glossitis and Plummer Vinson's syndrome.



- **Pathology:**

- A) Site:**

1. **Sides of anterior 2/3** of the tongue is the commonest site.
2. Less commonly tip or posterior 1/3 of the tongue.

- B) Dross picture-:**

1. Malignant **ulcer:** commonest (describe it).
2. Malignant **nodule.**
3. Cauliflower type.
4. Diffuse type → woody tongue.





C) Microscopic picture:

1. **Squamous cell carcinoma** (90%) with no cell nests denoting a **high** degree of malignancy, the commonest.
2. Basal cell carcinoma or adenocarcinoma (from minor salivary glands) are Rare.

D) Staging : TNM.

T: Primary tumor:

- T₀: No evidence of tumor.
- T_{is}: Carcinoma in situ.
- T₁: less than 2 cm.
- T₂: 2-4 cm
- T₃: more than 4 cm.
- T₄: Base involvement.

N: Lymph nodes:

- N₀: No palpable L.Ns.
- N₁: Ipsilateral single node less than 3 cm.
- N₂: Ipsilateral or contralateral nodes less than 6 cm.
- N₃: L.Ns larger than 6 cm.

M: Distal metastasis:

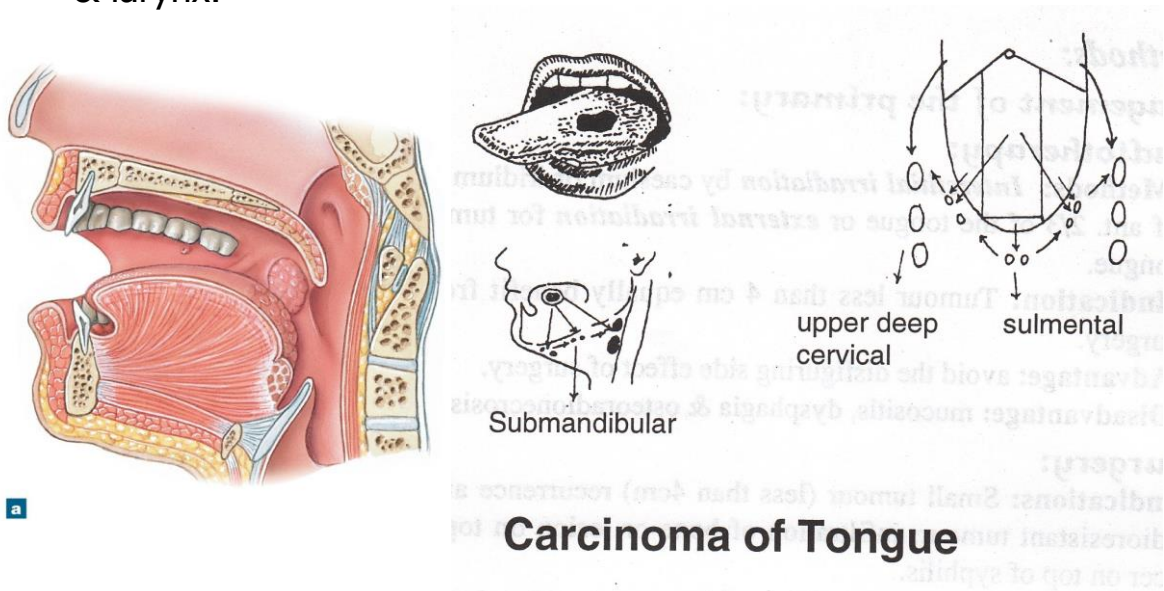
- M₀: No distal metastasis.
- M₁: distal metastasis.

* Complications:

I) Spread:

A. Direct spread :

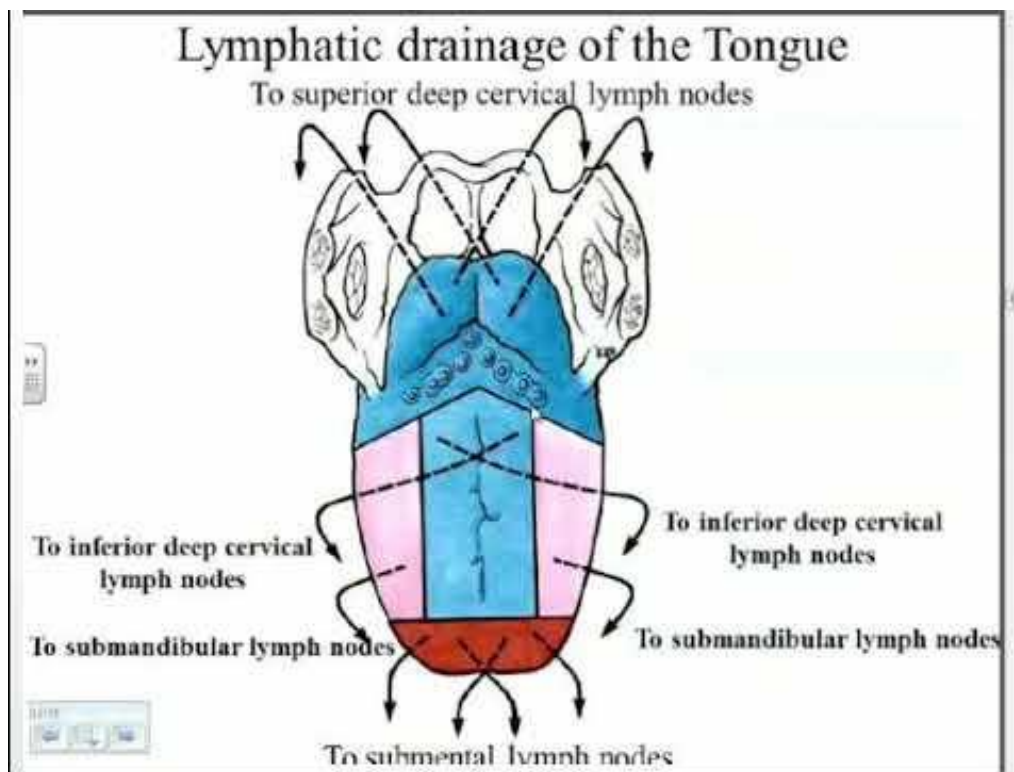
- Carcinoma of **anterior 2/3**: To the rest of the tongue, then floor of mouth, gums & mandible.
- Carcinoma of **posterior 1/3**: To the soft palate, tonsil, pharynx & larynx.



B. Lymphatic spread :

- **Common** and early because tongue is **mobile** and **rich** in lymphatics.
 - a) Lesion in the **tip** → **submental** L.Ns → **submandibular** L.Ns bilaterally.
 - b) Lesion in the **anterior 2/3**:
 - 1- Lesion in **one side** → ipsilateral **submandibular** L.Ns.
 - 2- Lesion in the **centred one cm** → submandibular L.Ns **bilaterally** .

- c) Lesion in the **posterior 1/3** : **Upper deep** cervical bilaterally.
- Spread from submandibular L.Ns → ipsilateral upper deep cervical L.Ns (particularly jugulo-digastric L.N) → ipsilateral lower deep cervical (particularly jugulo-omohyoid L.N).



C. Blood spread: Rare, more likely from tumor of posterior 1/3.

2) Dysarthria & dysphagia due to fixity of tongue

3) Haemorrhage: due to erosion of lingual vessels in tumor of anterior 2/3 or internal carotid artery in tumors of posterior 1/3 ,

4) Inhalation pneumonia and bronchopneumonia.

5) **Respiratory** obstruction due to oedema of glottis or compression of respiratory passage by enlarged nodes.

6) Infection, anaemia , cachexia & death.

* **Clinical picture:**

I) Symptoms:

1- Usually the patient complaining of **rapidly growing ulcer** in tongue.

2- **Pain: is late.**

- ♣ Local in the **tongue** due to infiltration of lingual nerve .
- ♣ **Referred** to the ear , auricle and temple along the chorda tympani and auriculo-temporal nerve.

3- **Excessive salivation:** blood stained saliva dribbles from the mouth.

4- **Foul breath** due to infection & necrosis.

5- **Difficult swallowing** and difficult **speech**.

6- **Haemorrhage** due to erosion of lingual or internal carotid vessels.

7 - Enlarged **L.Ns** in the neck.

8 - **Ankyloglossia:** The tongue cannot protrude fully and deviated to the affected side due to infiltration of the muscle of tongue or floor of mouth.

II) **Signs:**

1- Lesion in the **anterior 2/3** or tongue show:

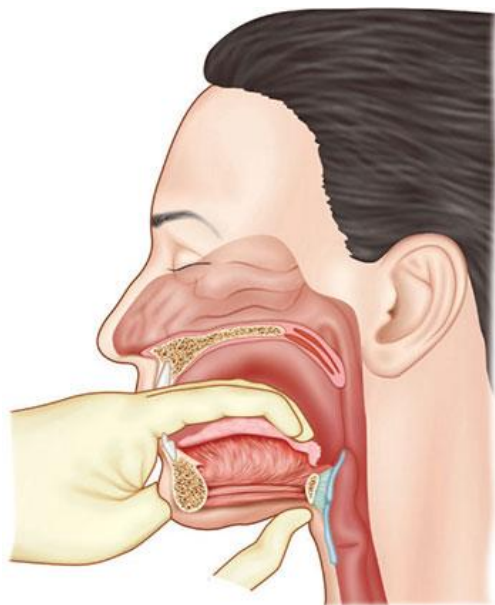
- ♣ **Malignant ulcer** (describe it), raised indurate nodule or deep indurated fissure.
- ♣ Enlarged cervical **L.Ns** which are hard first mobile then become fixed.

2- Lesion in the **posterior 1/3** of tongue:

- ♣ The lesion cannot directly seen but **palpated** by the index finger while insinuating the other index in the patient's cheek.

- ♣ Indirect **laryngoscopy**
is done to visualize the lesion.





* **Investigations:**

1. **Biopsy:** from the edge of ulcer.
2. **FNAC** from enlarged cervical L.Ns.
3. **C.Tscan** & MRI to detect extent of the tumor.
4. **Chest X-ray** to detect lung metastases and pulmonary infections.
5. **Laryngoscopy** especially for cancer posterior 1/3 of tongue.
6. **Metastatic work up.** (Mention)

* **Treatment :**

I) Early operable cases:

• **Features:** No or mobile L.Ns, no distal metastases & good general condition.

• **Methods:**

A) Management of the primary:

a) Radiotherapy:

• **Indication:**

- ♣ Tumor **less than 2 cm** (T1) **equally** benefit from radiotherapy or surgery.
- ♣ **Larger** tumor is treated by **both** surgery & postoperative radiotherapy.
- ♣ Tumors of posterior 1/3 of tongue.
- ♣ Unfit or refusing surgery.
- **Advantage:** avoid the disfiguring side effect of surgery.
- **Disadvantage:** mucositis, dysphagia & osteoradionecrosis.

b) Surgery:

- **Indications:** Small tumour (less than 4cm) , recurrence after radiotherapy or radio-resistant tumor, infiltration of bone or lesion on top of leukoplakia .
- **Pre-operative** preparation: Mouth washes, extraction of carious teeth, ligation of lingual artery or external carotid artery to minimize bleeding and tracheostomy.
- **Method:**
 - ♣ **Glossectomy:** excision of the tumor with 1.5 cm safety margin. Nowadays , this is followed by tongue reconstructive surgery .
 - ♣ **Extent of glossectomy:**
 - 1- Tumor in the **anterior 2/3 of tongue:** → partial glossectomy (for small lesion) , hemiglossectomy or near total glossectomy (for large lesion).
 - 2 - For tumor in the **middle line** or in the **posterior 1/3** of tongue → total glossectomy (median mandibulotomy will facilitate oral resection).

3- **Commando operation:** (**combined mandibulectomy and neck dissection operation**):

- **Indication:** Affection of the floor of mouth or mandible.
- **Method:** The following structures are removed in one mass.
 - Excision of the tongue with the infiltrated part of the floor of mouth & mandible with safety margins .
 - Total block neck dissection on ipsilateral side.
 - Closure of the defect by various plastic procedures as pectoralis major myocutaneous flap.

c) Post operative radiotherapy and chemotherapy :

- **Indications:** Large tumor , positive nodes , positive or close margin or recurrence after surgery .

B) Management of L.Ns metastases :

- If the L.Ns are palpable or LNs biopsy is positive **modified neck dissection** is done on the ipsilateral side.
- **If bilateral enlarged L.Ns: Modified neck dissection** on the more affected side & after 2 weeks as a **selective block neck dissection** is performed on the contralateral side.
- **Post operative radiotherapy and chemotherapy if +ve nodes.**

II) Inoperable cases: (fixed L.Ns or distal metastases).

1. Palliative radiotherapy & chemotherapy
2. Palliative resection of the primary.
3. Control of pain.
4. Tracheostomy for respiratory obstruction.

Jaw Swellings

* **Classifications :**

I) Epulis :

- It is a swelling of the mucoperiosteum of the gum.
- It includes fibrous, myeloid, granulomatous, sarcomatous and carcinomatous epulis.

II) Odontomes :

- Tumors or cysts related to remnants of development of teeth.
- It includes dental cyst , dentigerous cyst and adamantinoma .

III) Bone tumors :

- **Benign:** Osteoma , chondroma and giant cell tumor .
- **Malignant :** osteogenic sarcoma , fibrosarcoma , metastases and malignant tumor of maxilla .

Epulis

* **Definition:** Any localized swelling of mucoperiosteum of the gum.

* This may be one of the followings:

	1) Fibrous Epulis	2) Myeloid epulis (giant cell epulis)	3) Granulomatous Epulis
	The commonest type.	Less common.	Less common.
Origin	Localized inflammatory hyperplasia of submucosa of gum due to irritation by carious tooth.	It is a giant cell tumor arising from the inner osteoclastic layer of the periosteum.	It is a septic granuloma in relation to a carious tooth.
Histolog	Fibrous mass covered by hyperplastic squamous epithelium.	Osteoclast giant cells, thin walled vessels and fibrous tissue stroma.	Mass of granulation tissue, C.T & inflammatory cells devoid epithelial covering .

Surgery of Common Oral Disorders

Clinical Picture	Painless, slowly growing pale red or white, pedunculated, smooth, firm swelling which does not bleed on touch. It lies between 2 carious teeth.	Painless, rapidly growing, redish blue, sessile, lobulated, soft swelling which bleeds on touch. Fixed to the bone. The related teeth are separated & loose.	Painful, slowly growing, yellowish red, pedunculated, soft, lobulated, swelling which bleeds on touch. It is related to carious tooth. L.Ns may be firm, mobile & tender.
Treatment	Treat the related teeth then excision of the swelling with a wide base of the related mucoperiosteum.	Excisin with a wide safety margin.	Excision using diathermy with treatment of carious tooth.



Fibrous Epulis



Myeloid epulis



Granulomatous Epulis



Malignant Epulis

4. Malignant Epulis:

- This may be carcinoma (squamous cell carcinoma from the mm) or sarcoma (parosteal fibrosarcoma arising from outer fibrous layer of periosteum).

• Clinical picture :

- ♣ Hard, rapidly growing, ill defined , large, sessile mass or malignant ulcer (describe it), ulcerated irregular surface fixed to bone with separated loose related teeth.
- ♣ L.Ns may be enlarged, hard, mobile and later on fixed.

• Investigations:

1. **Plain X ray:** May show infiltration of bone.
2. **C.T scan.**
3. Excision **biopsy.**

• Treatment:

I) Operable cases:

A) Management of the primary: Hemimandibulectomy & mandibular reconstruction.

B) Management o/ L.Ns:

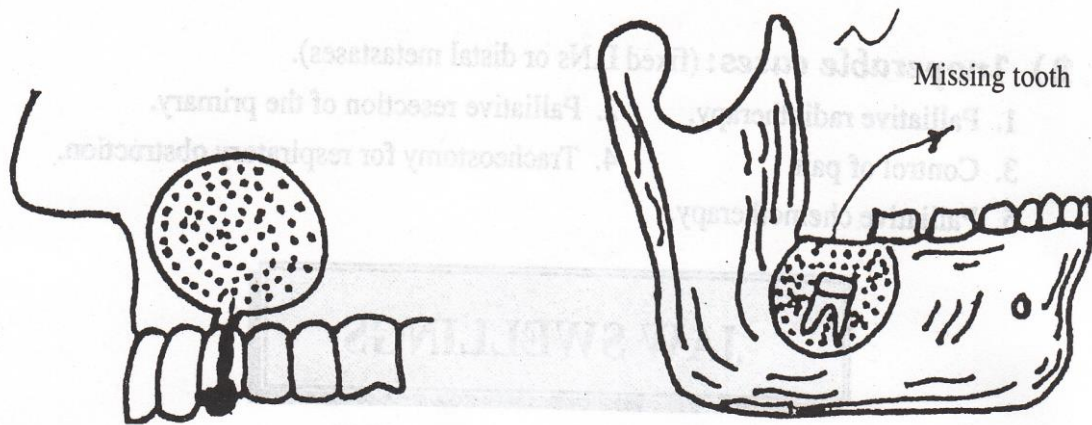
- a- **Palpable** L.Ns: Modified **neck dissection** (i.e. **COMMANDO** operation as it **combined** with **mandibulectomy**).
- b- **Impalpable** L.Ns: follow up with no prophylactic neck dissection except with large tumour, poorly differentiated or difficult follow up.

II) **Inoperable cases:** Palliative resection, chemotherapy or radiotherapy.

Odontomes

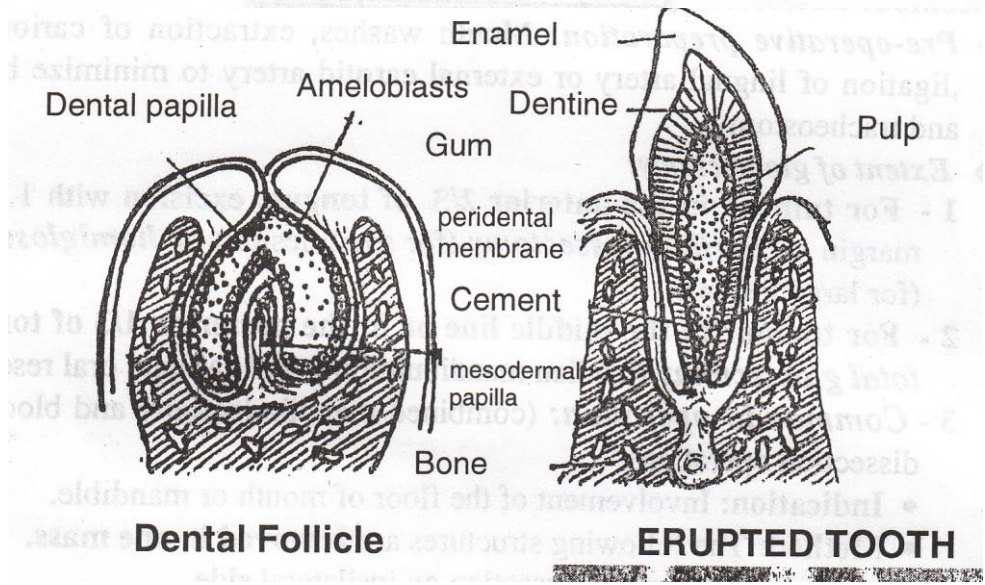
* **Types:** Only epithelial odontoms occur in man & they include:

	1) Dental cyst	2) Dentigerous cyst
Aetiology	<ul style="list-style-type: none"> Irritation of paradental epithelial debris of Malassez by a carious tooth. 	<ul style="list-style-type: none"> It is due to cystic degeneration of dental fallicles → unerupted tooth.
* Pathology :A unilocular cyst lined by squamous epithelium and filled with clear or brownish fluid .		
* Complications: Enlargement with loss of teeth, infection and pathological fracture.		
Clinical picture	<ul style="list-style-type: none"> Age: Usually in adult. Incidence:Common. Site :More common in the upper jaw, related to normally erupted carious (canine or incisor) tooth. 	<ul style="list-style-type: none"> Children or adolescent. Uncommon. More common in the lower jaw, related to unerupted (3rd molar) tooth.
	<ul style="list-style-type: none"> Painless, well defined ,slowly growing but may reach large size, smooth swelling which expanding the jaw & it is first hard but later on may give egg shell crackling sensation. 	
X-ray	<ul style="list-style-type: none"> Panoramic view show well defined radiolucent area. 	
		With a tooth in its depth.
Treatment	<ul style="list-style-type: none"> Extraction of related tooth with transoral enucleation or deroofting of the cyst with removal of fluid & lining epithelium. The expanded jaw is crushed to restore its shape. 	



Dental Cyst

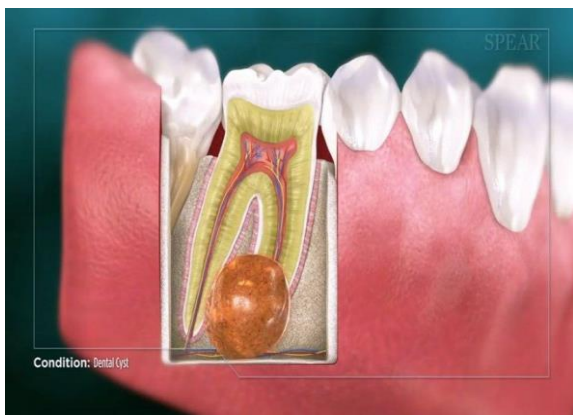
Dentigerous Cyst

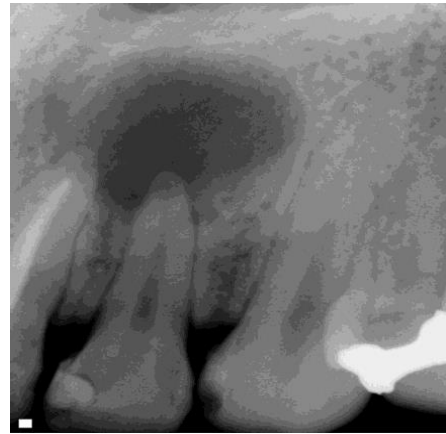


Dental Follicle

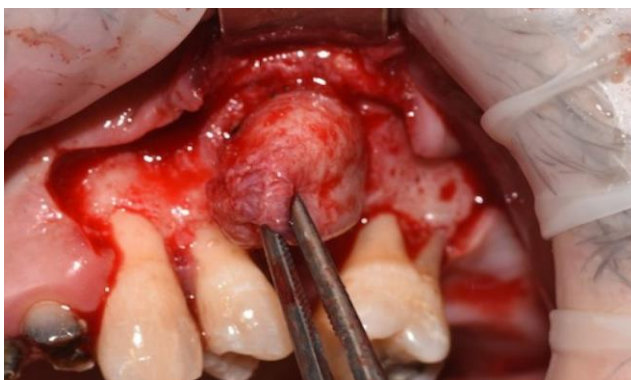
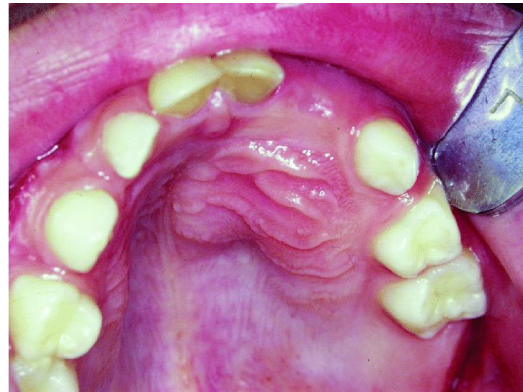
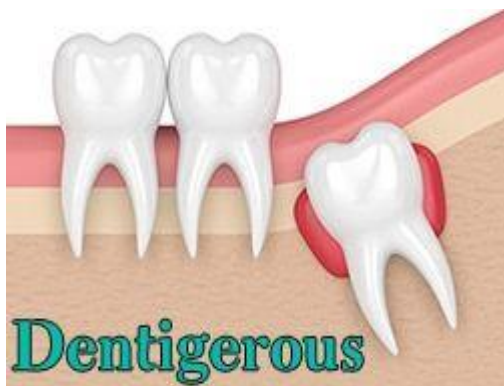
ERUPTED TOOTH

Dental cyst





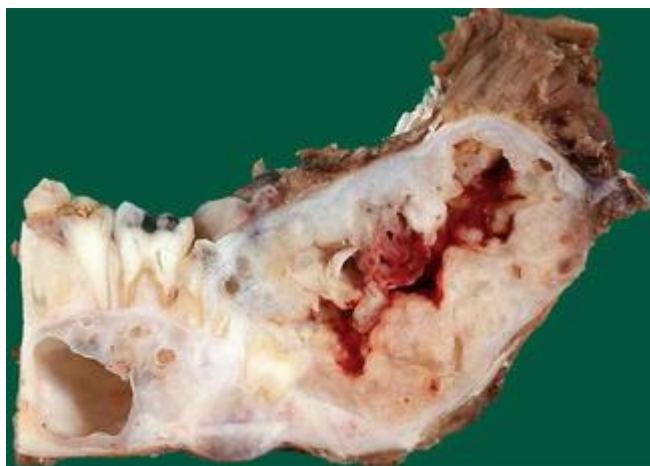
Dentigerous cyst



Treatment of dental and dentigerous cyst

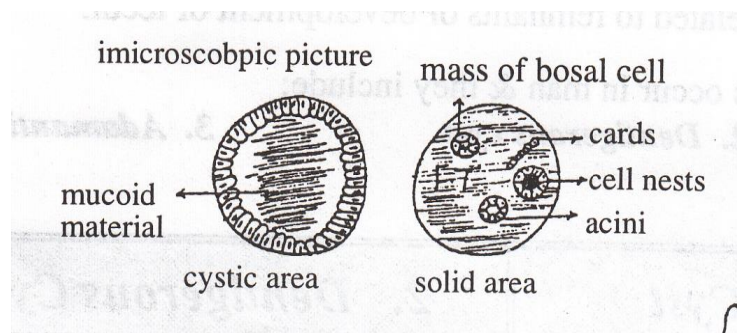
3. Adamantinoma (Ameloblastoma)

- * It is a **locally malignant tumor**.
- * **Incidence:**
 - More in **lower jaw**, more in **females** between **25-45** years.
 - The **commonest tumor of the mandible**.
- * **Pathology:**
 - **Origin:** It is a local malignant epithelial tumor arising from **ameloblast** of dental follicle .
 - **Gross picture:** The tumor arises in the **angle** of the mandible and growing in its **ramus and Body**.
 - **Cut section:**
 1. The tumor is **pink or white** (according to the amount of fibrous tissue).
 2. Well **encapsulated** with **trabeculae** dividing the tumor into equal, small lobules.
 3. Some areas are **cystic** and contain brownish mucoid substance.
 4. Some areas are **solid** containing fibrous tissue.



• **Microscopic picture:**

1. **Cystic areas:** Lined by squamous or columnar epithelium and contain mucoid substance.
2. **Solid areas:** Fibrous tissue contains epithelial element in the form of cords, acini, cell nests and masses of basal cells.



* **Complications:**

1. **Direct spread only** in the mandible and in late cases invades soft tissues.
2. **Malignant change** (carcinoma or sarcoma).
3. **Recurrence** due to cellular implantation during surgery.
4. Loosening and falling of **teeth**, ulceration, infection & pathological fracture.

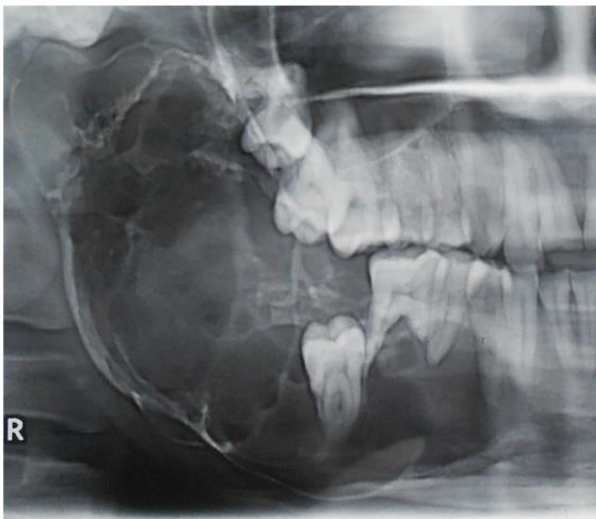
* **Clinical picture:**

1. Painless , not tender , slowly growing well defined & lobulated **swelling** in the (ingle of the mandible growing in the ramus & Body of the mandible.
2. The swelling produce **bone expansion** more on the **outer** surface.
3. **Hard** but in advanced cases may give **egg shell crackling** sensation.
4. Related **teeth** are loose and mal-directed.
5. No **lymph node** enlargement, unless ulceration & infection occurs.



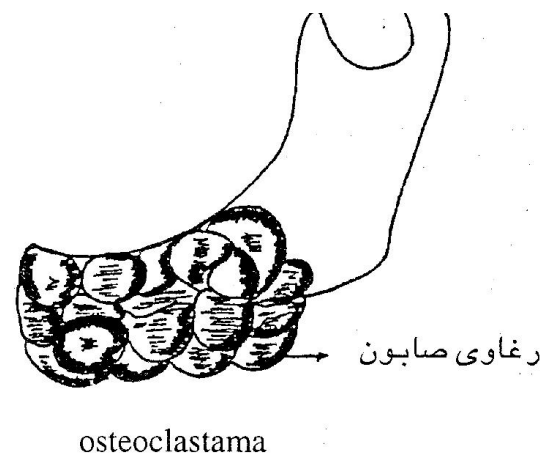
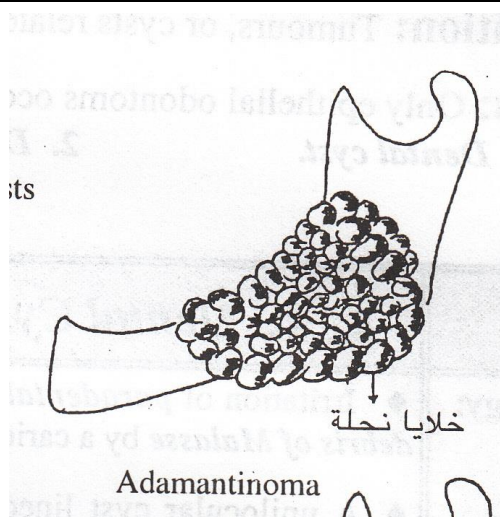
* Investigations

1. **Plain X-ray:** Show an expanding lesion of the jaw with honey comb appearance.
2. **C. T. scan** to detect extent of the tumor.
3. **Biopsy** is diagnostic.



* D.D: From osteoclastoma of jaw

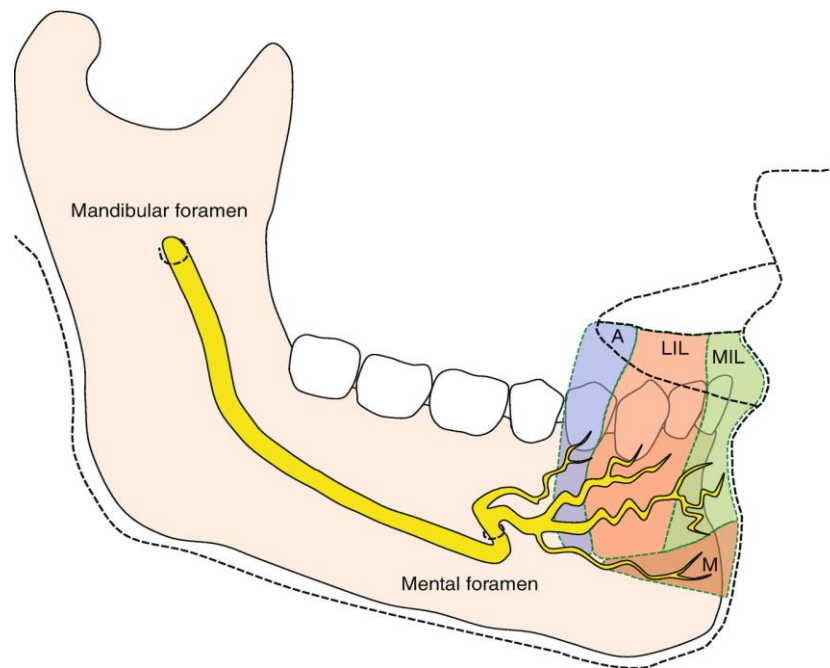
	Adamantinoma	Osteoclastoma
Incidence	• Common, more in female.	• Rare, equal in both sexes.
Site.	• Angle of mandible.	• Symphysis menti.
Growth.	• Both ramus and body.	• In the body & stop at angle.
Colour.	• Pink or white .	• Brownish.
Surface.	• Finely lobulated.	• Coarsely lobulated.
Expansion.	• More on outer surface.	• Equal on both sides.
X- ray.	• Honey comb appearance.	• Soap bubble appearance.



* **Treatment:** Only surgery (the tumour is radioresistant) followed by mandibular reconstruction.

1. Small tumors are excised with safety margin, a segment of mandible extending from the inferior alveolar foramen to mental foramen (because the tumor may spread along inferior alveolar canal) is removed.

2. Large tumours are treated by **hemimandibulectomy**.



* **Mandibular reconstruction** after mandibulectomy is essential for occlusion of teeth, application of dentures and cosmetic. The following methods can be used:

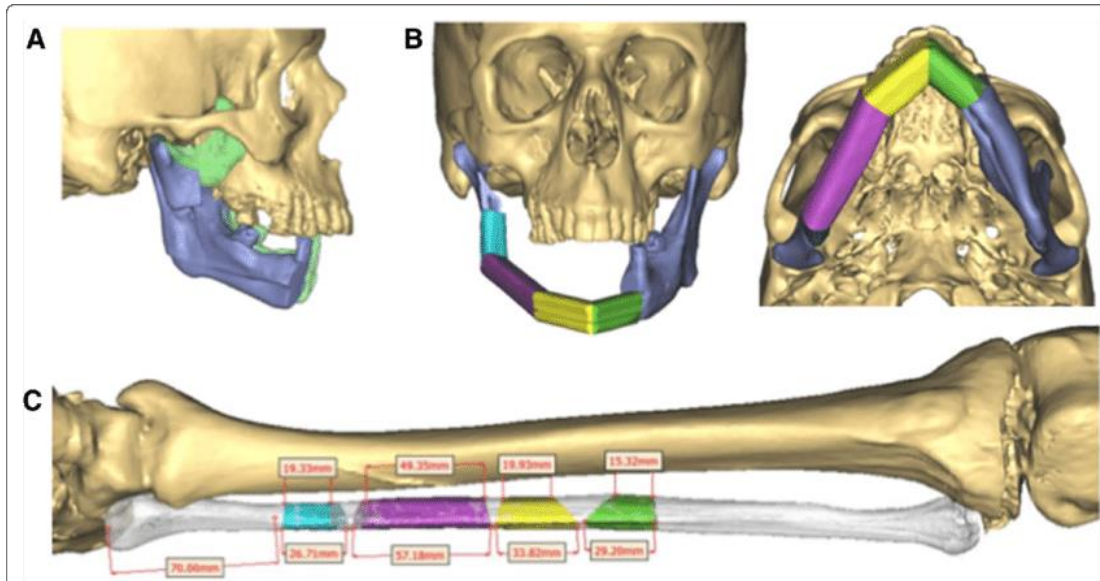
1. Autogenous bone graft: 2 types

a) **Non-vascularized grafts** taken from fibula or 5th rib .

b) **Vasculaized grafts** which are taken with their blood vessels (e.g. rib with intercostal vessels) to anastomose with local blood vessels e.g. facial vessels.

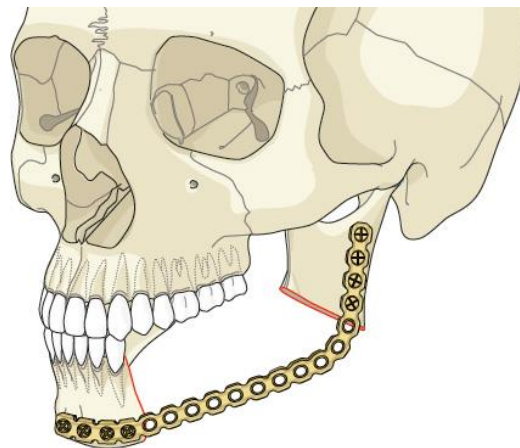
2. Mandibular plate and screws to fix the graft in place .

3. Mandibular prosthesis .



Non-vascularized grafts

**Mandibular plate
and screws**



Mandibular prosthesis

