




# Cysts in and around the jaws

Dr.Mohammed Alaraji

B.D.S,F.I.B.M.S



Cysts are the most common cause of chronic swellings of the jaws. A cyst comprises a wall of fibrous tissue and a central lumen, or space, lined by epithelium. Cysts are more common in the jaws than in any other bone because only the jaws contain epithelium, remaining after tooth formation



# Definition

- Cysts are pathological fluid-filled cavities lined by epithelium.

# CLASSIFICATION OF CYSTS

based on the current WHO classification:

## Cysts of the jaws, face and neck

### ▪ 1-ODONTOGENIC CYSTS

#### ▪ a-Cysts of inflammatory origin

Radicular cyst

Residual radicular cyst

#### ▪ b-Cysts of developmental or unknown origin

Dentigerous cyst

Eruption cyst

#### ▪ Odontogenic keratocyst

### ▪ 2-NON-ODONTOGENIC CYSTS


Incisive canal cyst

Nasolabial cyst

Sublingual dermoid cyst

Thyroglossal duct cyst

Branchial cyst

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- **Odontogenic cysts**: are lined by odontogenic epithelium derived from the dental lamina. This epithelium originates by proliferation of rests of Serres, reduced enamel epithelium or rests of Malassez. Odontogenic cysts, therefore, can only affect the tooth-bearing regions of the jaws.
  - **Non-odontogenic cysts**: are lined by other types of epithelium, and they are usually developmental in origin.

# Odontogenic cysts

- are most common, usually asymptomatic and detected on routine imaging:
  - 1) Radicular or residual cysts (inflammatory cysts) are the most common.
  - 2) Dentigerous cysts are second most common. (developmental)
  - 3) Keratocyst

There is an overall male predominance and the mandible is affected three times as commonly as the maxilla.

# PATHOGENESIS

The main pathogenic factors include the following:

- 1) Epithelial proliferation – either stimulated by inflammation in the case of radicular cysts, or occurring with genetic stimulation in the case of keratocyst .
- 2) Hydrostatic or osmotic factors: may play a part in cyst growth since the cyst wall acts as a semipermeable membrane. Keratin formation: may be prominent in keratocyst.
- 3) Bone resorbing factors: such as prostaglandins and collagenase.

# DIAGNOSIS

- The diagnosis of an odontogenic cyst is based on an adequate history, clinical examination and appropriate investigations such as pulp vitality testing and radiographs (plain X-ray, OPG, CT scan) of associated teeth, together with aspiration and analysis of cyst fluids, and histopathology (biopsy).





# TREATMENT

- ❑ Enucleation is the complete removal of the cyst:

the benefit is that all the cyst tissue is available for histological examination and the cyst cavity will usually heal uneventfully with minimal aftercare.

- ❑ Marsupialization is the partial removal of the cyst: the benefit is that it is somewhat less invasive than enucleation and tooth vitality is retained but it requires considerable aftercare and good patient cooperation. Indicated in mixed dentitions to protect the tooth buds & used if there is a large cyst in the jaw that may cause pathological fracture if enucleation is done. when the GA for enucleation is contraindicated

# INFLAMMATORY CYSTS

- ❖ the most common of all jaw cysts and arise in association with a non-vital tooth. They include the following:

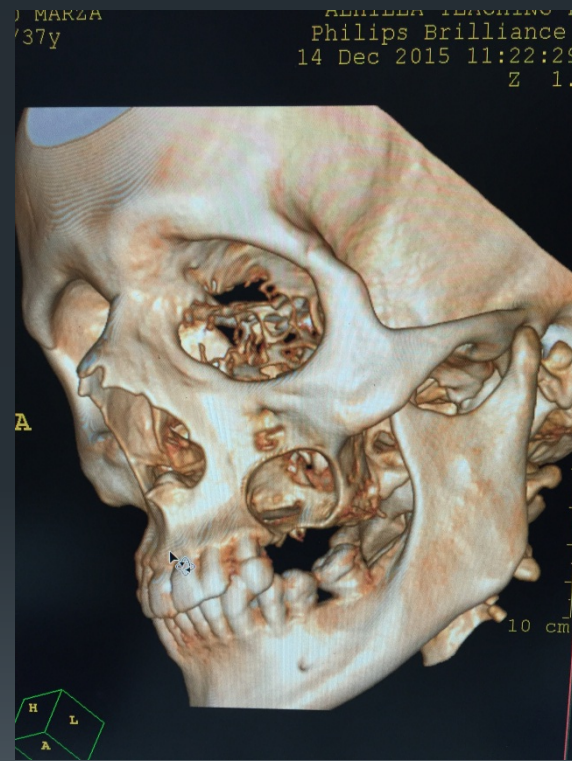
**1- Radicular cyst (dental or periapical cyst):** where the cyst is associated with the apex of a non-vital tooth.

- ❖ *Radicular cysts are seen especially where:*

- ❖ a non-vital pulp is infected
- ❖ Endodontic treatment has failed
- ❖ a root is retained.

**2-Residual cysts:**

# Residual cyst in maxilla





# Etiology

- The epithelial lining of inflammatory cysts is derived from the rests of Malassez. The cyst fluid is usually watery, but may be thick and viscid with cholesterol crystal clefts giving it a shimmering appearance

# Clinical features

- ❖ There is a slowly progressive painless swelling, with no symptoms until the cyst becomes large enough to be noticed.
- ❖ The swelling is rounded and at first hard. Later, when the bone has been reduced to eggshell thickness, a crackling sensation may be felt on pressure.

## Radiography

- ❖ appears as a rounded, radiolucent area with a sharply defined outline a condensed radiopaque corticated periphery is present

## TREATMENT

- ❖ Either: Enucleation or Marsupialization

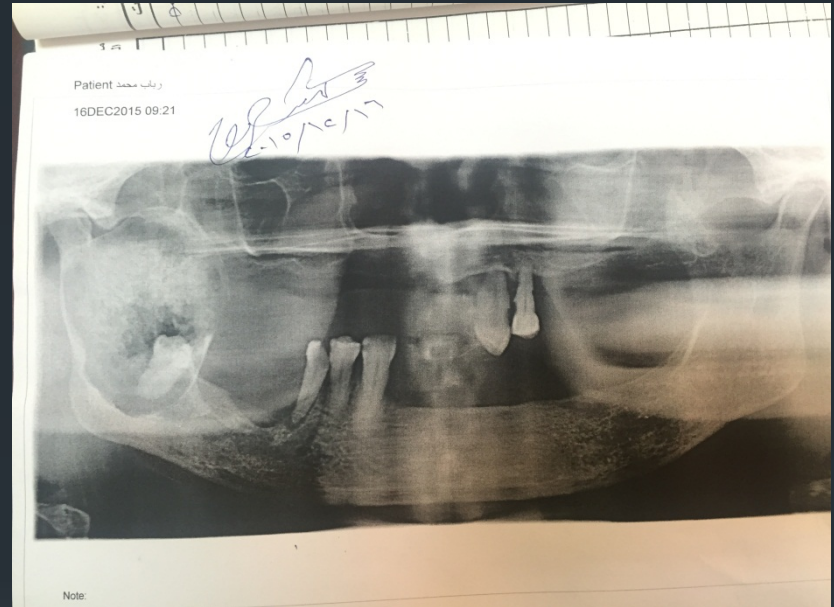
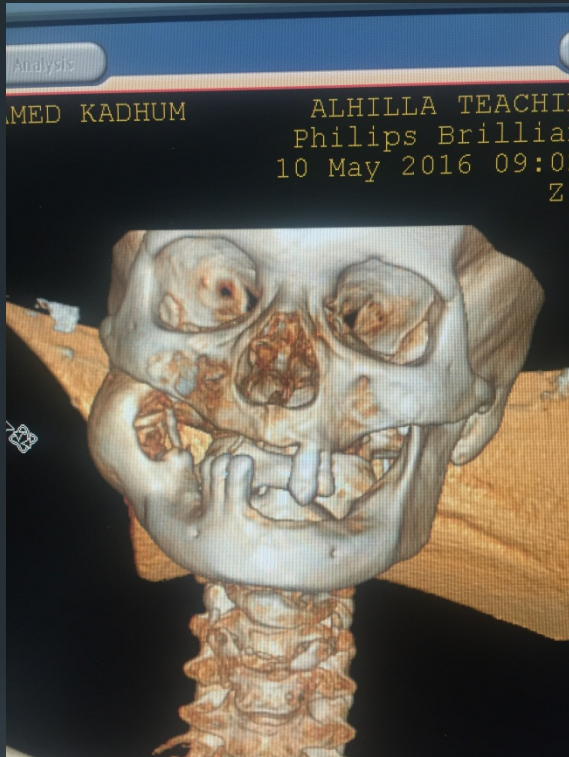
# Dentigerous (follicular) cyst

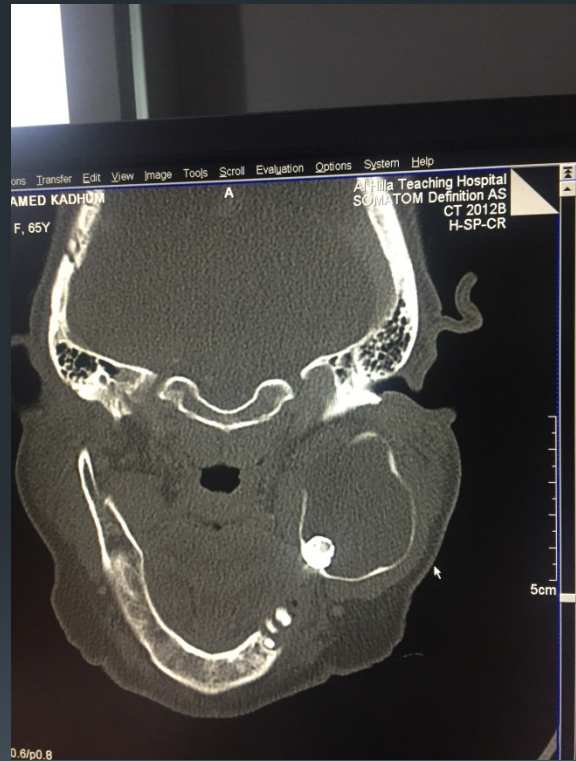
- ❑ second most common odontogenic cyst. This develops from the earliest event is separation of the reduced enamel epithelium from the crown to form the cyst space.
- ❑ The dentigerous cyst is most frequently found in areas where unerupted teeth are found – mandibular third molars, maxillary third molars and maxillary canines.
- ❑ The cyst wall is attached to the neck of the tooth, prevents its eruption and may displace it for a considerable distance.

## Radiography

- ❑ The cavity is circumscribed, rounded and always unilocular and contains the crown of the tooth.



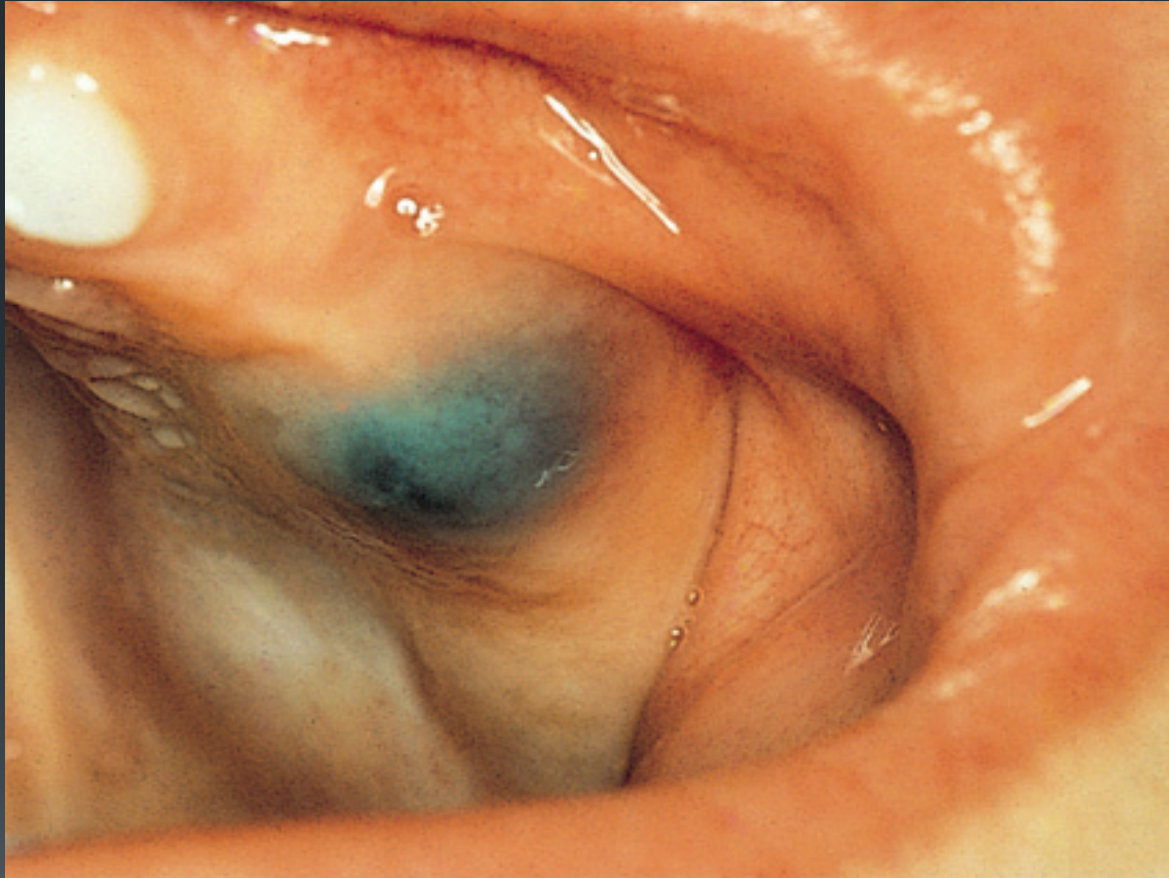






## ERUPTION CYST

- An eruption cyst is a superficial dentigerous cyst arising on a tooth during eruption. They are therefore seen in children, forming a soft, rounded, swelling on the alveolus
- Most eruption cysts burst spontaneously and the tooth erupts normally, but if very large, the cyst roof may be incised or removed.

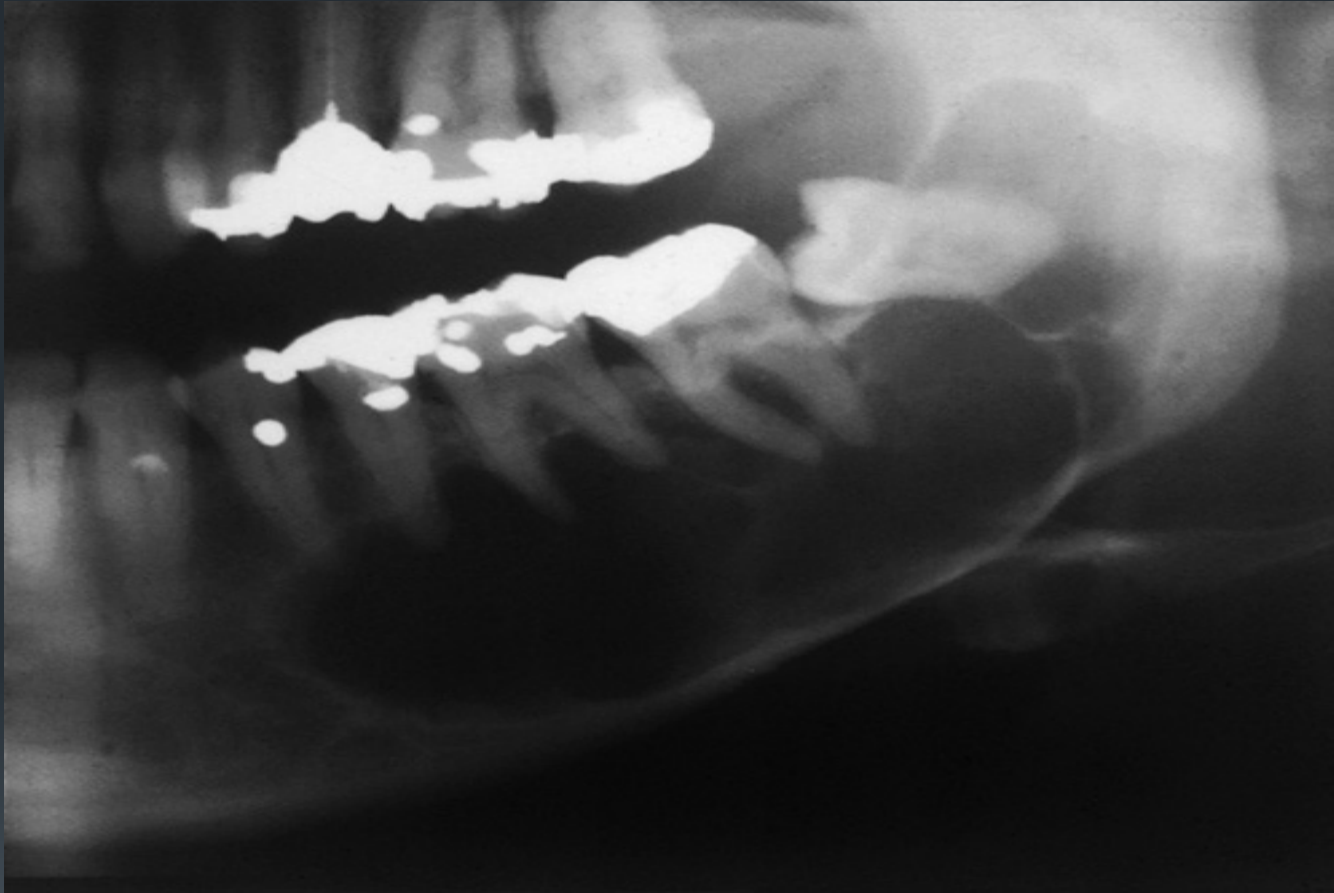


# KERATOCYST

- is the commonest keratinizing cyst in the jaws and has a characteristic clinical, radiological and histological appearance.
- can grow to a very large size without symptoms and is sometimes associated with a syndromic presentation.
- Keratin filling the cyst lumen is bright white and when seen at operation Peak incidence is between ages 20 and 30 years.
- odontogenic keratocysts form in the posterior body and lower ramus. Odontogenic keratocysts, like other jaw cysts, are symptomless until the bone is expanded or they become infected

# Radiography

- ❑ well-defined radiolucent areas, with a more or less rounded or scalloped margin.
- ❑ Some are unilocular, but the majority are multilocular.
- ❑ There is extensive spread forward and backward along the medullary cavity with minimal expansion until the whole of the medulla is replaced. There is minimal displacement and no resorption of teeth or the inferior dental canal. The lack of expansion results in many odontogenic keratocysts being large at time of discovery







# Treatment and recurrence

- 1) -Marsupialization
- 2) -Enucleation or both

The treatment of keratocyst may a risk of recurrence so the

Possible reasons for recurrence of keratocysts

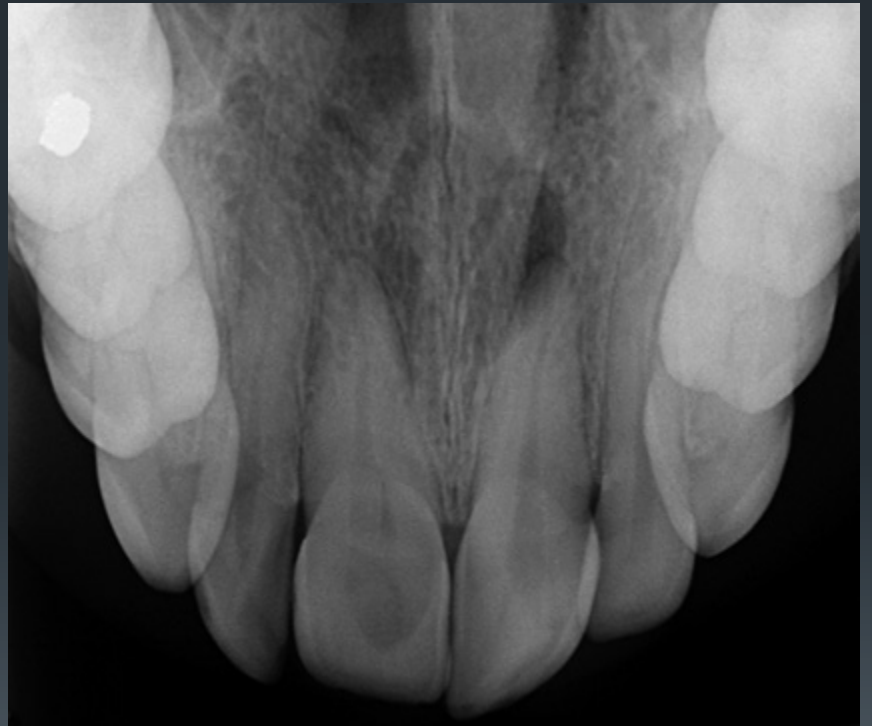
- A. Thin, fragile linings, difficult to enucleate intact
- B. Finger-like cyst extensions into cancellous bone
- C. Satellite (daughter) cysts sometimes present in the wall
- D. Experience of surgeon.

# NON-ODONTOGENIC CYSTS

## ❑ 1-NASOPALATINE DUCT OR INCISIVE CANAL CYST

### **Nasopalatine duct cyst: key features**

- 1) Often asymptomatic, chance radiographic findings
- 2) Form in the incisive canal region
- 3) Arise from vestiges of the nasopalatine duct
- 4) Lined by squamous or columnar respiratory epithelium
- 5) Can usually be recognised radiographically
- 6) Do not recur after enucleation



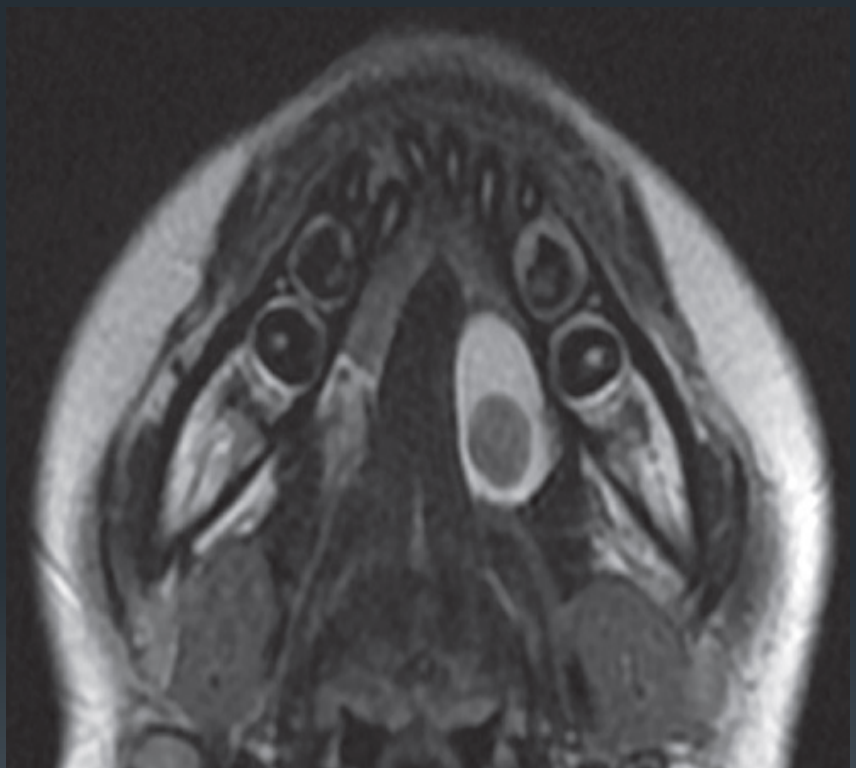
## ▪ 2--NASOLABIAL CYST

- 1) This very uncommon cyst forms outside the bone in the soft tissues, deep to the nasolabial fold
- 2) It presents over a wide age range, mostly in middle-aged adults, and much more commonly in females.
- 3) The cysts form soft tissue swellings in the upper lip, distort the nostril and cause pressure resorption of the anterior maxilla if large .
- 4) The lining is pseudostratified columnar respiratory epithelium, like the nasolacrimal duct. The cyst is excised, usually from an intraoral approach through the labial sulcus

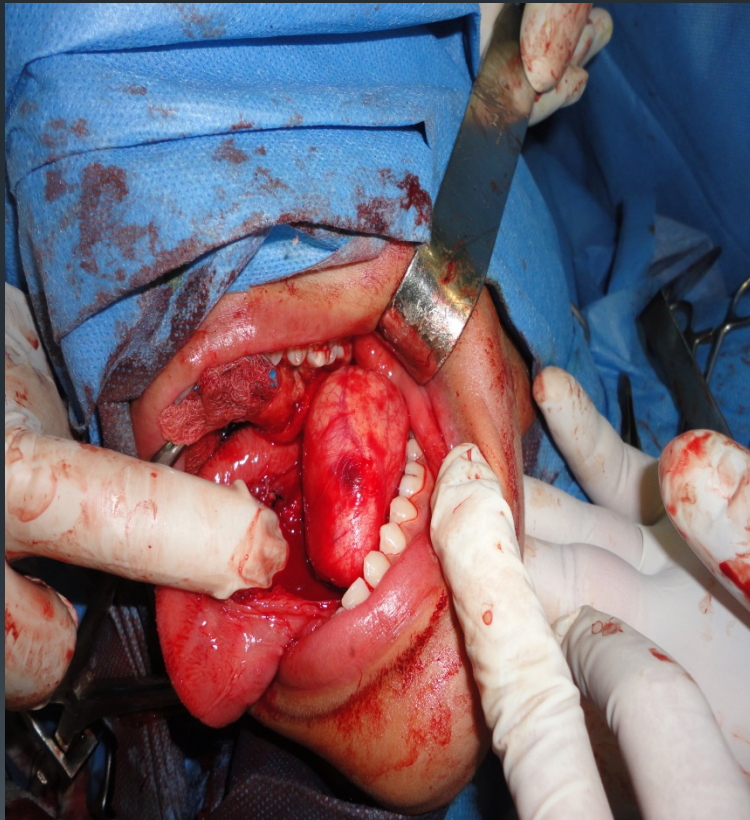


### ■ 3--SUBLINGUAL DERMOID CYST

- 1) These are cysts above the hyoid and mylohyoid M, immediately beneath the tongue, usually in the midline,
- 2) They are lined by a keratinising stratified squamous epithelium like skin, complete with associated sebaceous glands, sweat glands and sometimes hair follicles.
- 3) They are asymptomatic when small, enlarge to interfere with speech or eating and can attain a large size over many years,
- 4) These cysts are removed by excision.









## ■ 4--THYROGLOSSAL DUCT CYST

- Thyroglossal or thyroglossal duct cysts develop from embryological epithelial remnants of the thyroglossal duct, anywhere along its rather convoluted path from the dorsum of tongue to the site of the thyroid gland.
- *Classically* the cyst rises on swallowing while the tongue moves upward.
- Histologically, the cysts are lined by stratified squamous epithelium or respiratory epithelium, and there are often clusters of ectopic thyroid tissue in the wall.
- These cysts are removed surgically with the body of the hyoid bone



## ▪ 5--BRANCHIAL CYST

- 1) commonly arises from proliferation of residual remnants of second branchial cleft.
- 2) is visible externally at the anterior border of sternomastoid muscle, just below the angle of the mandible . Sometimes the cysts open to the skin and are then known as *branchial clefts*.
- 3) They are lined by non-keratinising squamous epithelium and often have lymphoid tissue in their wall.





Thank you