



# NECK SWELLINGS

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## Classifications:

- I. Etiology (Congenital or Acquired).**
- II. Location (Midline or Lateral).**
- III. Consistency (Solid or Cystic).**

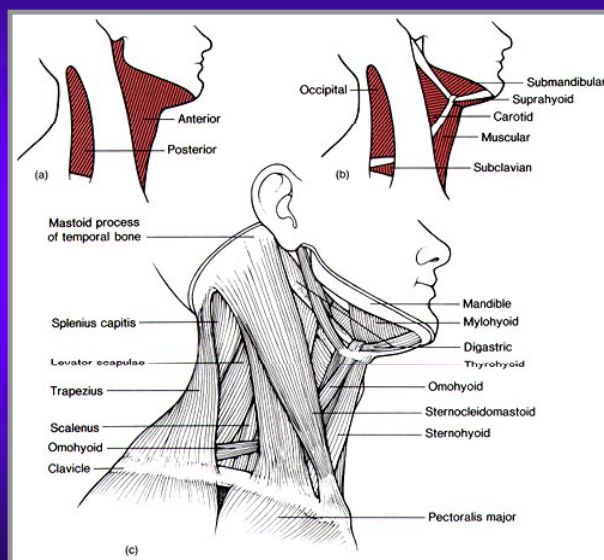
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# Anatomical Divisions of the Neck (Neck Triangles)



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## Neck Triangles ..





# Lateral neck Swellings

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## Lateral neck Swellings :

### I. SOLID SWELLINGS:

- **GLANDS:** - Lymph nodes (commonest).  
- Thyroid gland nodule (2<sup>nd</sup> common).  
- Submandibular gland.  
- Tail of parotid gland.
- **VESSELS:** - Carotid body tumor.  
- Glomus jugulare.
- **NERVES:** Schwannoma or Neurofibroma.
- **SUBCUTANEOUS:** Lipoma.
- **SCM MUSCLE:** - Organized hematoma (*infants*).  
- Fibrosarcoma (*old age*).
- **BONE:** Cervical rib.

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## Lateral neck Swellings : (cont.)

### II. CYSTIC SWELLINGS:

- **AIR:** - Laryngocele.  
- Pneumatocele.  
- Pharyngeal diverticulum.
- **FLUID:** - Thyroid gland cyst.  
- Branchial cyst.  
- Cystic hygroma (Lymphangioma).  
- Sebaceous cyst.
- **ABSCCESS:** - Cold abscess (TB cervical lymphadenitis).  
- Parapharyngeal abscess.  
- Parotid abscess.
- **BLOOD :** - Hemangioma.  
- Aneurysm (*Carotid or Subclavian*).



## Midline neck Swellings

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## Midline neck Swellings :

### I. SOLID SWELLINGS:

- **GLANDS:** - Lymph nodes (*submental, prelaryngeal or pretracheal*).
  - Thyroid gland isthmus nodule.
  - Median ectopic thyroid tissue.
- **SUBCUTANEOUS:** Lipoma of Burn's space (*Suprasternal notch*).

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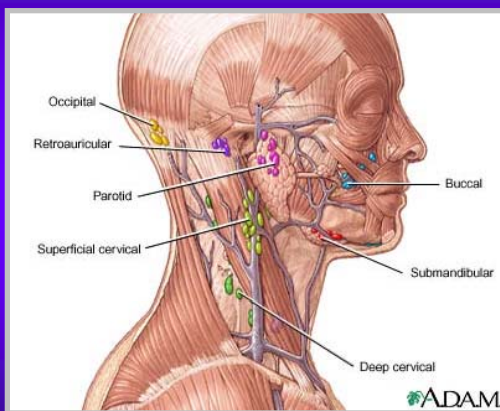
## Midline neck Swellings : (cont.)

### II. CYSTIC SWELLINGS:

- **FLUID:** - Thyroid gland cyst in isthmus.
  - Thyroglossal cyst.
  - Dermoid cyst (*Sublingual or Suprasternal*).
  - Subhyoid bursa.
  - Sebaceous cyst.
- **ABSCCESS:** - Cold abscess.
  - Pyogenic abscess.
- **BLOOD :** - Hemangioma.
  - Aneurysm (*Innominate artery*).

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# Cervical Lymph Node Swellings



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## Cervical lymph node Swellings : (cont.)

### ETIOLOGY:

#### ➤ INFLAMMATORY:

- Acute inflammation.
- Chronic inflammation.
  - Non-specific.
  - Specific e.g. T.B lymphadenitis.

#### ➤ NEOPLASTIC:

- Primary e.g. lymphoma.
- Secondary metastasis.



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## Cervical lymph node Swellings : (cont.)

### CLINICALLY:

- May be MULTIPLE.
- Certain anatomical distribution.
- Primary focus usually present.

| INFLAMMATORY LN       | MALIGNANT LN                |
|-----------------------|-----------------------------|
| Usually painful       | Painless                    |
| Firm                  | Hard                        |
| Mobile                | May be fixed                |
| Signs of inflammation | Signs of Primary H&N cancer |

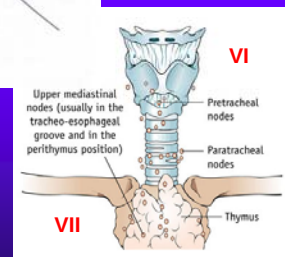
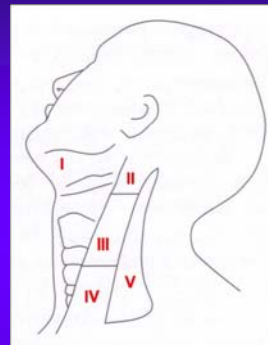


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## Cervical lymph node Swellings : (cont.)

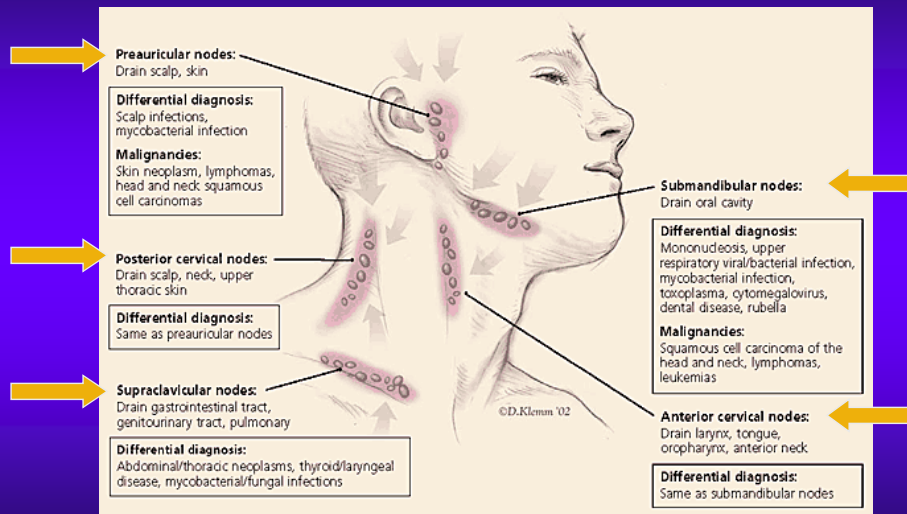
### Lymph node levels in neck:

- Level I:** Submental & Submandibular
- Level II:** Upper jugular
- Level III:** Middle jugular
- Level IV:** Lower jugular
- Level V:** Posterior triangle
- Level VI:** Anterior compartment (Visceral)
- Level VII:** Upper anterior mediastinal



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## Cervical lymph node Swellings :

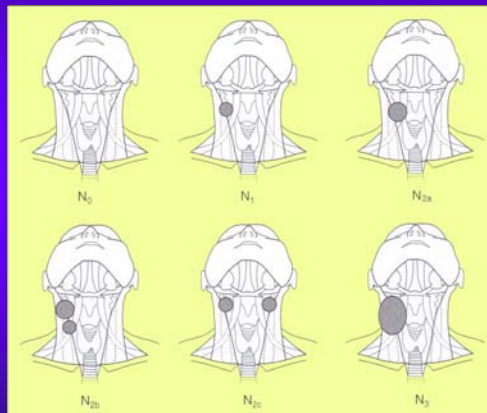


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## Cervical lymph node Swellings : (cont.)

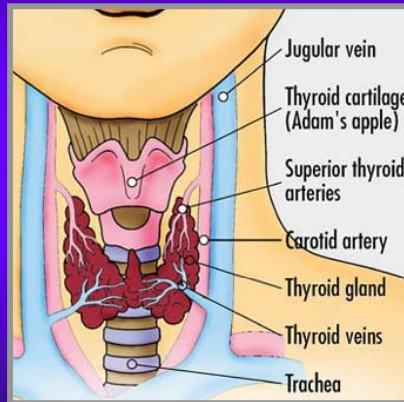
### TNM classification of regional nodes:

- N<sub>0</sub>** No regional LN metastases
- N<sub>1</sub>** Single ipsilateral LN 3cm or less
- N<sub>2a</sub>** Single ipsilateral LN 3-6 cm
- N<sub>2b</sub>** Multiple ipsilateral LNs no more than 6cm
- N<sub>2c</sub>** Bilateral or contralateral LNs no more than 6cm
- N<sub>3</sub>** Metastasis in a LN more than 6cm



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# Thyroid Gland Swellings



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## Thyroid gland Swellings :

### ETIOLOGY:

- **CONGENITAL GOITRE.**
- **SIMPLE GOITRE :** - Diffuse non-toxic goitre.  
- Multinodular non-toxic goitre.
- **THYROTOXIC GOITRE:** - 1ry thyrotoxicosis (Graves' disease).  
- Toxic multinodular goitre.
- **INFLAMMATORY (THYROIDITIS):**
  - Subacute (de Quervain's thyroiditis).
  - Autoimmune (Hashimoto's thyroiditis).
  - Riedel's thyroiditis.
- **NEOPLASTIC:**
  - BENIGN: adenoma.
  - MALIGNANT: Follicular – Papillary – Medullary – Anaplastic.

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## Thyroid gland Swellings :(cont.)

### CLINICALLY:

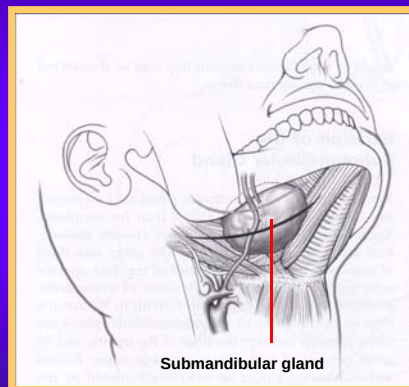
- Presents by either solitary nodule or diffuse thyroid enlargement.
- Moves vertically up & down on swallowing.
- Does not move on protrusion of tongue (*D.D. thyroglossal cyst*).

### INVESTIGATIONS:

- Serum T<sub>3</sub>, T<sub>4</sub> & TSH.
- Thyroid scan (differentiates '*hot*' from '*cold*' nodules').
- Ultrasonography (differentiates '*solid*' from '*cystic*' nodules').
- Fine needle aspiration biopsy (FNAb).

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## Submandibular Gland Swellings



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## Submandibular gland Swellings :

### ETIOLOGY:

- Acute suppurative sialoadenitis.
- Chronic calculous sialoadenitis.
- Submandibular gland tumors.

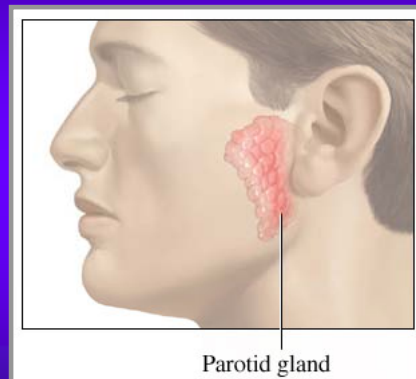
### CLINICALLY:

- Submandibular triangle swelling.
- Cannot be rolled over edge of mandible.
- Can be *bimanually felt* (external/intraoral).



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## Parotid Gland Swellings



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## Parotid gland Swellings :

### ETIOLOGY:

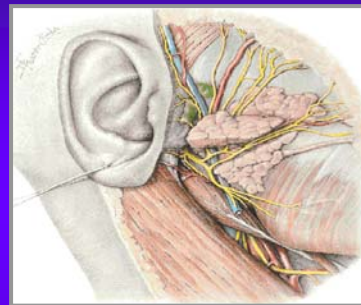
- Acute viral parotitis (Mumps).
- Acute suppurative parotitis (Parotid abscess).
- Autoimmune parotitis e.g. Sjogren's syndrome.
- Parotid tumors:
  - Benign: e.g. Pleomorphic adenoma – Adenolymphoma (Warthin's tumor).
  - Malignant: e.g. Adenocarcinoma – Adenoid cystic carcinoma – Mucoepidermoid carcinoma.

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## Parotid gland Swellings :(cont.)

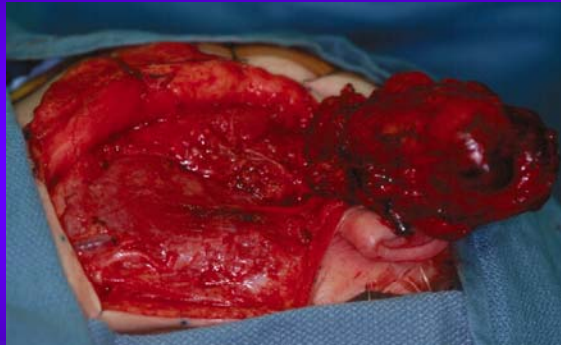
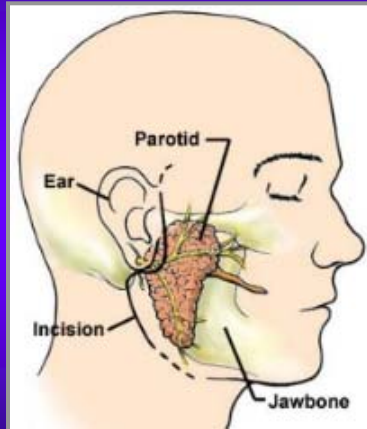
### CLINICALLY:

- Either diffuse or localized swelling.
- Diffuse swellings lead to *elevation of the ear lobule* & obliteration of normal furrow between *mandibular ramus* & *mastoid process*.
- Parotid tail swellings can present as neck masses.
- Facial nerve function should always be verified.



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## Parotid gland Swellings :(cont.)



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## Carotid Body Tumor

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## Carotid Body Tumor:

### THE CAROTID BODY:

- ❖ Is a *discrete paraganglion* located in the adventitia of the postero-medial aspect of the carotid bifurcation.
- ❖ Functions as a *chemoreceptor*, responding to changes in arterial O<sub>2</sub>, CO<sub>2</sub> & pH by regulating ventilation.

### DEFINITION:

It is a slowly-growing paraganglioma arising from the carotid body with very rare proven metastases.



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## Carotid Body Tumor: (cont.)

### INCIDENCE:

- Male to female ratio 1:1, age: around 50y.
- Higher incidence in O<sub>2</sub> deprived individuals (who live at high altitudes).

### CLINICAL PICTURE:

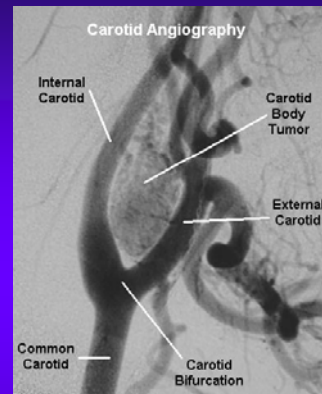
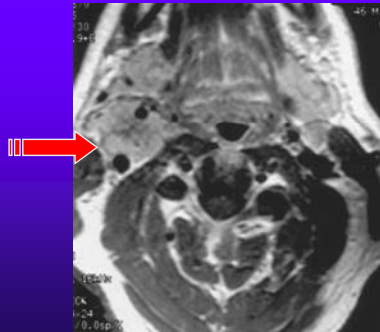
- Painless, slowly-growing neck swelling in the carotid triangle.
- On palpation: firm, rubbery 'Potato tumor' & pulsatile.
- Mass may dec. in size with carotid compression.
- Mobile from side to side but not up & down.

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## Carotid Body Tumor: (cont.)

### INVESTIGATIONS:

- Carotid angiography (typical widening of carotid bifurcation).
- CT & MRI (determine its extent).

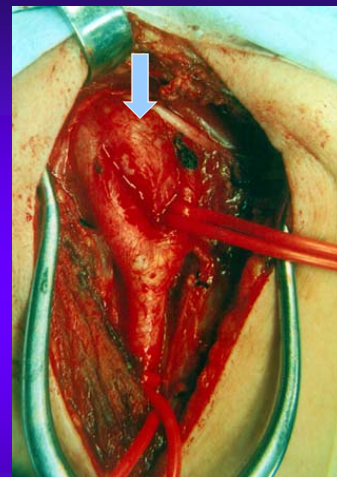
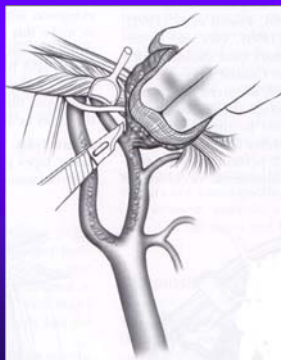
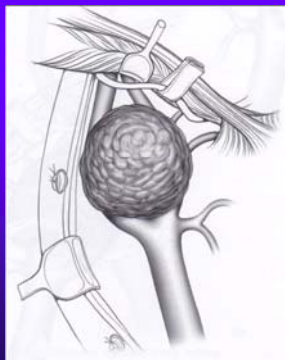


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## Carotid Body Tumor: (cont.)

### TREATMENT:

Surgical excision with meticulous sub-adventitial dissection.



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# Laryngocele

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## Laryngocele:

**DEFINITION:** Air-filled dilatation of laryngeal ventricle & saccule.

### TYPES:

- 1) **Internal** (20 %) : confined to interior of larynx.
- 2) **External** (30%) : expands into neck through thyrohyoid membrane.
- 3) **Combined** (50%).



### ETIOLOGY:

- Thought to prevail in *blowing jobs* as trumpet players or glass blowers.
- **Coexistence of laryngeal cancer** (acts as a valve allowing air under pressure into the ventricle).

## Laryngocele: (cont.)

### INCIDENCE:

- Male to female ratio 5 : 1.
- 20% bilateral.

### CLINICAL PICTURE:

- **Internal:** Hoarseness of voice & stridor.
- **External:** Lateral neck swelling that increases by Valsalva's maneuver.
- 10% present with infected sacs (*laryngopyocele*).



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## Laryngocele: (cont.)

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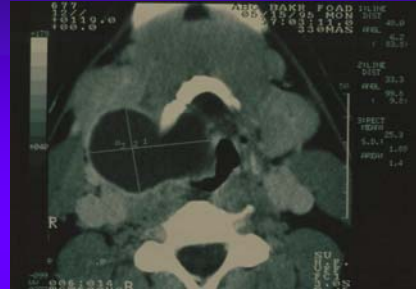


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## Laryngocele: (cont.)

### INVESTIGATIONS:

X-ray and CT scan shows air within the sac.



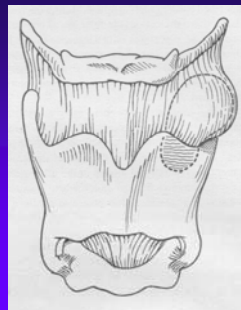
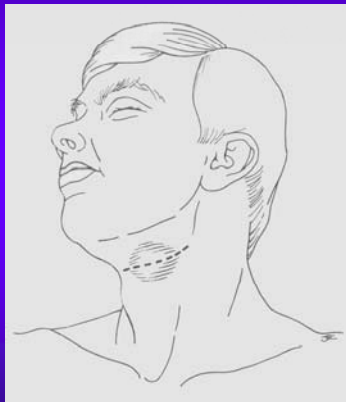
### TREATMENT:

- Endoscopic excision for the internal type.
- Lateral external approach excision for the external & combined types.

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## Laryngocele: (cont.)

### TREATMENT:



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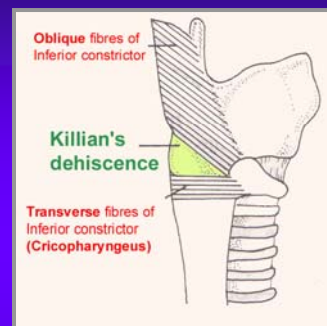
# Pharyngeal Pouch (Zenker's Diverticulum)

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## Pharyngeal Diverticulum:

### DEFINITION:

Herniation of pharyngeal mucosa through an area of weakness between the oblique & transverse parts of the inferior constrictor muscle (*Killian's dehiscence*).



### ETIOLOGY:

Neuromuscular in-coordination with delayed relaxation of the cricopharyngeal sphincter during swallowing → inc. intraluminal pressure → pulsion diverticulum.

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## Pharyngeal Diverticulum: (cont.)

### INCIDENCE:

More common in MALES above 60 y.

### CLINICAL PICTURE:

- Gurgling sound while drinking.
- Regurgitation of undigested food.
- Dysphagia dt. partial esophageal obstruction.
- Aspiration accompanied by severe spasms of coughing.
- Soft posterior neck swelling (usually on *left side*) empties on pressure with a gurgle.



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## Pharyngeal Diverticulum: (cont.)

### INVESTIGATIONS:

Barium swallow (diagnostic).



### TREATMENT:

- Surgical resection of the diverticulum sac + cricopharyngeal myotomy.
- Recently, endoscopic staple-assisted diverticulostomy

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# Branchial Cyst

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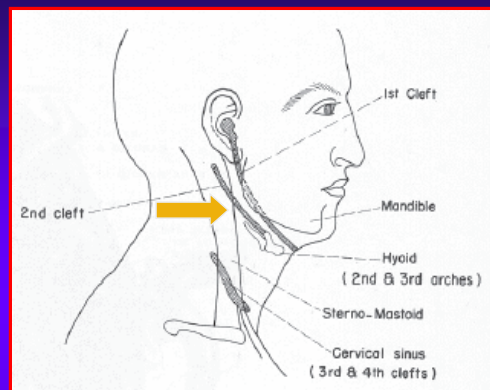
## Branchial Cyst:

### ETIOLOGY:

Arise from embryonic remnants of the SECOND branchial cleft.

### PATHOLOGY:

- Lined by stratified squamous epithelium & most have *lymphoid tissue* in the wall.
- Contain *straw-coloured* fluid rich in **cholesterol crystals**.



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## Branchial Cyst: (cont.)

### INCIDENCE:

Most frequently seen in young adults  
(Peak age: third decade)

### CLINICAL PICTURE:

- Slowly-growing, painless, soft cystic swelling, characteristically under the ant. border of the upper & middle 1/3 of the SCM muscle.
- Branchial cysts are not translucent & do not move on swallowing.

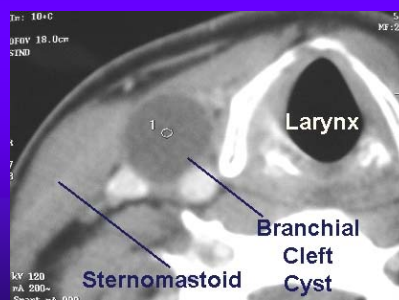


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## Branchial Cyst: (cont.)

### INVESTIGATIONS:

- Diagnosis is straight-forward.
- FNAC yields acellular fluid that can be rich in *cholesterol crystals*.

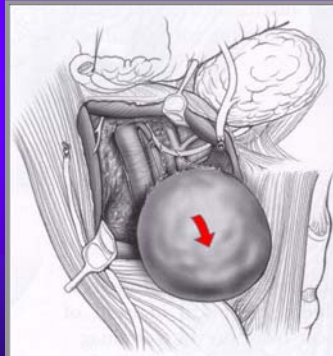
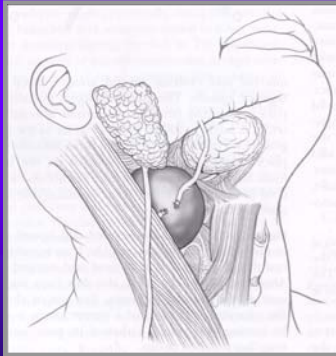


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## Branchial Cyst: (cont.)

### TREATMENT:

Surgical excision via a transverse neck incision – no need to look for associated tract.



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## Cystic Hygroma (Lymphangioma)

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## Cystic Hygroma:

### DEFINITION:

Rare malformations of the lymphatic system that usually present as a posterior neck swelling.



### ETIOLOGY:

- Sequestration of a portion of the jugular lymph ducts from the lymphatic system.
- The swelling consists of an aggregation of cysts like a mass of soap bubbles each filled with lymph.

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## Cystic Hygroma: (cont.)

### INCIDENCE:

Age at presentation:

60% at birth, 75% by 1y., 90% by 2<sup>nd</sup> birthday.



### CLINICAL PICTURE:

- Soft easily compressible, translucent, fluctuant, ill-defined posterior neck swelling.
- May spread into cheek, floor of mouth, tongue, parotid & ear canal.
- Stridor dt. tracheal displacement with mediastinal involvement.

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## Cystic Hygroma: (cont.)

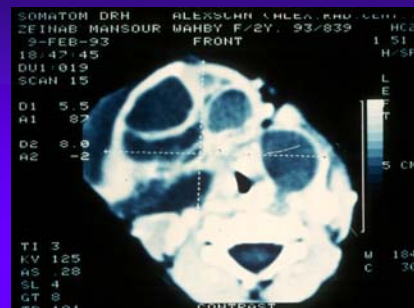


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## Cystic Hygroma: (cont.)

### INVESTIGATIONS:

CT scan with contrast makes diagnosis apparent.



### TREATMENT:

- Surgical resection via a neck incision.
- Total excision is sometimes difficult and recurrences are not infrequent.

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# Thyroglossal Cyst

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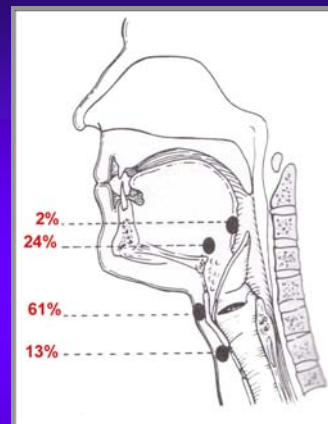
## Thyroglossal Cyst :

### ETIOLOGY:

A developmental abnormality dt. persistence of a part of the thyroglossal tract (extends from the *foramen caecum* at the BOT to the *isthmus of thyroid gland*).

### SITES:

- $\frac{1}{4}$  above the hyoid (*Intralingual* or *Suprahyoid*).
- $\frac{3}{4}$  below the hyoid (*Thyrohyoid* or *Suprasternal*).



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## Thyroglossal Cyst : (cont.)

### INCIDENCE:

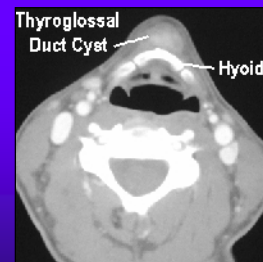
Most common midline neck cyst.

Mean age: 5 years (about 30% present after 30y).



### CLINICAL PICTURE:

- Midline painless neck cyst that moves up & down with swallowing & on tongue protrusion.
- Sometimes may present as an infected cyst.

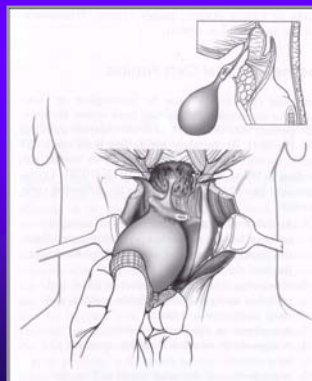
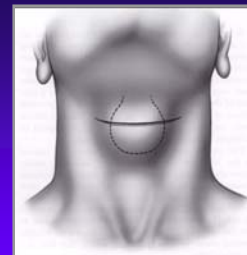


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## Thyroglossal Cyst : (cont.)

### TREATMENT:

Surgical excision of the cyst + tract including the body of hyoid bone (*Sistrunk operation*).



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# Dermoid Cyst

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## Dermoid Cyst :

### ETIOLOGY:

A developmental abnormality dt. inclusion of ectoderm along the lines of fusion, thus in the neck they are always midline & usually above the hyoid bone.

### PATHOLOGY:

- The cyst wall is usually thick & lined by stratified squamous epithelium containing *skin appendages* : hair follicles, sebaceous & sweat glands.
- The cyst contains *hairs & cheesy epithelial debris*.



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## Dermoid Cyst : (cont.)

### CLINICAL PICTURE:

- Cystic painless mass in the midline of the neck between the **submental** region & the **suprasternal** notch.
- The cyst is *not translucent* & not attached to the overlying skin.
- In submental dermoids sometimes there is a swelling in the FOM pushing the tongue upwards.



### TREATMENT:

Complete surgical excision.

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