By the Name of ALLAH the Most Gracious the Most Merciful

Neck Swellings

(Except goiter)

د . أحمد اسامة حسن

Specialist in General Surgery & Laparoscopic Surgery

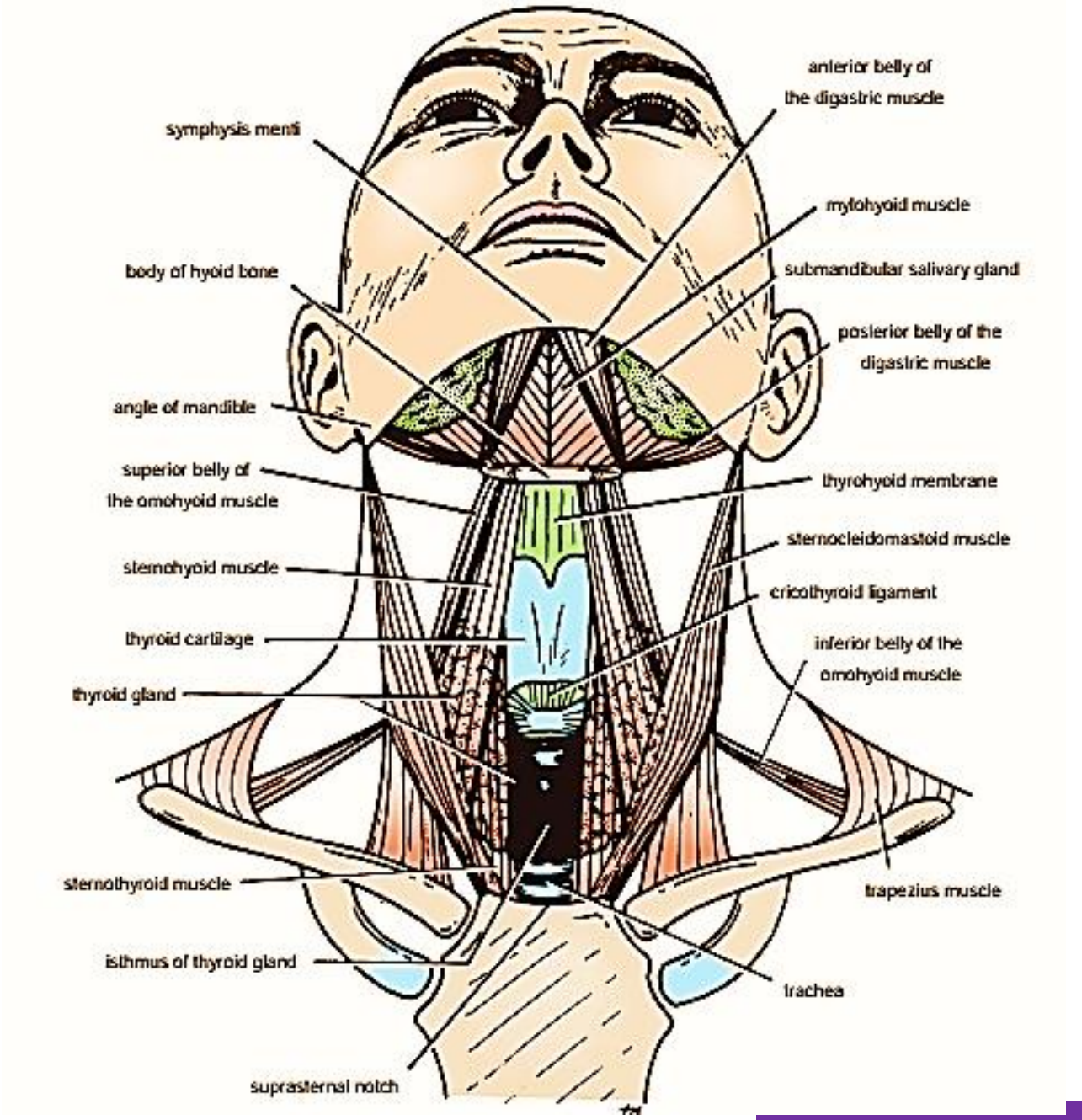
To be read in

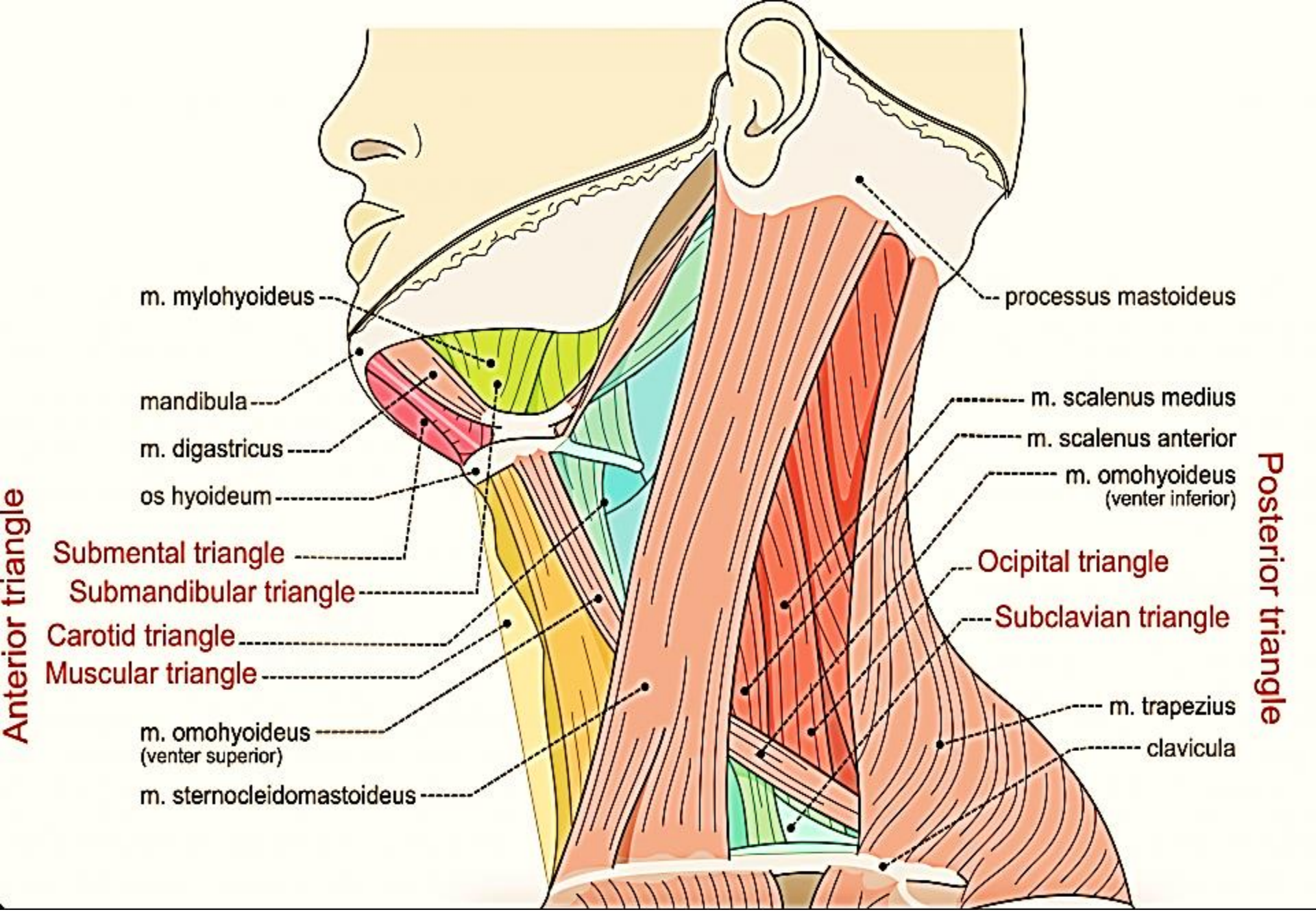
Browse's Introduction to The Symptoms and Signs of Surgical Disease

Baily & Love Short practice of Surgery 28th ed.

Anatomical Compartments of the Neck

- The neck is organized into four major longitudinal compartments, delimited by layers of cervical fascia:
- **Vertebral Compartment:** Contains the seven cervical vertebrae (C1–C7), the spinal cord, and postural muscles.
- **Visceral Compartment:** Houses the larynx, pharynx, trachea, esophagus, and the thyroid and parathyroid glands.
- **Vascular Compartments (Left & Right):** Each contains the carotid sheath, which encloses the common carotid artery, internal jugular vein, and the vagus nerve (CN X).




Anterior triangle
Posterior triangle
m. mylohyoideus
mandibula
m. digastricus
os hyoideum
Submental triangle
Submandibular triangle
Carotid triangle
Muscular triangle
m. omohyoideus
(venter superior)
m. sternocleidomastoideus
processus mastoideus
m. scalenus medius
m. scalenus anterior
m. omohyoideus
(venter inferior)
Ocipital triangle
Subclavian triangle
m. trapezius
clavicula

Submental Triangle: Unpaired

Borders: Anterior belly of digastric; Hyoid

Contents: Lymph nodes

May enlarge and become tender with an infection

Submandibular Triangle: Inferior to mandible

Borders: Mandible, anterior and posterior bellies of the digastric

Contents: Submandibular gland (bulge inferior to the mandible); facial artery & vein

Carotid Triangle:

Borders: SCM, Omohyoid (sup belly), post belly digastric

Contents: Common carotid artery, internal jugular vein, Vagus nerve, Sympathetic trunk, Hypoglossal nerve

Muscular Triangle:

Borders: SCM, Sup belly omohyoid & hyoid, midline neck

Contents: Infrahyoid muscles, Thyroid & parathyroid glands

Occipital Triangle:

Borders: Omohyoid, Trapezius, SCM

Contents: Accessory nerve, Brachial plexus (trunks), Lymph nodes

Supraclavicular Triangle:

Borders: Clavicle, Omohyoid, SCM

Contents: Portions of the subclavian artery & vein, Lymph nodes

For the diagnosis of swellings in the neck

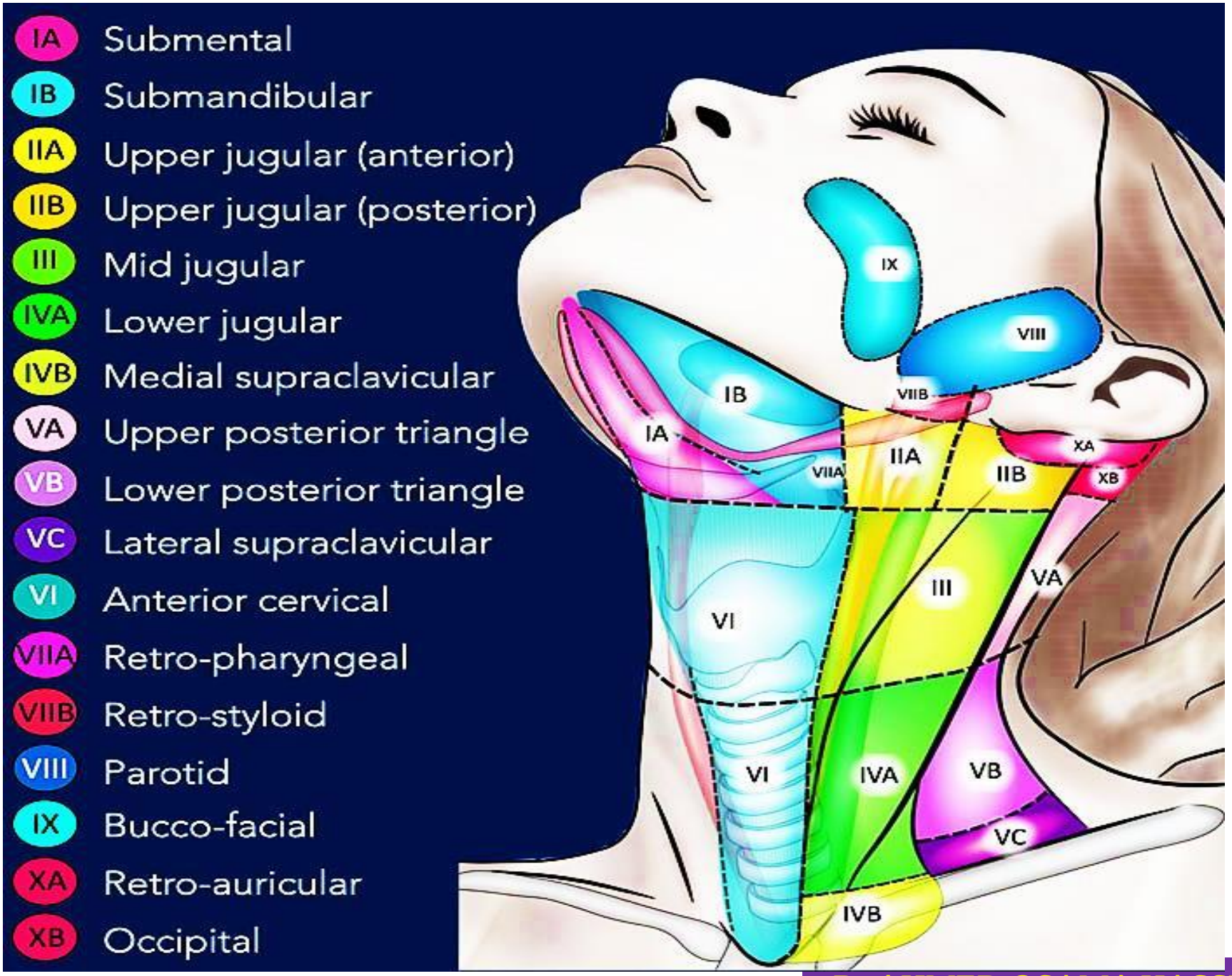
- 1. Is there one or more than one lump?
- 2. Where is the lump?
- 3. Is it solid or cystic?
- 4. Does it move with swallowing?

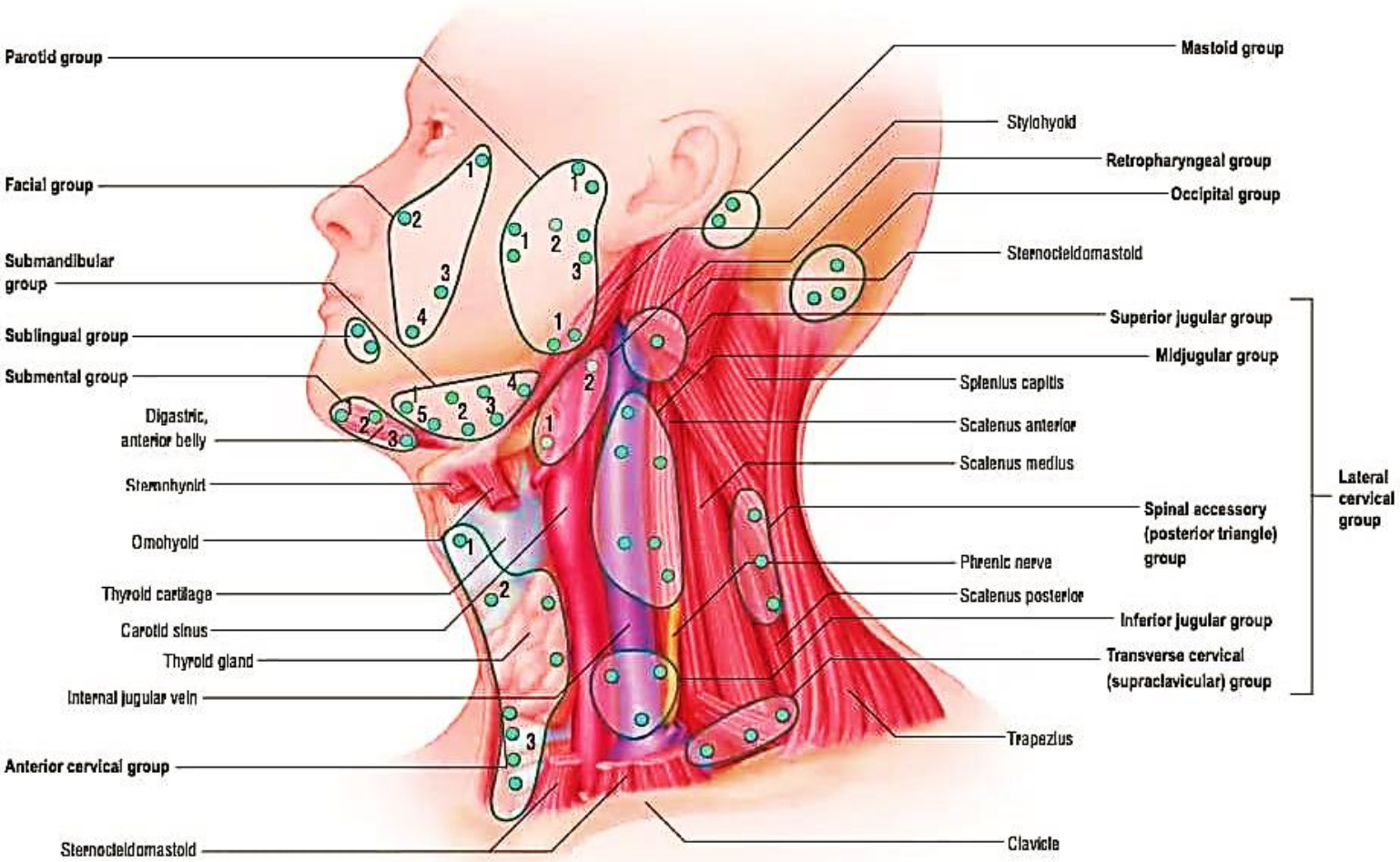
- Multiple lumps are invariably lymph glands

  A single lump
- In the **anterior triangle** that **does not** move with swallowing
- **Solid**: lymph gland, carotid body tumour and carotid artery aneurysm.
- **Cystic**: cold abscess, branchial cyst.
- In the **posterior triangle** that **does not** move with swallowing
- **Solid**: lymph gland
- **Cystic**: cystic hygroma, pharyngeal pouch and occasionally a secondary deposit of a papillary thyroid carcinoma.
- **Pulsatile**: subclavian aneurysm.
- In the **anterior triangle** that **moves** with swallowing
- **Solid**: thyroid gland, thyroid isthmus and lymph gland
- **Cystic**: thyroglossal cyst.

CERVICAL LYMPHADENOPATHY

- Infection: non-specific tonsillitis, glandular fever, toxoplasmosis, tuberculosis, cat scratch fever.
- Metastatic tumour from the head, neck, chest and abdomen.
- Primary reticuloses: lymphoma, lymphosarcoma, reticulosarcoma.
- Sarcoidosis.


IA Submental
IB Submandibular
IIA Upper jugular (anterior)
IIB Upper jugular (posterior)
III Mid jugular
IVA Lower jugular
IVB Medial supraclavicular
VA Upper posterior triangle
VB Lower posterior triangle
VC Lateral supraclavicular
VI Anterior cervical
VIIA Retro-pharyngeal
VIIB Retro-styloid
VIII Parotid
IX Bucco-facial
XA Retro-auricular
XB Occipital
IX
VIII
IB
VIIB
IA
XA
IIA
VIIA
IIB
XB
III
VA
VI
VI
IVA
VB
VC
IVB



Facial group	1. Malar 2. Infraorbital 3. Buccinator 4. Inferior maxillary	**Submandibular group**	1. Preglandular 2. Prevascular 3. Retrovascular 4. Retroglandular 5. Intracapsular	**Retropharyngeal group**	1. Lateral 2. Medial
Parotid group	1. Subfacial, extraglandular 2. Deep intraglandular 3. Suprafacial	**Submental group**	1. Anterior 2. Middle 3. Posterior	**Anterior cervical group**	1. Superficial anterior jugular chain 2. Prelaryngeal 3. Pretracheal

Lymph nodes in head and neck

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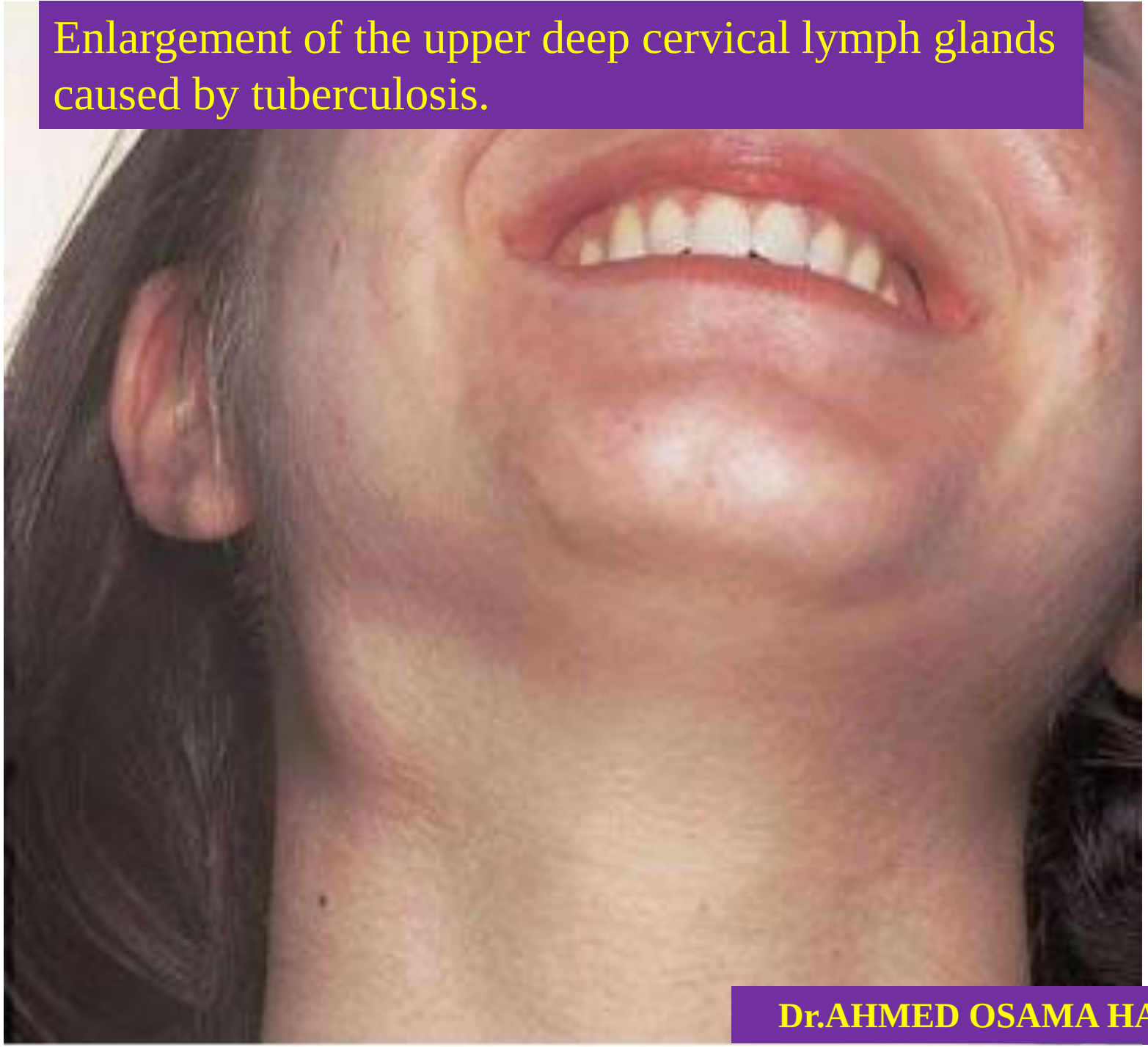
Tuberculous cervical lymphadenitis and abscess

- Infected with human bovine tuberculosis of dairy cattle entering the body via the tonsils, moving to the upper deep cervical glands .
- There is no generalized infection.

Enlargement of the upper deep cervical lymph glands caused by tuberculosis.



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Enlargement of the upper deep cervical lymph glands caused by tuberculosis.

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- **History**
- It is common in children and young adults, and in the elderly.
- The incidence in the young has diminished since the introduction of Bacilli - Calmette–Guerin (BCG) vaccination, mass radiography screening and the discovery of effective antituberculosis antibiotics.
- Anorexia and slight weight loss (elderly) .

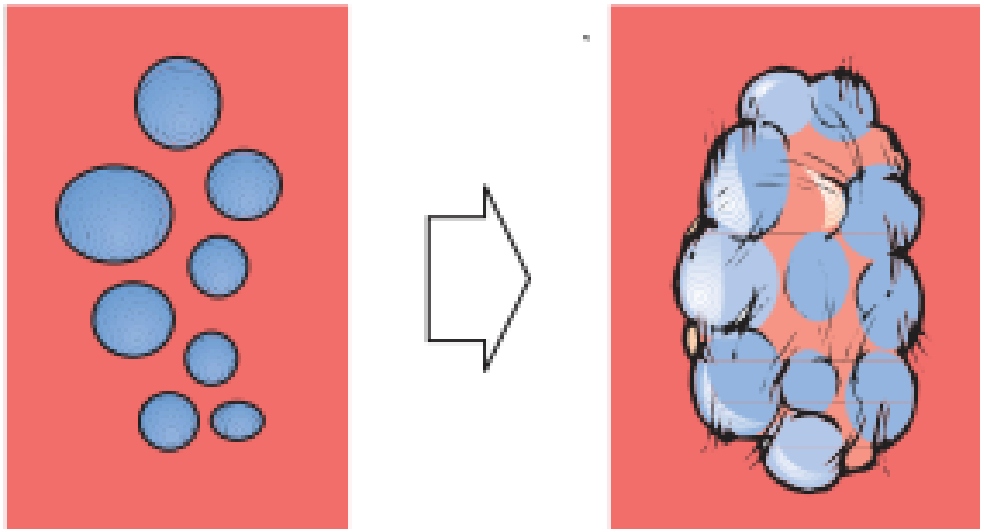
- **Symptoms**
- A lump appears gradually , sometimes without, pain.
- The pain can be intense if the glands grow rapidly and necrosis.
- An abscess (break down of glands), the swelling increases in size, painful with skin discolouration and neck movements and swallowing may be painful.
- Previous history of swollen neck glands when young – sometimes treated at that time by surgical excision.
- No history of Immunization .
- Family history.
- It is common in the poor and socially underprivileged.

- **Examination**
- The signs of tuberculous lymphadenitis
- Mostly the upper and middle deep cervical glands beneath and partly in front of the sternomastoid muscle.
- It does not feel hot.
- Normal skin temperture and the glands are often slightly tender.
- During abscess formation, the glands are firm, discrete and between 1 and 2 cm in diameter.As caseation increases and the glands necrose, the infection spreads then coalesce (matted mass).
- Local tissues Other cervical lymph glands may be palpable. The tonsils and the other tissues in the neck should be normal

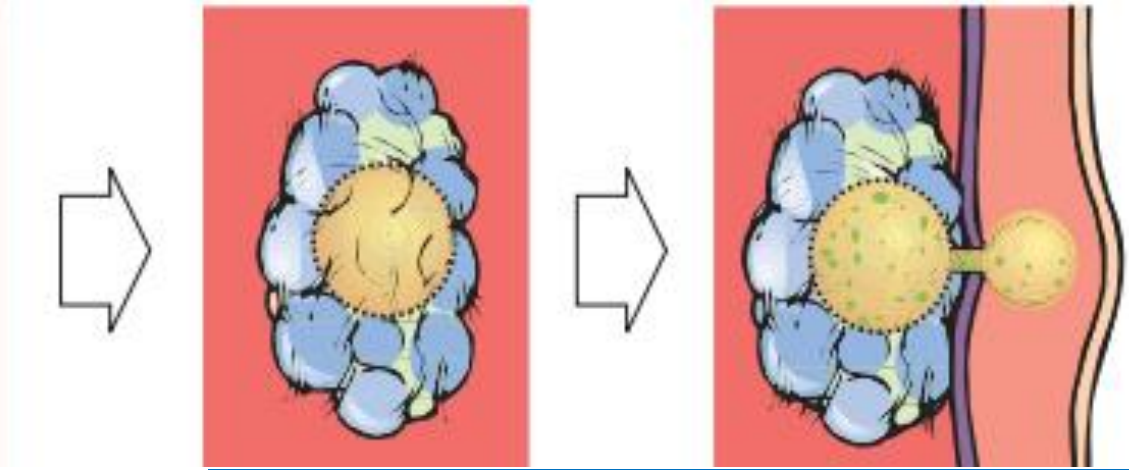
- **The signs of a tuberculous abscess**
- Caseated gland turns into pus (abscess) (slow process) does not stimulate excessive hyperaemia .

  1- (sinus) minimal erythema and lack of pain, unless secondarily infected.

  2- Collar-stud abscess.
- In the upper half of the neck.
- (abscess) the overlying skin turns reddish-purple.
- Tenderness , firm and rubbery, fluctuant then tense (deep to the sternomastoid muscle) .
- Shape : sausage shaped, with its long axis parallel to the front edge of the sternomastoid muscle
- Size Most are 3–5 cm across, but they can be much larger.
- Surface The surface is irregular and indistinct. Edge The edges are moderately well defined if the



1) Enlarged discrete glands
2) 'Matted' glands
3) Abscess forms in the centre of the glands.
4) Abscess bursts through the deep fascia and becomes 'collar-stud' in shape.



The development of a ‘collar-stud’ abscess.

A large tuberculous ‘collar-stud’ abscess.

anterior triangle that **does not** move with swallowing

- It becomes more prominent when the sternomastoid muscle is contracted. The other lymph glands in the neck near the abscess may be enlarged.
- When the patient has tuberculous lymphadenitis there are often no systemic abnormalities; but when a tuberculous abscess develops there may be tachycardia, pyrexia, anorexia and general malaise.
- There may be signs of tuberculosis in the lungs, in other lymph glands and in the urinary tract.
- Ix :
- Rx : medical / abscess (drainage)

A chronic tuberculous sinus that has become secondarily infected.

Investigation

- AFB staining , C & S., P.C.R.
- C.X.R.
- Neck U/S.

Treaetment

- Medical.
- Abscess (drainage, swab for C & S, biopsy).

Carcinomatous Lymph Glands

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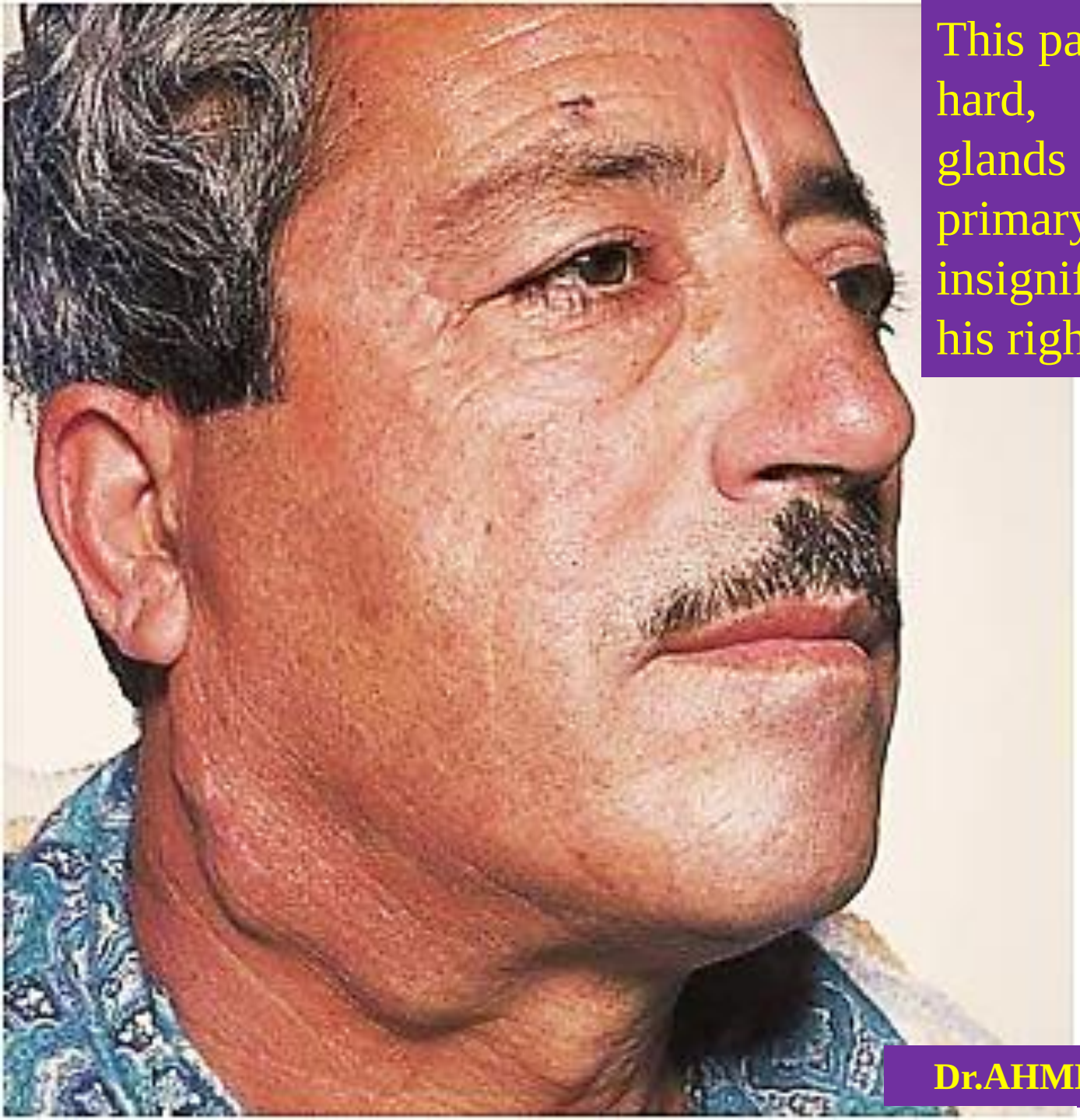

This patient presented with hard, enlarged lymph glands in the neck. The primary lesion was the insignificant mole above his right eyebrow.

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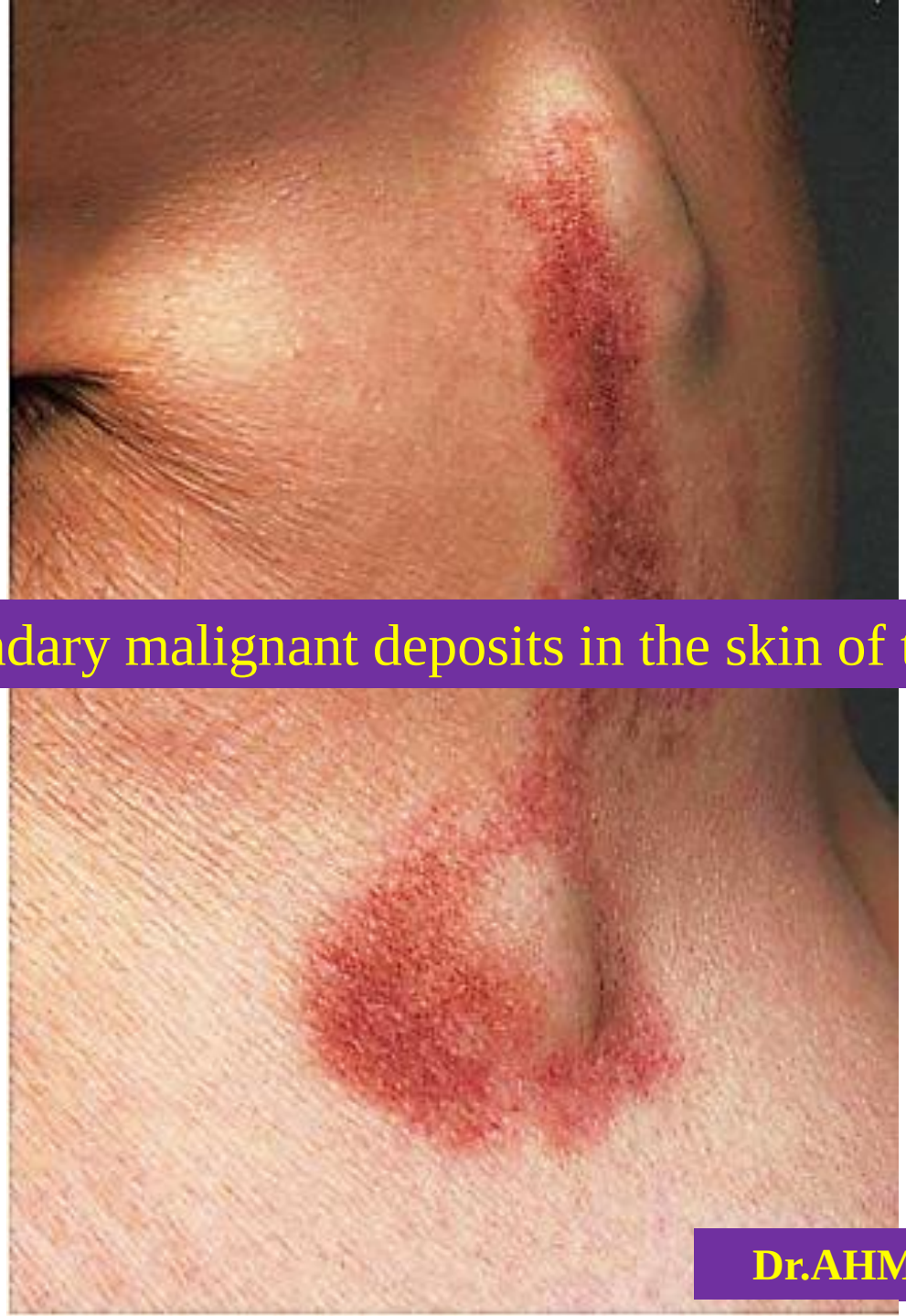

Secondary malignant deposits in the skin of the neck

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- Metastatic deposits of cancer cells in the cervical lymph glands are the commonest cause of cervical lymphadenopathy in adults.
- The primary cancer is most often in the buccal cavity (tongue, lips and mucous membrane) and larynx, but every possible primary site must be examined when cervical glands are thought to be enlarged by secondary deposits.

- **History**
- Most head and neck cancers occur in patients over the age of 50. Most patients presenting with metastatic deposits in their cervical lymph glands are between 55 and 65 years.
- The exception is papillary carcinoma of the thyroid, which occurs in children and young adults.
- Sex Most of the head and neck cancers are more common in men than in women.
- Local symptoms : Incidental slowly progressive painless lump in the neck.
- General symptoms :

  - Primary head or neck lesion (sore tongue or a hoarse voice).
  - Chest (cough or haemoptysis) & Abdomen (dyspepsia or abdominal pain), both induce anorexia and weight loss.

Examination

- The site of the affected glands gives a crude indication of the site of the primary. Lesions above the hyoid bone drain to the upper deep cervical glands. The larynx and thyroid drain to the middle and lower deep cervical glands. An enlarged supraclavicular lymph gland commonly indicates intraabdominal or thoracic disease. When enlarged by metastases, this gland is called Virchow's gland; its presence is Troisier's sign.
- The overlying skin is a normal colour unless the mass is so large that it stretches or infiltrates the skin, which makes it pale or blotchy red.
- The skin temperature will be normal unless the tumour is very vascular.
- Glands containing secondary deposits are not tender.

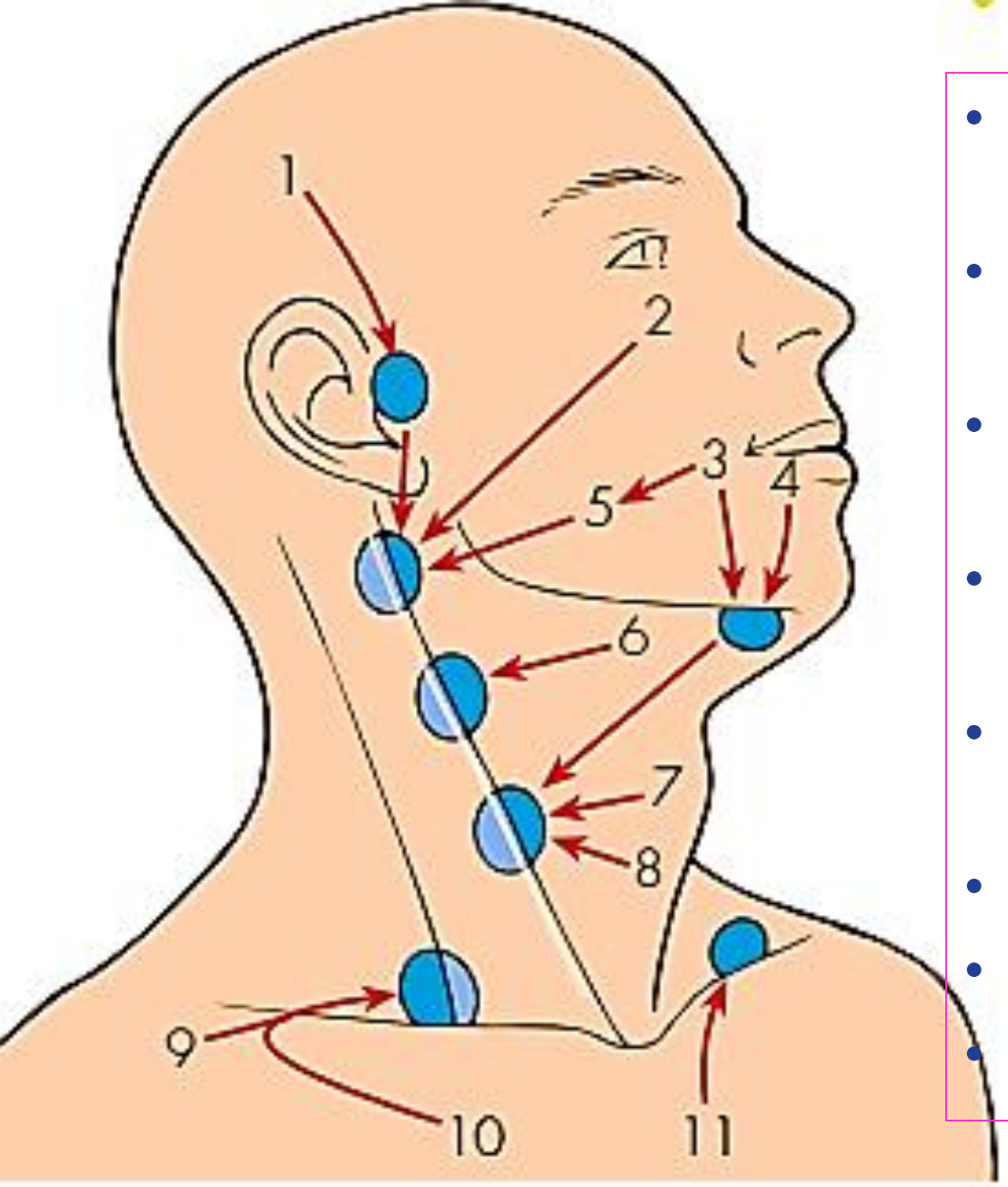
- Glands containing metastases vary in size and shape. Both features depend upon the amount of tumour within them and the rate of its growth. At first the glands are smooth, discrete and a variety of sizes. As they grow, they may coalesce into one large mass.
- Glands containing tumour are hard, often stony hard. Rarely, a very vascular tumour deposit will be soft, pulsatile and compressible.
- The glands are **tethered** to the surrounding structures, so they can usually be moved in a transverse direction, but not vertically.
- Secondary cancer is more common in the glands of the **anterior** than the posterior triangle. These glands are deep to the anterior edge of the sternomastoid.

- If the tumour **spreads beyond** the capsules of the glands, the mass becomes completely **fixed.**
- The overlying skin and muscle may be **infiltrated** with tumour, in which case the tumour must be distinguished from secondary deposits actually in the skin.
- Other lymph glands on the pathway between the primary lesion and the gland complained of by the patient, and beyond it, may be enlarged.

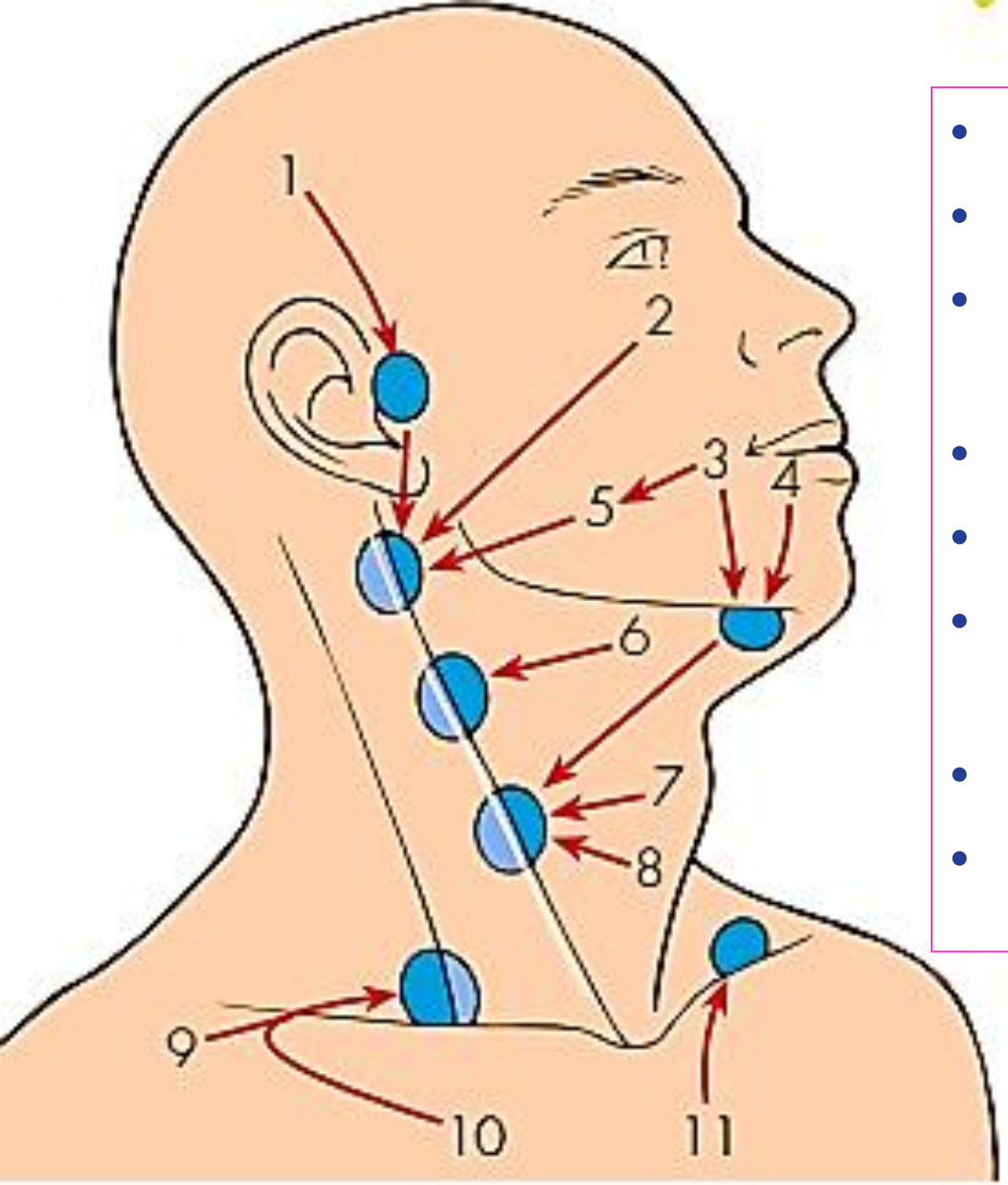
General examination

Examine all the sites which might contain the primary lesion, in particular:

- The skin of the scalp.
- The ear and the external auditory meatus.
- The lips, tongue, buccal mucous membrane and tonsils,
- The nose, maxillary antra and nasopharynx,
- The thyroid gland,
- The skin of the upper limb,
- The breasts,
- The lungs,
- The stomach, pancreas, ovaries and testes.



- 1. Scalp (sometimes via the preauricular node)
- Parotid gland Upper face Ear
- 2. Maxillary antrum and other air sinuses
- Nasal cavity and nasopharynx
- 3. Tongue Buccal mucosa Floor of mouth Mandible
- 4. Lips
- 5. Tonsil
- Base of tongue Oropharynx



- 6. Submandibular gland
- Skin of neck
- 7. Larynx and laryngopharynx
- 8. Thyroid
- Upper oesophagus
- 9. Upper limb and both sides of the chest wall
- 10. Breast
- 11. Lungs, stomach and all the viscera

Investigations

- CBC., RFT, LVT.
- Neck U/S.
- Biomarkers for related disease.
- CT scan , PET scan .
- Searching for primary tumour.
- MDT Consultation
- Excisional biopsy.
- Oncologist.

Primary neoplasms of the lymph glands (Reticuloses, lymphoma)

- The most common primary tumour of lymphoid tissue is the malignant lymphoma. There are many histological varieties of lymphoma, but they are often collectively and loosely divided into Hodgkin's and non-Hodgkin's lymphoma.

History

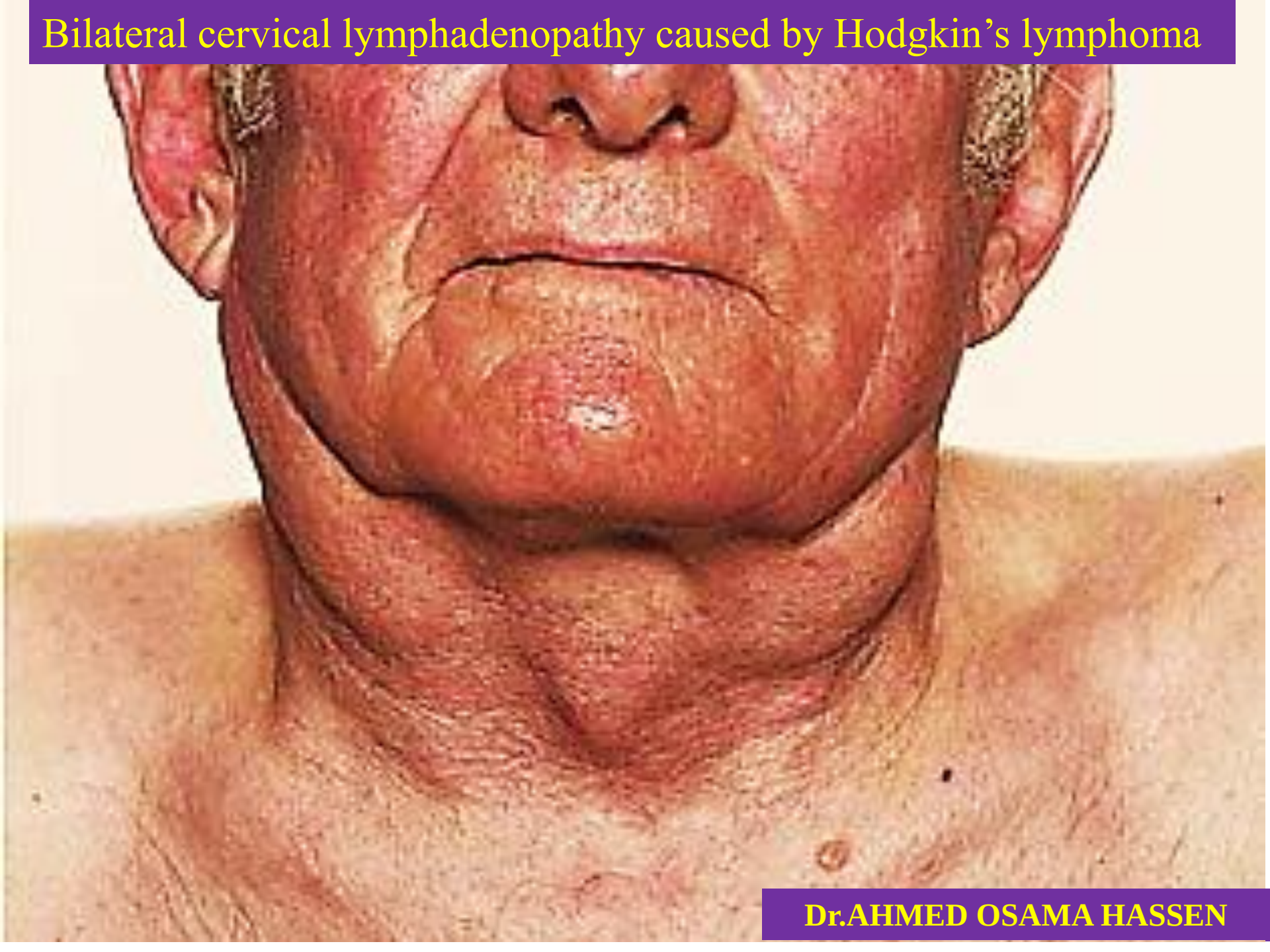
- Common in children and young adults.
- Males are affected more often than females.
- Incidental slowly growing painless lump in the neck
- Periodic fever with rigors.Malaise, weight loss and pallor are common symptoms. An unexplained pruritu .
- Lymphomatous infiltration of the skeleton may cause pains in the bones, and there may be abdominal pain after drinking alcohol.
- Large mediastinual LN , may occlude the superior vena cava (Pombarten test)
- Large masses in the abdomen can obstruct the inferior vena cava and cause oedema of both legs.

- **Examination**
- Often causes lymphadenopathy in the posterior triangle.
- Painless, ovoid, smooth and discrete, solid and rubbery in consistence.
- It is possible to define individual glands even when they become large. This is the opposite to tuberculosis, in which the lymph glands become matted and indistinct.
- Tethered to nearby structures,but these glands can usually be moved from side to side and rarely become completely fixed.
- The surrounding tissues should be normal.
- The liver and spleen may be palpable. The patient is often anaemic and may be jaundiced.
- Spread to the skin produces elevated, reddened, scaly patches of skin known as mycosis fungoides.

Plan of examination for source of secondary cervical lymphadenopathy

- (Start at the top and work downwards.) Examine the skin of the scalp, face, ears and neck.
- Look in the nose.
- Look in the mouth at the tongue, gums, mucosa and tonsils.
- Palpate the parotid, submandibular and thyroid glands.
- Examine the arms and the chest wall – including the breast.
- Examine the abdomen and genitalia.
- Transilluminate the air sinsuses.
- Examine the nasopharynx and larynx with mirrors.

Bilateral cervical lymphadenopathy caused by Hodgkin's lymphoma



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Mycosis Fungoides

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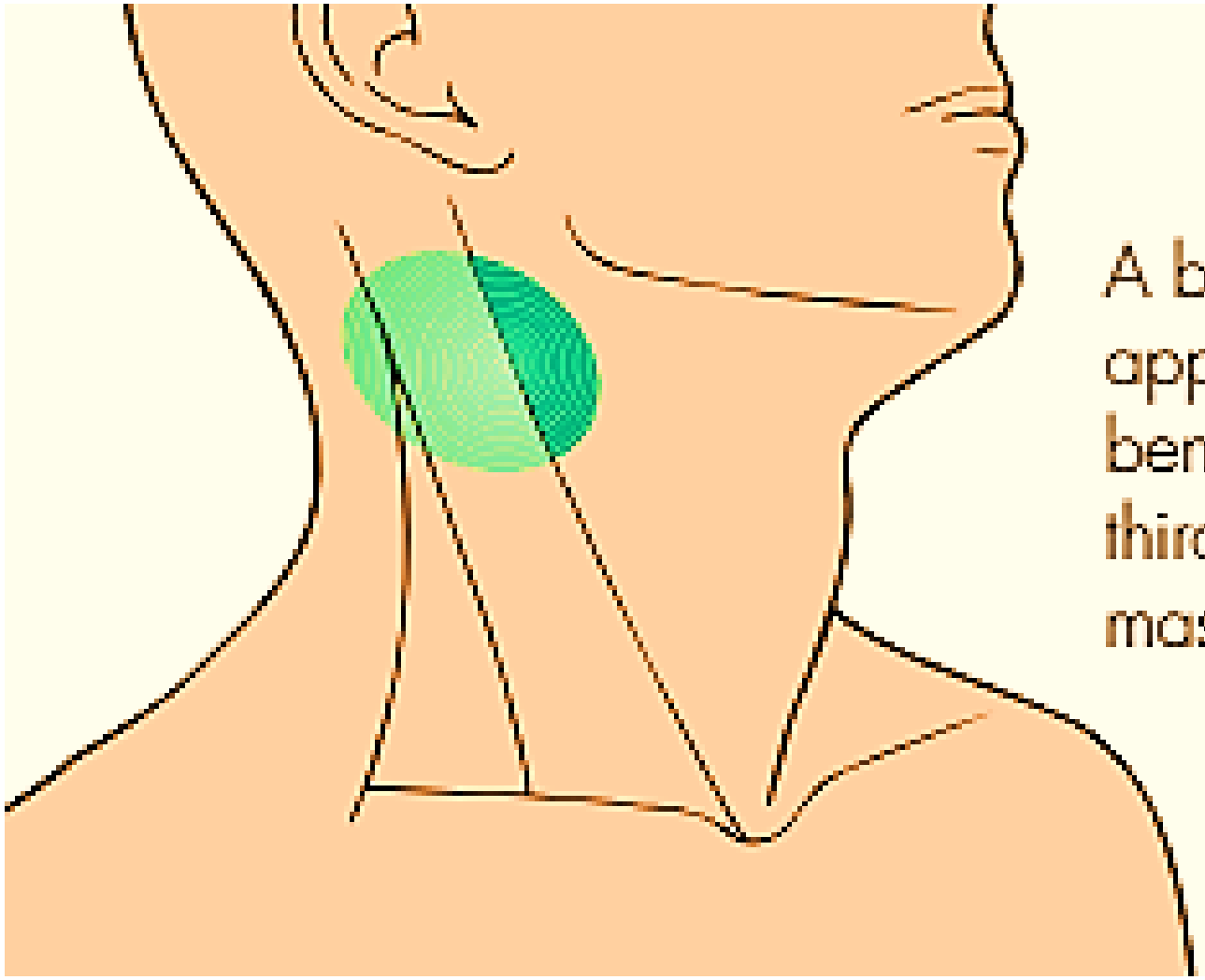
Investigation

- C.B.C.
- L.F.T.
- Neck U/S
- Hematologist consultation.
- Excisional biopsy (hematologist request).

Branchial cyst

- A branchial cyst is a remnant of a branchial cleft, usually the second cleft. It is therefore lined with squamous epithelium, but there are also patches of lymphoid tissue in the wall which are connected with the other lymph tissue in the neck and which can become infected.



A branchial cyst appears from beneath the upper third of the sterno-mastoid muscle

A branchial cyst which presented in adult life. The back of the swelling is clearly deep to the sternomastoid muscle.

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A large branchial cyst which had become painful. This commonly follows recurrent bouts of tonsillitis, especially if the infection has been treated inadequately.

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- **History**
- It presents at birth, may not distend and cause symptoms until adult life. The majority present between the ages of 15 and 25 years, but a number appear in the 40s and 50s.
- Males and females are equally affected.
- A painless swelling in the upper lateral part of the neck.
- Infection in the lymphoid tissue in the cyst wall causes attacks of pain associated with an increase in the size of the swelling, with severe throbbing pain, exacerbated by moving the neck and opening the mouth, develops if the contents of the cyst become infected and purulent.
- These cysts have no systemic effects and are not associated with any other congenital abnormality.

- **Examination**
- A branchial cyst (between 5 and 10 cm long) lies behind the anterior edge of the upper third of the sternomastoid muscle, and bulges forwards.
- The overlying skin may be reddened and be tender .
- The cyst is usually ovoid, with its long axis running forwards and downwards.
- Smooth surface with distinct edge and (fluctated to tense) hard/ soft, dull to percussion, cannot be reduced or compressed.
- The lump is usually opaque because it contains desquamated epithelial cells that make its contents thick and white. Sometimes the fluid is golden yellow and shimmers with fat globules and cholesterol crystals secreted by the sebaceous glands in the epithelial lining.

- Such cysts may transilluminate.
- It is not very mobile because it is closely tethered to the surrounding structures.
- No local deep cervical. If they are palpable, in favour of tuberculous abscess rather than a branchial cyst.
- The other cystic lesions deposits from a papillary carcinoma of the thyroid.
- The local tissues should be normal.
- If the cyst has turned into an abscess, the surrounding tissues will be oedematous and the skin hot and red.

Investigations

- Neck U/S.

TREATMENT

Surgical excision

Branchial fistula (or sinus)

- This is a rare congenital abnormality. It is the remnant of a branchial cleft, usually the second cleft, which has not closed off.
- The patient complains of a small dimple in the skin at the junction of the middle and the lower third of the anterior edge of the sternomastoid muscle, that discharges clear mucus, and sometimes becomes swollen and painful and discharges pus.
- Connects the skin with the oropharynx, just behind the tonsil. In most cases the upper end is obliterated and the track should really be called a branchial sinus.
- Swallowing accentuates the openings on the skin.

- A branchial fstula may be unilateral or bilateral and is thought to represent a persistent second branchial cleft.
- The external orifice is nearly always situated in the lower third of the neck near the anterior border of the sternoclei do-mastoid muscle, while the internal orifice is located on the anterior aspect of the posterior faucial pillar just behind the tonsil.
- Although the anterior aspect of the tract is easy to dissect, it may pass backwards and upwards through the bifurcation of the common carotid artery as far as the pharyngeal constrictors.

- The internal aspect of the tract may, however, end blindly at or close to the lateral pharyngeal wall, constituting a sinus rather than a fistula. The tract is lined by ciliated columnar epithelium and, as such, there may be a small amount of recurrent mucopurulent discharge onto the neck.
- The tract follows the same path as a branchial cyst and requires complete excision to avoid recurrence.
- Investigation (fistulogram) / MRI.
- Treatment (fistulectomy).

Plain radiograph with radio-opaque dye in the fstula

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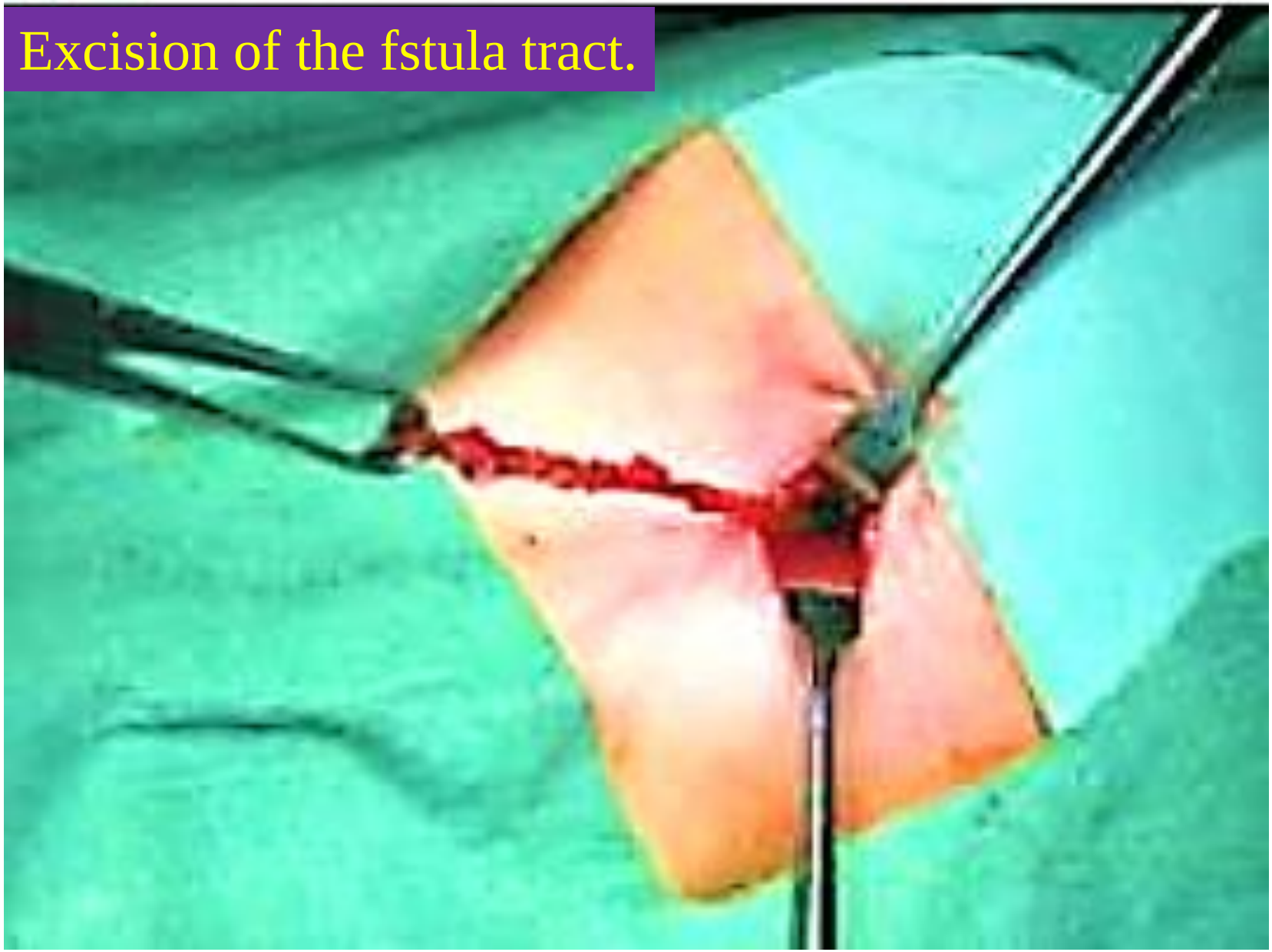
Excision of the fstula tract.



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Carotid body tumour

- Glomus tumours are paragangliomas arising from non-chromafn paraganglionic tissue .
- This is a rare tumour of the chemoreceptor tissue in the carotid body. It is therefore a chemodectoma. It is usually benign, but can become quite large and, occasionally, malignant.
- The carotid bifurcation is at, or just below, the level of the hyoid bone. Carotid body tumours are therefore found in the upper part of the anterior triangle of the neck, level with the hyoid bone and beneath the anterior edge of the sternomastoid muscle.

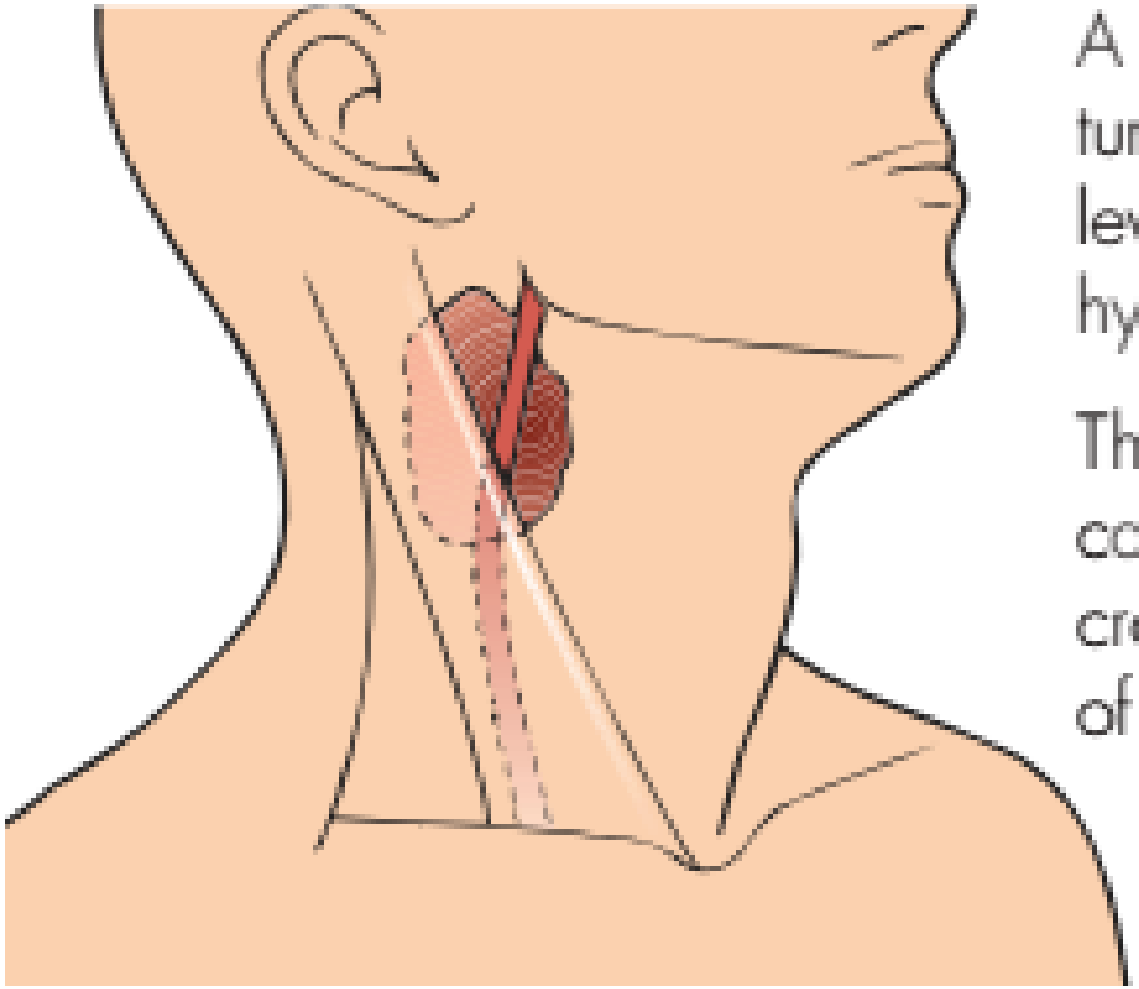
History

- 40 and 60 years.
- A painless, slowly growing lump. The patient may notice that the lump pulsates, and may also suffer from symptoms of transient cerebral ischaemia (blackouts, transient paralysis or paraesthesia). These symptoms are unusual because the increasing compression of the carotid artery by the tumour is a very slow process.
- Carotid body tumours may be bilateral.

Examination

- Pressure in this area can induce a vasovagal attack.
- These tumours are not tender or hot, and the overlying skin should be normal.
- The lump is initially spherical but, as it grows, it becomes irregular in shape, often narrower at its lower end, where it is caught at the bifurcation of the common carotid artery.
- Size 2 cm to 10 cm in diameter.
- Composition solid and hard, dull to percussion and do not fluctuate. potato tumours).
- Sometimes these tumours pulsate. This is either a transmitted pulsation from the adjacent carotid artery, or a palpable external carotid artery running over the superficial aspect of the lump, or a true expansile pulsation from a soft or very vascular tumour.

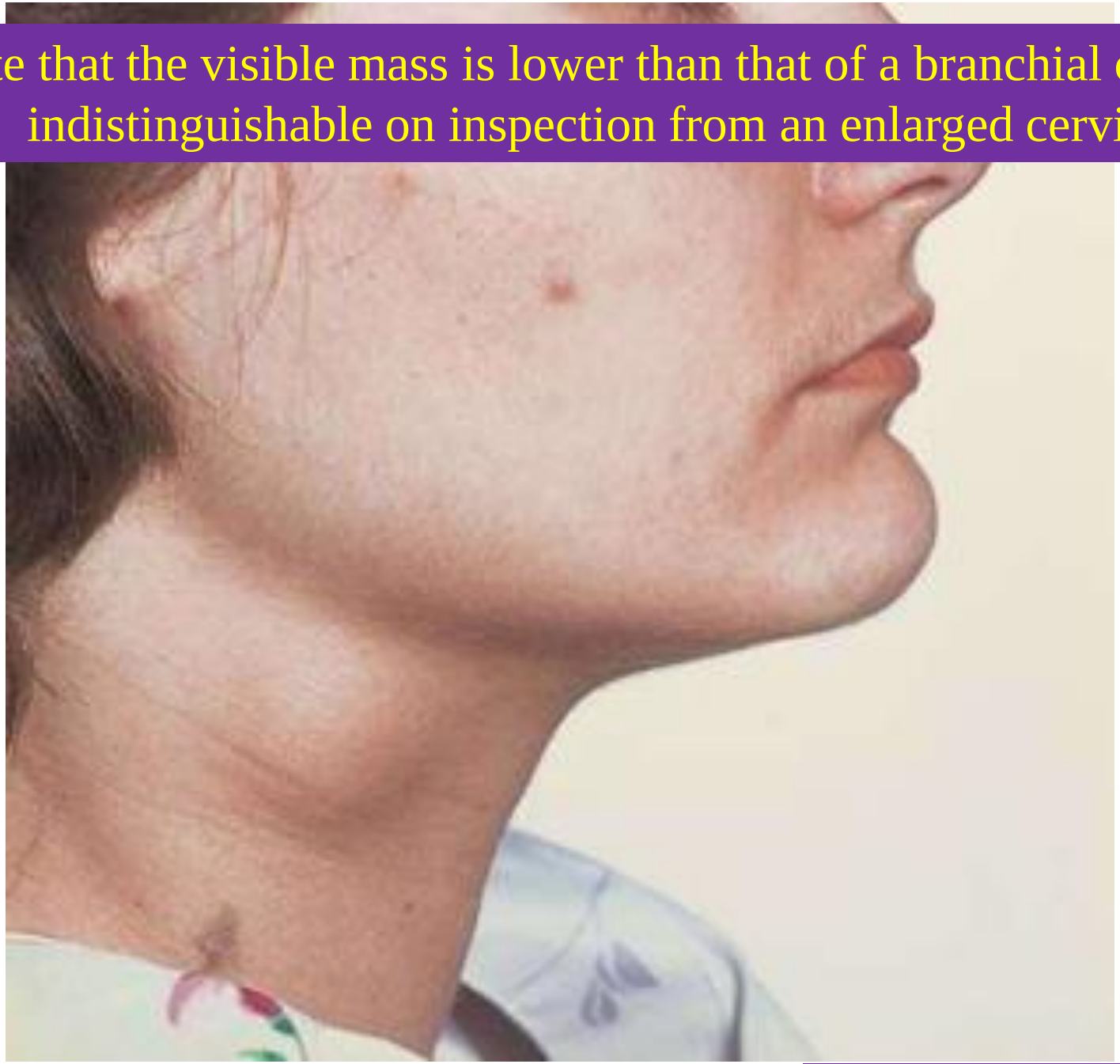
- It is surprising that in spite of their vascularity most of these tumours are hard. Those which are soft and very vascular not only have an expansile pulsation, but can also be compressed.
- Relations :beneath the anterior edge of the sternomastoid muscle.
- The common carotid artery can be felt below the mass, and the external carotid artery may pass over its superficial surface. Without this close relationship to the arteries, this tumour is indistinguishable from an enlarged lymph gland.
- Because of their intimate relationship with the carotid arteries, these tumours can be moved from side to side but not up and down.



A carotid body tumour should be level with the hyoid cartilage

The external carotid artery may cross the surface of the tumour

Note that the visible mass is lower than that of a branchial cyst ,but indistinguishable on inspection from an enlarged cervical



A large carotid body tumour. A very large, firm, bosselated carotid body tumour – hence the term ‘potato tumour’.

Axial view computed tomography angiogram demonstrating a left carotid body tumour

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Magnetic resonance imaging demonstrating a left carotid body tumour.

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Investigations

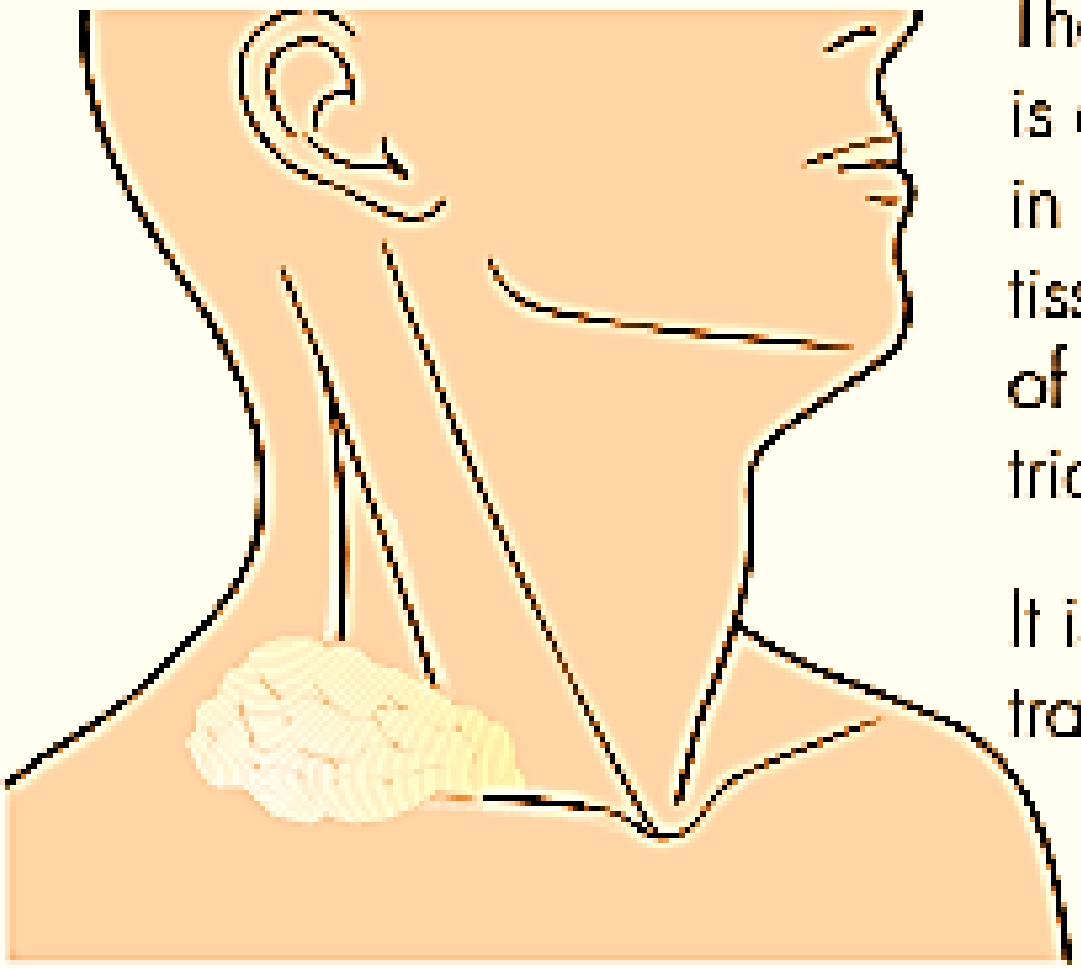
- This tumour must not be biopsied and fine-needle aspiration is also contraindicated.
- Radiotherapy will not cure the tumour but can prevent further growth.
- CT scan Angiography or digital subtraction vascular imaging
- These techniques may be indicated if a vascular lesion such as a carotid body tumour is suspected.
- Magnetic resonance angiography (MRA) offers excellent resolution of vascular anatomy and is less invasive.

Treatment

- Angiography may have a therapeutic role to play by facilitating embolisation of vascular tumours prior to planned surgical procedures
- Resectable : Surgical exscision of the tumour
- Because these tumours rarely metastasise and their overall rate of growth is slow, the need for surgical removal must be considered carefully as complications of surgery are potentially serious. The operation is best avoided in elderly patients.
- Radiotherapy will not cure the tumour but can prevent further growth
- Non resectable : a bypass while a vein autograft is inserted to restore arterial continuity in the carotid system.

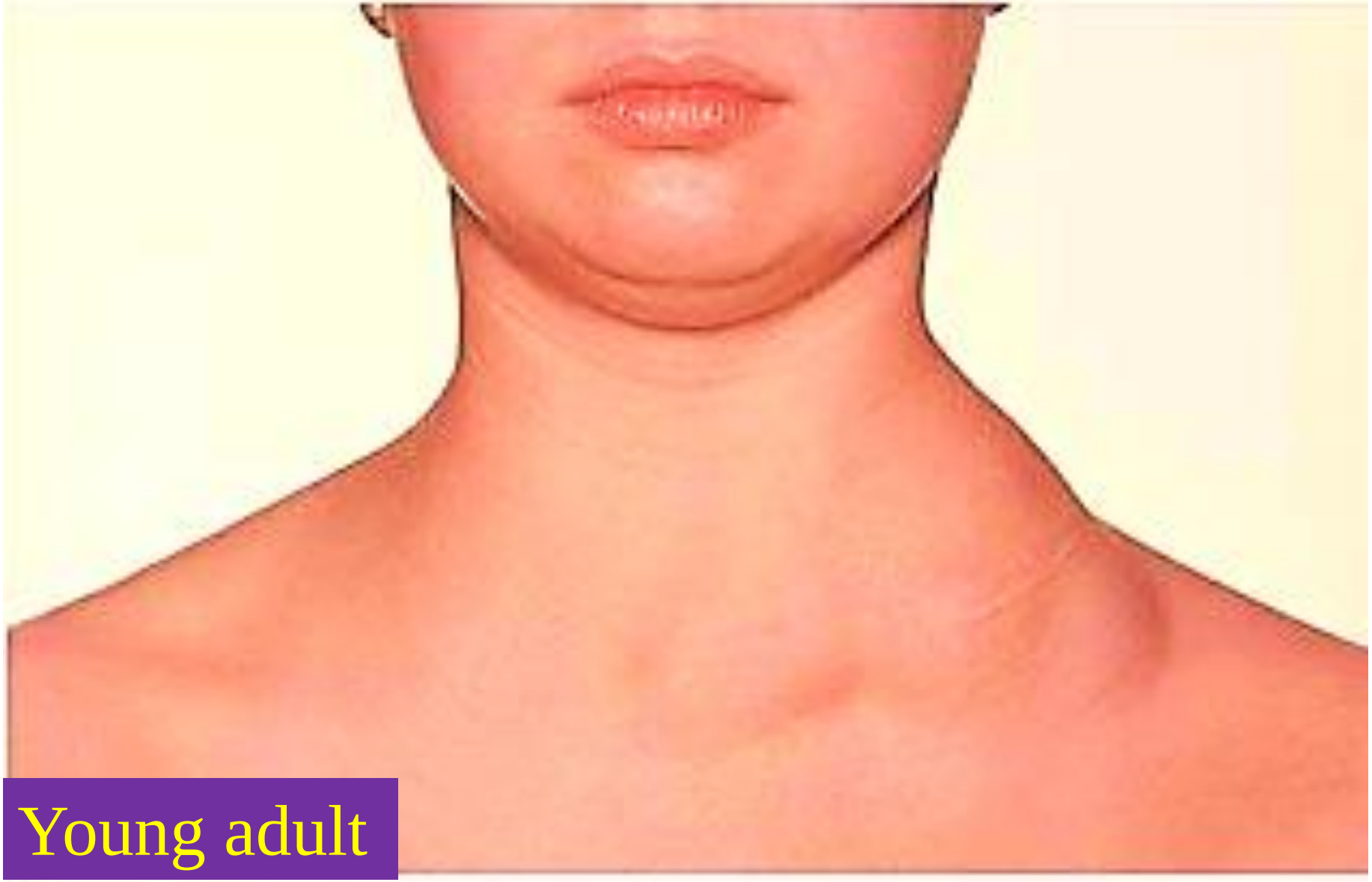
Cystic hygroma

- A cystic hygroma is a congenital collection of lymphatic sacs which contain clear, colourless lymph. They are probably derived from clusters of lymph channels that failed, during intra-uterine development, to connect with and become normal lymphatic pathways. Lymph cysts commonly occur near the root of the arm and the leg (i.e. in the anatomical junction between the limbs and head and the trunk). The cheek, axilla, groin and mediastinum are other less frequent sites for a cystic hygroma.



The cystic hygroma is commonly found in the subcutaneous tissues at the base of the posterior triangle

It is brilliantly translucent



Young adult

A large lymphocele in an elderly lady

Dr.AHMED OSAMA HASSEN

History

- The behaviour of cystic hygromas during infancy is unpredictable. Sometimes the cyst expands rapidly and occasionally respiratory difculty ensues, requiring immediate aspiration and even occasionally a tracheostomy. The cyst may become infected.
- It presents at birth (obstrected labour) or within the first few years of life, but they occasionally stay empty until infection or trauma in adult life causes them to fill up and become visible. Occasionally large lymphoceles can be seen in elderly patients.
- The only symptom is painless disfigure lump.
- This condition is not familial.

Examination

- Commonly are found around the base of the neck, usually in the posterior triangle, but they can be very big and occupy the whole of the subcutaneous tissue of one side of the neck.
- Overlying skin is normal, the whole mass looks lobulated and flattened.
- The small cysts are a few centimetres across. Large cysts can extend over the whole of one side of the neck.
- If the cysts are close to the skin (a distinct surface). Deep cysts feel smooth, but because they are lax their edges are often indistinct.
- Soft and dull to percussion, fluctuate ,is a brilliant translucence.

- Large cysts will conduct a fluid thrill, and in some multilocular swellings the fluid in one loculus can be compressed into another. They cannot be reduced.
- Superficial to the neck muscles and close to the skin but are rarely fixed to the skin. However, it is essential to perform a thorough examination of the oropharynx, as a cyst in the posterior triangle may extend deeply beneath the sternomastoid muscle into the retropharyngeal space.
- The local lymph glands not enlarged and there is no lymphoedema.
- Normal surrounding tissues.
- DDx : as cystic nodal metastases of papillary thyroid carcinoma can present as large’

Investigations

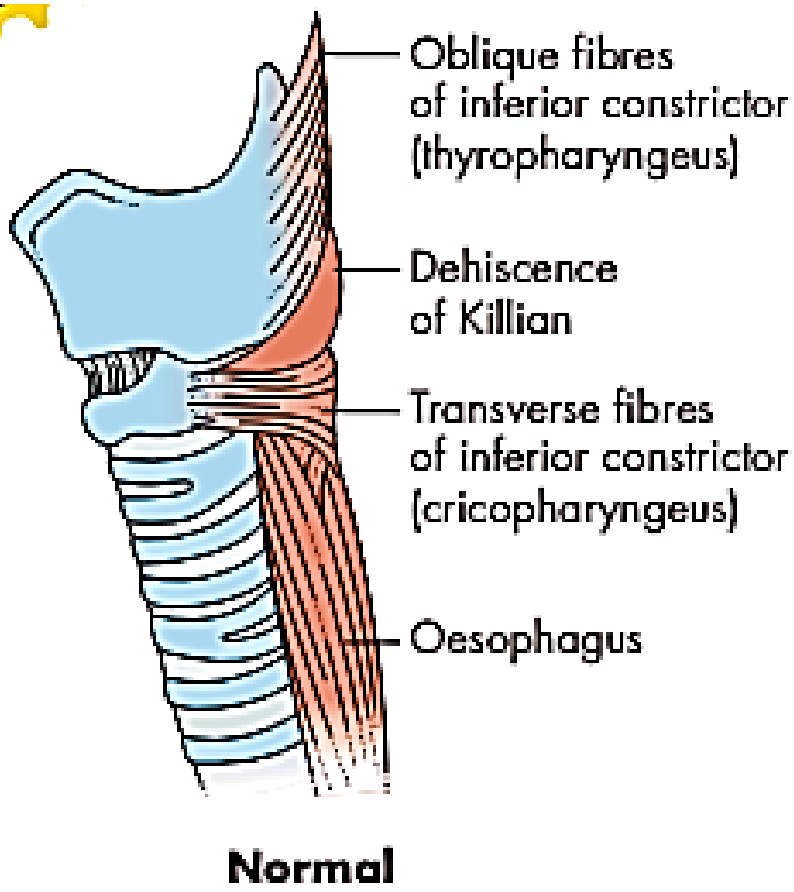
- CBC
- Neck ultrasonography.
- Neck CT sacn / MRI.

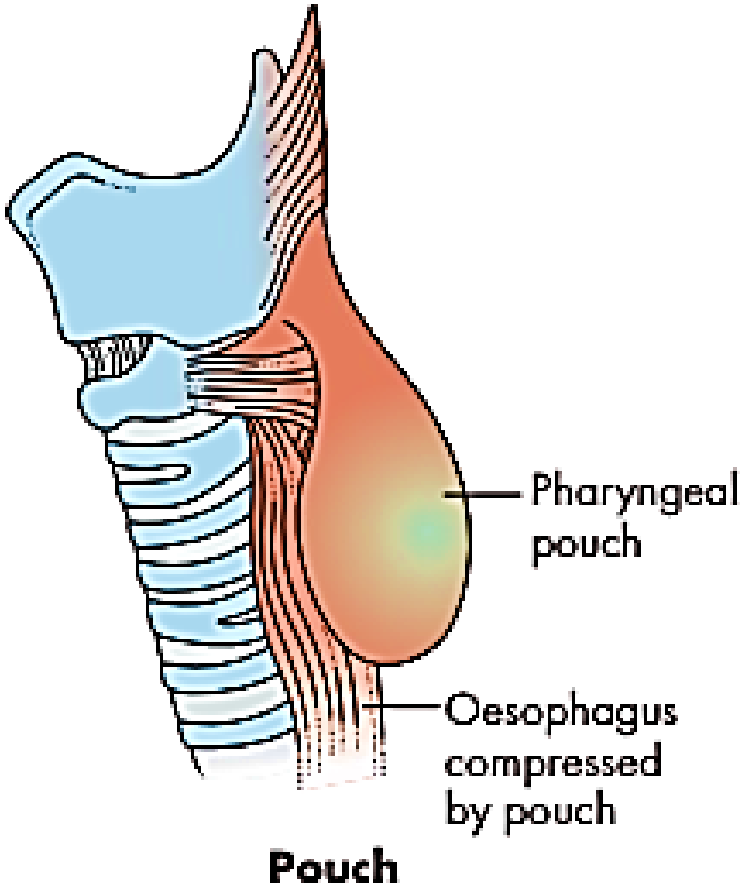
Treatment

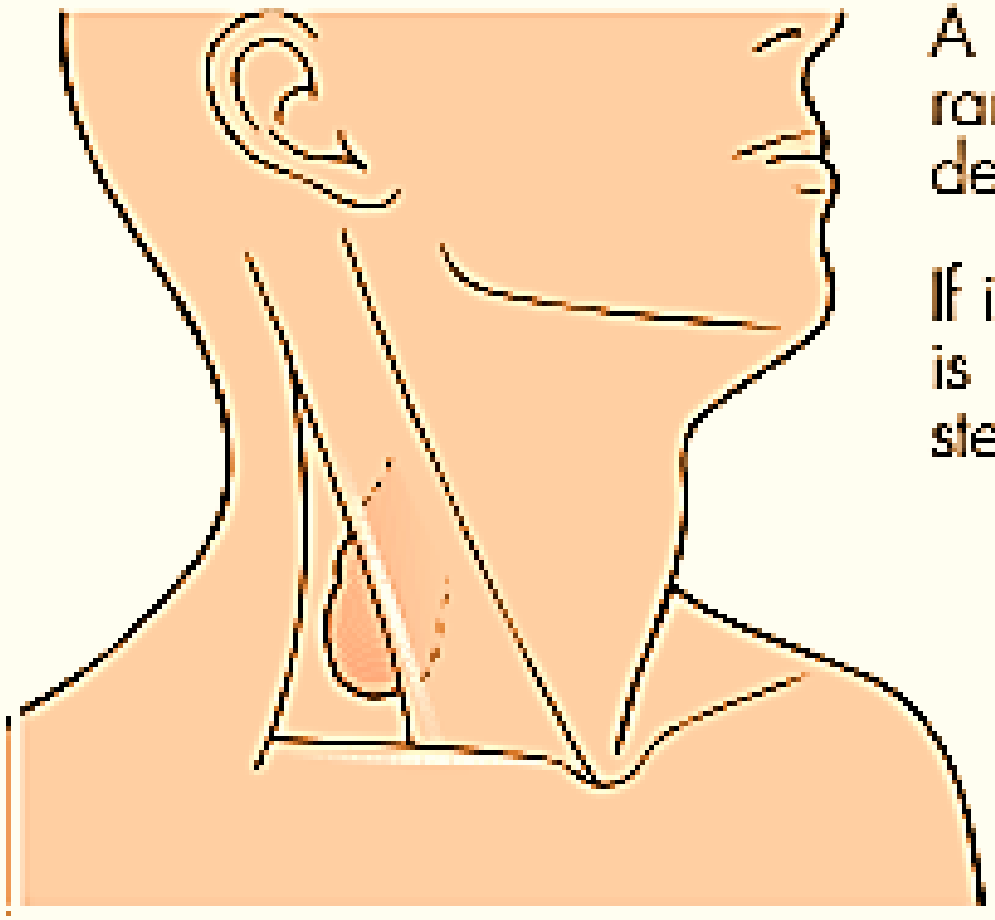
- Defnitive treatment involving complete excision of the cyst at an early stage is best if possible.
- Injection of a sclerosing agent is an alternative strategy and may reduce the size of the cyst; however, they are commonly multicystic and therefore complete resolution is a challenge.

Pharyngeal pouch

- Zenker’s diverticulum.
- Pulsion diverticulum of the pharynx through the gap between the horizontal fibres of the cricopharyngeus below and the lowermost oblique fibres of the inferior constrictor muscle above. (Killian’s dehiscence) .
- Eventually the bulge grows into a sac, which hangs down and presses against the side of the oesophagus.
- Middle and old age.
- Common in men than in women.
- Posterior triangle.


Oblique fibres
of inferior constrictor
(thyropharyngeus)
Dehiscence
of Killian
Transverse fibres
of inferior constrictor
(cricopharyngeus)
Oesophagus
Normal


Pharyngeal
pouch
Oesophagus
compressed
by pouch
Pouch



A pharyngeal pouch rarely causes a detectable swelling

If it does, the swelling is behind the sternomastoid muscle

History

- Halitosis before noticing regurgitation of froth and undigested food , of non biliuos test.
- Regurgitation at night causes bouts of coughing and choking, and if pieces of food are inhaled, a lung abscess may develop.
- As the pouch grows, causes dysphagia
- Swelling causes gurgling sounds and regurgitation. The swelling changes in size and often disappears.
- If the dysphagia continues, the patient may become malnourished and lose weight.

Examination

- The pouch is not palpable when it is smaller, so many patients have symptoms but no abnormal physical signs.
- Position In most patients is non palpable swelling, but with time it appears behind the sternomastoid muscle, below the level of the thyroid cartilage.
- Shape It feels like a bulging deep structure.
- Size Most pouches only cause a swelling of 5–10 cm , smooth surface, but the edge is not palpable.
- The lump is soft. It is dull to percussion and does not fluctuate or transilluminate, can be compressed and sometimes emptied. Compression may cause regurgitation. Although the mass may disappear with compression, not to return until the patient eats again, it cannot be said to have been ‘reduced’ according to the usual meaning of the word.

- It lies deep to the deep fascia, behind the sternomastoid muscle, and is fixed deeply. It cannot be moved about in the neck.
- The cervical lymph glands should not be enlarged.
- When the pouch is empty the whole neck feels normal.
- Pay special attention to the chest, as there may be an aspiration pneumonia, collapse of a lobe or a lung abscess.

Investigation:

- Neck ultrasonography & CT scan.
- Barium swallow
- Upper endoscopy.
- Video flouroscopic swallow study .

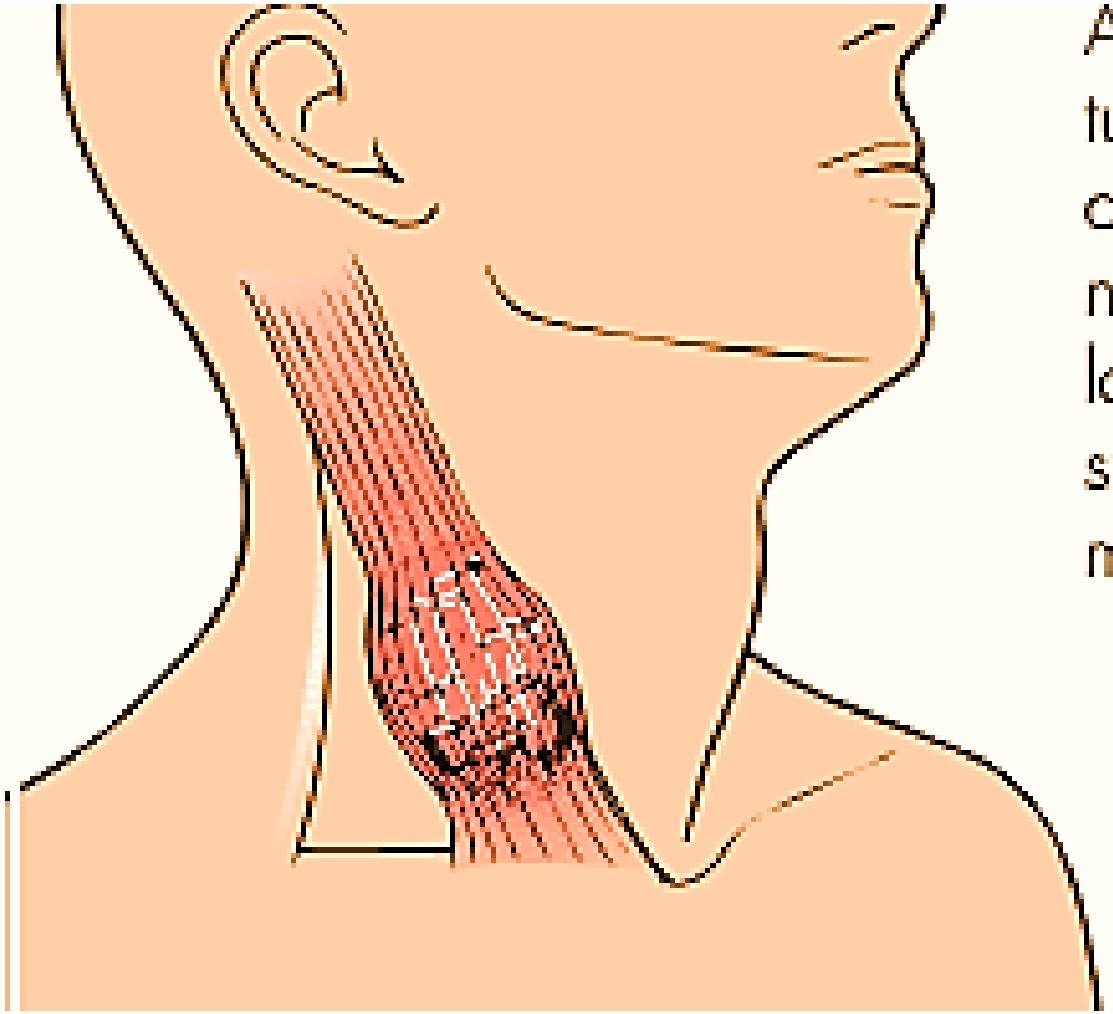
Treatment

- Open surgery (Pouch excision / suspension (diverticulopexy) +/- crycopharyngeus myotomy.
- Transoral Linear cutting stapler (diverticulo-esophagectomy).

Sternomastoid ‘tumour’

(Ischaemic contracture of a segment of the sternomastoid muscle).

- This is a swelling of the middle third of the sternomastoid muscle. In neonates it consists of oedema around an infarcted segment of the muscle, caused by the trauma of birth. As the patient grows, the lump disappears and the abnormal segment of muscle becomes fibrotic and contracted.



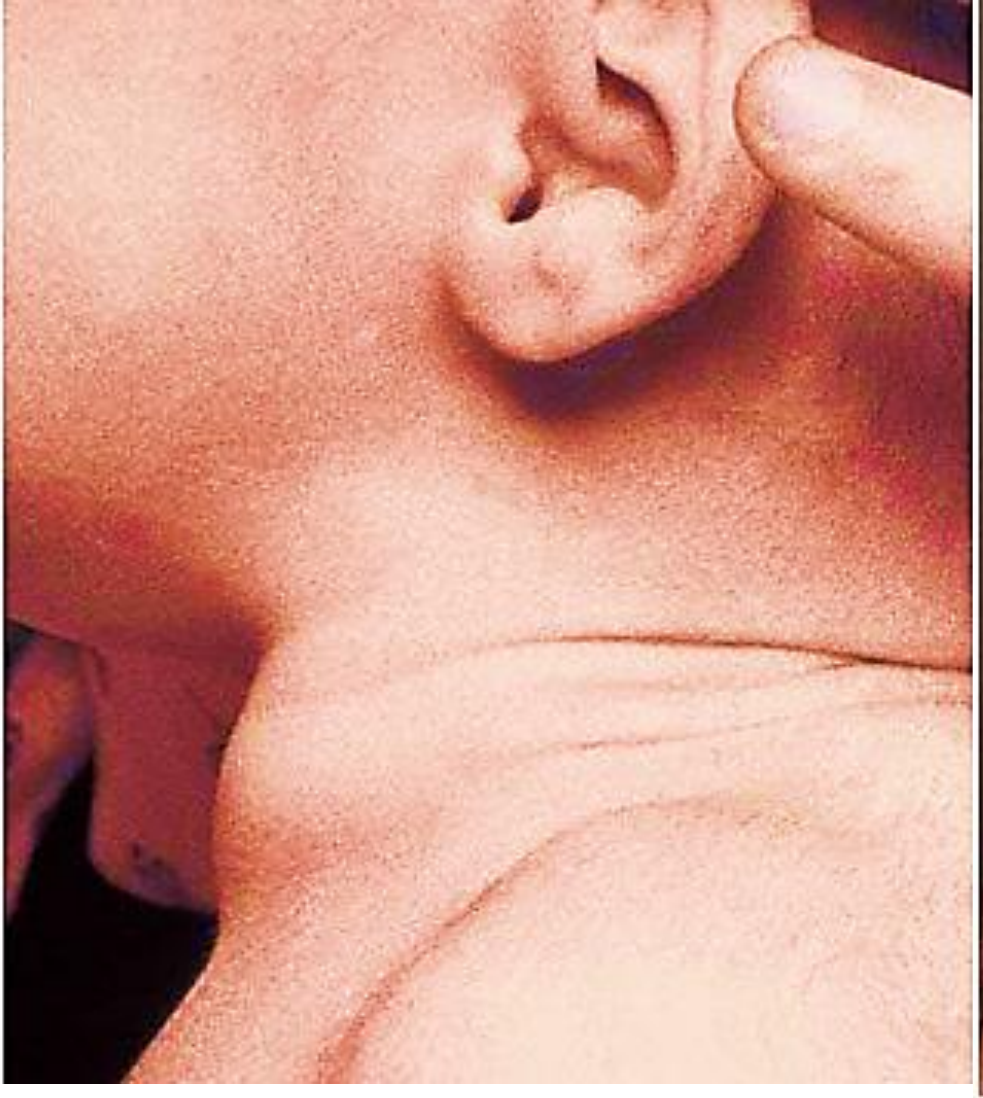
A 'sternomastoid tumour' is an area of oedema and necrosis in the lower third of the sternomastoid muscle

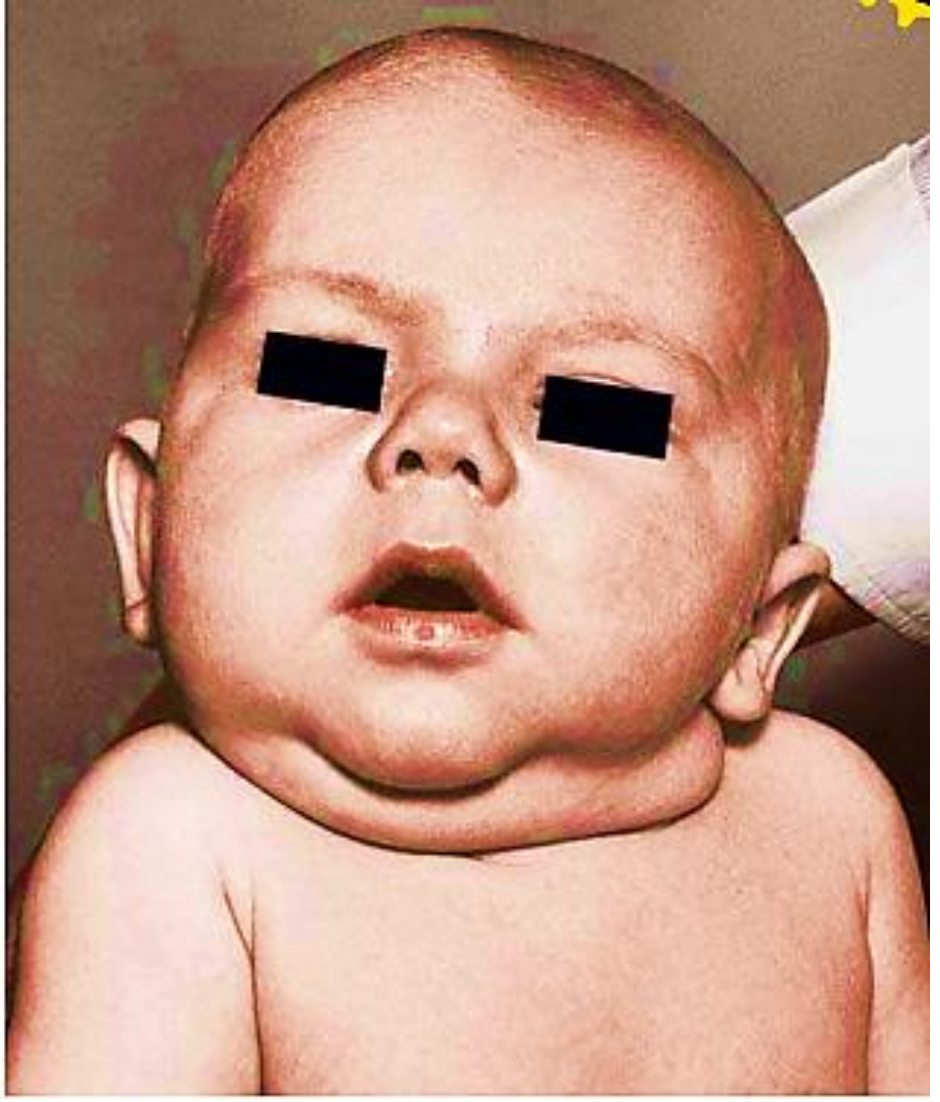
History

- The lump is noticed at birth or in the first few weeks of life.
- The mother may notice the lump or that the child keeps their head turned to one side – torticollis. Attempts to turn the head straight may cause pain or distress.
- If the muscle is not extensively damaged, the swelling slowly subsides, the muscle spasm relaxes and the torticollis disappears. If the muscle damage becomes an area of permanent fibrosis, the twist and tilt of the head to one side becomes more noticeable as the child grows.

Examination

- The swelling lies in the middle of the sternomastoid muscle (i.e. in the middle third of the neck on the antero-lateral surface).
- Tender in the first few weeks of life.
- Usually 1–2 cmis smooth, fusiform, with its long axis along the line of the sternomastoid muscle.
- The lump becomes continuous with normal muscle.
- At first the lump is firm and solid and easy to feel, but as it gradually becomes harder it begins to shrink and may become impalpable.
- Normal surrounding structures and local lymph.





- Examine the movements of the neck.
- Contraction of the left sternomastoid turns the head towards the right, but tilts the head to the left. Both these deformities may be present. Forced movement to correct the deformity may cause pain and be resisted by the child.
- Apart from the restriction of movement caused by spasm of the sternomastoid muscle, the neck movements should be normal.
- Look at the eyes to detect any squint. Torticollis can be a means of correcting a squint. Move the head into a vertical and central position and watch the eyes. If the torticollis is secondary to a squint and not a sternomastoid tumour, the squint will appear as the head is straightened.

Treatment

- Physiotherapy.
- Surgical repair :Elongation of sternocliedo-matoid tendon by Z plasty lengthening.

Cervical rib

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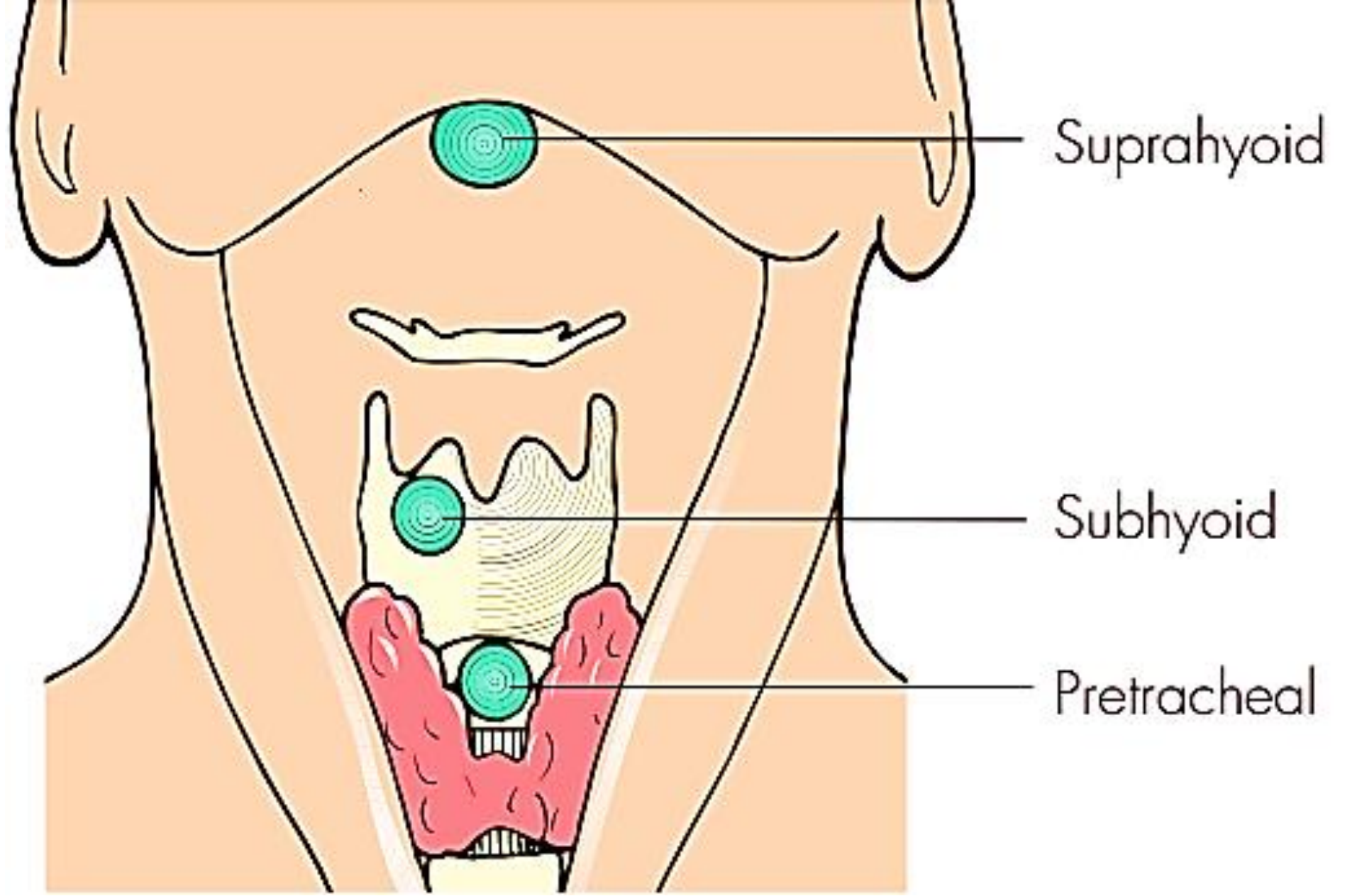
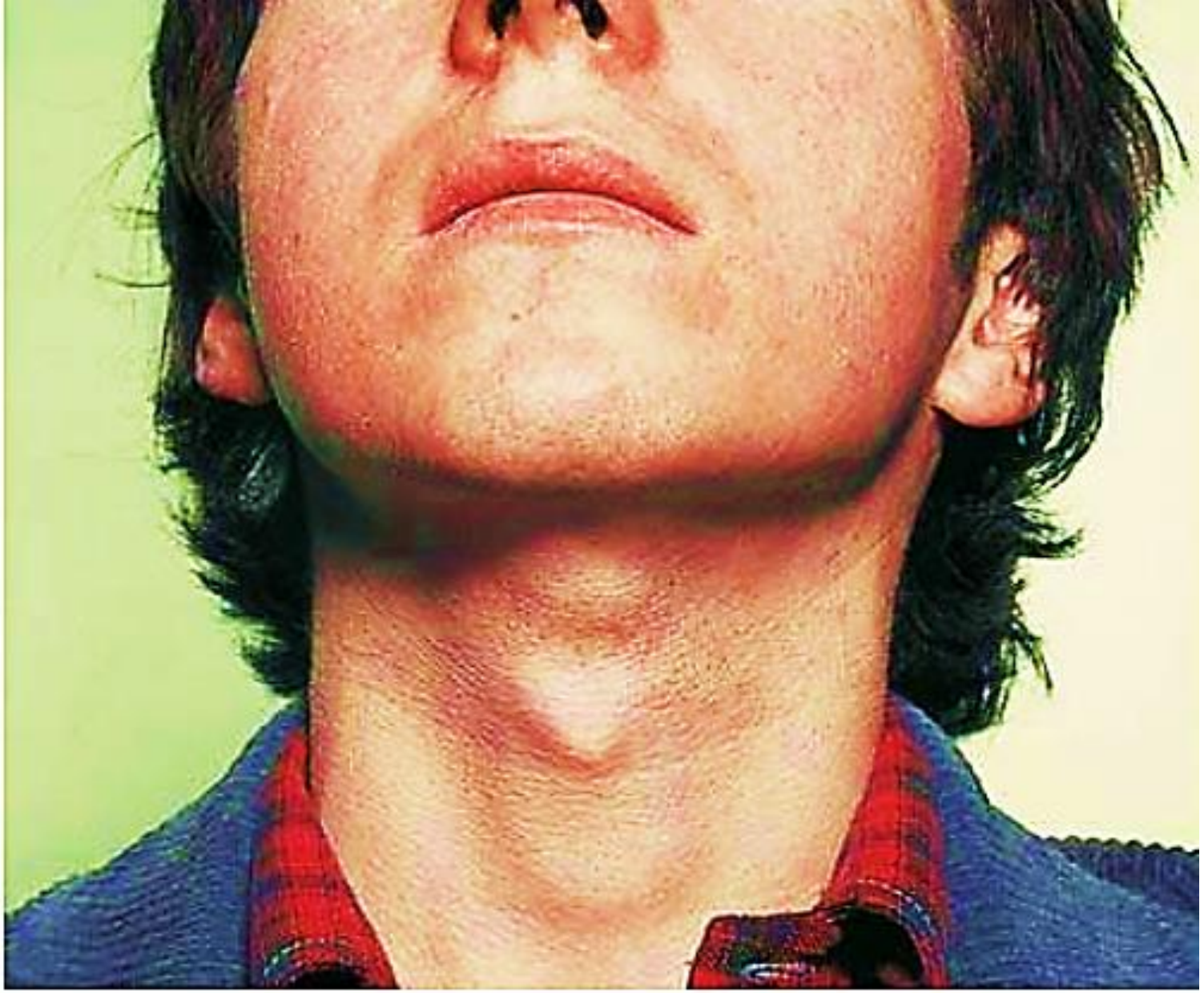
- The abnormal rib is usually detected with an X-ray. Sometimes there is a fullness at the root of the neck, but it is rarely distinct enough to justify a firm clinical diagnosis of cervical rib.
- Raising up the affected upper limb, with compression on suprascapular fossa, induces local pain and neurological (paresthesia & numbness and vascular symptoms (signs of acute ischemia).
- The common neurological symptoms caused by a cervical rib are pain in the C8 and T1 dermatomes, and wasting and weakness of the small muscles in the hand.
- Vascular symptoms such as Raynaud's phenomenon, trophic changes, even rest pain and gangrene, may occur but are uncommon.
- Occasionally it can be associated with aneurysmal change in the subclavian artery.
- Treatment : Surgical excision.

Thyroglossal cyst and fistula

- The thyroid gland develops from the lower portion of the thyroglossal duct, which begins at the foramen caecum at the base of the tongue and passes down to the pyramidal lobe of the isthmus of the thyroid gland. If a portion of this duct remains patent, it can form a thyroglossal cyst.
- They are commonly found in two sites: between the isthmus of the thyroid gland and the hyoid bone, and just above the hyoid bone.
- Thyroglossal cysts within the tongue and in the floor of the mouth are rare.


Suprahyoid
Subhyoid
Pretracheal



Subhyoid cyst.

Pretracheal cyst.

History

- The majority are seen in patients between 15 and 30 years old.
- More common in women than in men.
- Central painless lump in the neck.
- Pain, tenderness and an increase in size occur only if the cyst becomes infected.
- The lump may have been present for many years before an increase in its size causes the patient to complain.
- There are no systemic symptoms associated with this condition.
- If infected thyroglossal cyst ruptured , then it becomes a fistula.

Examination

- It lies close to the mid-line,somewhere between the chin and second tracheal ring. In the fetus the thyroglossal duct is in the mid-line, but when a cyst forms in adult life it often slips to one side of the mid-line, especially if it develops in front of the thyroid cartilage.
- The overlying skin is normal unless the cyst is infected, the overlying skin will be red, hot and tender.
- Spherical and smooth, with a clearly defined edge.
- It has a diameter from 0.5 to 5 cm .
- It has a firm or hard consistence, depending upon the tension within the cyst. Some cysts are too tense and others too small to fluctuate, but the majority of thyroglossal cysts are between these extremes and fluctuate with ease.

- Some cysts transilluminate but many do not, either because the contents have become thickened by desquamated epithelial cells or the debris of past infection, or because they are too small.
- Thyroglossal cysts are tethered by the remnant of the thyroglossal duct. This means that they can be moved sideways, but not up and down.
- The thyroglossal duct is always closely related, usually fixed, to the hyoid bone. When the hyoid bone moves the cyst also moves.
- The hyoid bone moves upwards when the tongue is protruded. Ask the patient to protrude his tongue. If the cyst is fixed to the hyoid bone, you will feel it tugged upwards as the tongue goes out.

An infected thyroglossal cyst.

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- Although this test is diagnostic of attachment to the hyoid cartilage, the absence of movement does not exclude the diagnosis. Indeed, this sign is absent from most cysts that are below the level of the thyroid cartilage.
- The local lymph glands is not enlarged unless there is secondary infection of the cyst.
- Examine the base of the tongue for ectopic (lingual) thyroid tissue looks like a flattened strawberry sitting on the base of the tongue.
- Investigation : Neck US / CT scan.
- Treatment : For infected cyst drainage & swab for C&S , ABCs.

  For the cyst (Sistrunk's operation).

Subclavian artery aneurysm

- A subclavian artery aneurysm is a rare dangerous dilation of the artery , often caused by atherosclerosis, thoracic outlet syndrome ,or trauma.
- On examination : Pulsatile swelling (expsansile) , comprisable, - ve transillumation test , thrill and bruit .
- Investigations : Neck doppler U/S , CT scan angiography.
- Due to risks of rupture, thromboembolism, or nerve compression (causing arm pain/weakness), surgical or endovascular repair is typically required.

Traumatic subclacian artery aneurysm

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Plunging ranula
(Sublingual salivary gland)

- It is a mucous retention cyst, that tunnels deep extending through the mylohyoid muscle into the neck, hrough or around the mylohyoid muscle into the submandibular space.
- It typically presents as a slowly painless, fluctuating neck swelling , transillumination test +ve , often appearing in the second or third decade of life .

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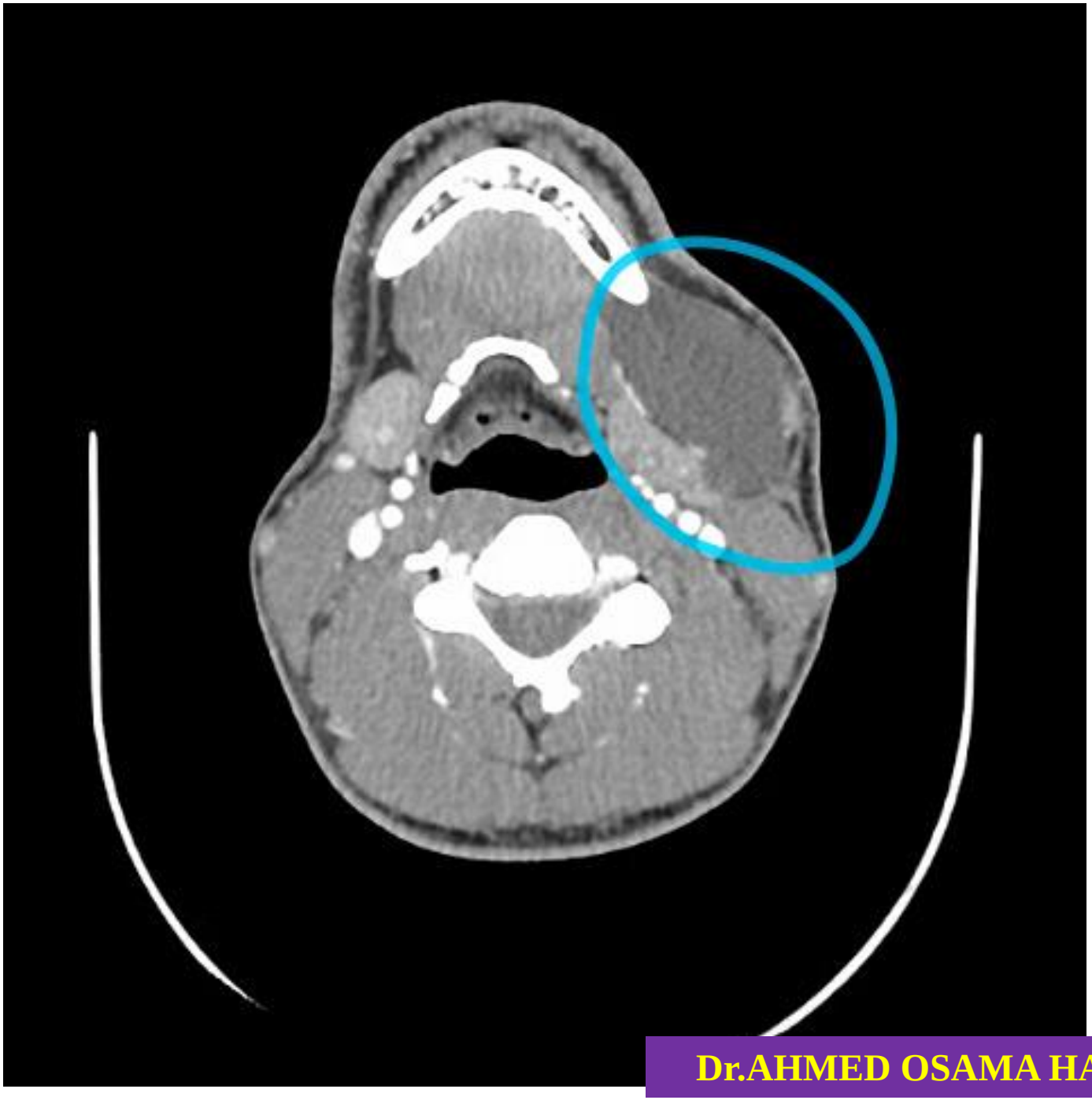
Investigations

- Ultrasonography.
- Neck CT scan.
- MRI (T1: low signal, T2: high signal).

Treatment

- Surgical excision.



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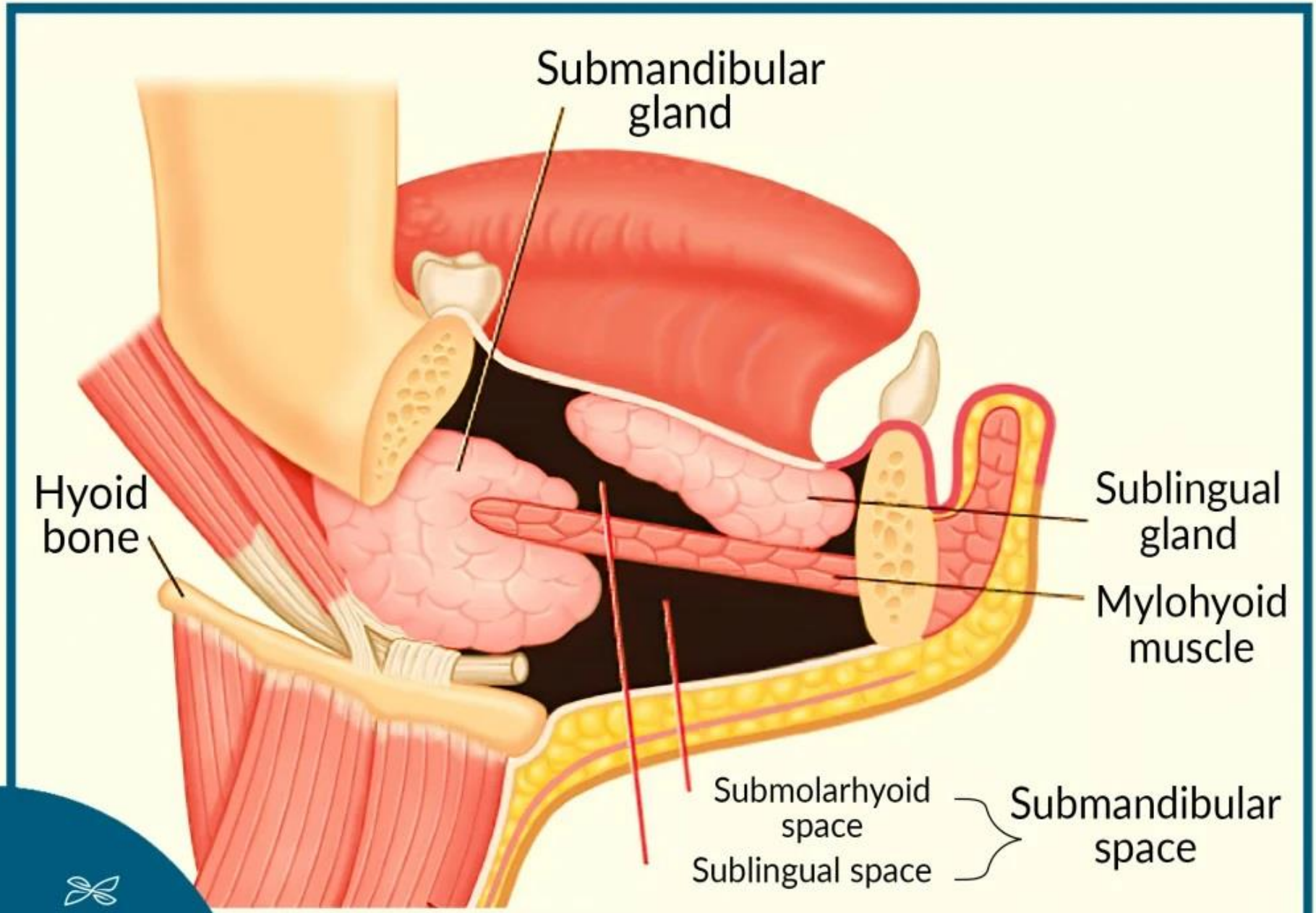

Ludwig's angina

- Ludwig described a clinical entity characterised by a brawny swelling of the submandibular region combined with infammatory oedema of the mouth. These clinical features, as well as accompanying putrid halitosis, defne the condition.
- The infection is often caused by a virulent streptococcal infection associated with anaerobic organisms. There may also be an underlying oral cavity cancer. The infection tracks deep to the mylohyoid muscle, causing oedema and infammation such that the tongue is displaced upwards and backwards, giving rise to dysphagia and subsequently to painful obstruction of the airway. Unless treated, cellulitis may extend beneath the deep fascial layers of the neck to involve the larynx, causing glottic oedema and further airway compromise.

- Intravenous broad-spectrum antibiotics as soon as possible , with anaerobic cover.
- If the swelling does not subside rapidly with such treatment, or in advanced cases where pus is evident, a curved submental incision may be used to drain both submandibular triangles.
- Investigations: CBC, s.blood glucose, neck US & CT scan
- The mylohyoid muscle may be incised to decompress the foor of the mouth and corrugated drains placed in the wound, which is then lightly sutured.
- Although this operation may be conducted under local anaesthetic, a general anaesthetic approach is preferred as it provides a more controlled setting, allowing for optimal exposure and drainage without undue stress to the patient. Rarely, a tracheostomy may be necessary.

PRAISE BE TO ALLAH