433 Teams

ENT

13, 14 & 15

Head & Neck I, II & III

- The topics and details which are found in the slides and not mentioned by the doctor Khalid Alqhatani ARE NOT INCLUDED IN THIS WORK. You can go back to the slides for more details.

Color index:

Doctor's lecture - Important – Details and explanation

Objectives

- **Lecture 1:**
  a) Neck masses- intro, anatomy, diagnosis, differential diagnosis, examples
  b) Thyroid- anatomy, thyroid nodule eval, thyroid cancer, surgery & complications.
- **Lecture 2:**
  a) Salivary glands, anatomy, physio. (in brief),infection, autoimmune&tumours,
  b) Tumour of oral cavity, Introduction, Pre-malignant lesion, Leukoplakia etc.,malignant lesion , SCCA
- **Lecture 3:**
  a) Tumour of pharynx, Nasopharyngeal ca, Oro & hypopharyngeal ca,
  b) Tumour of larynx, Intro., laryngeal papillomatosis, ca larynx

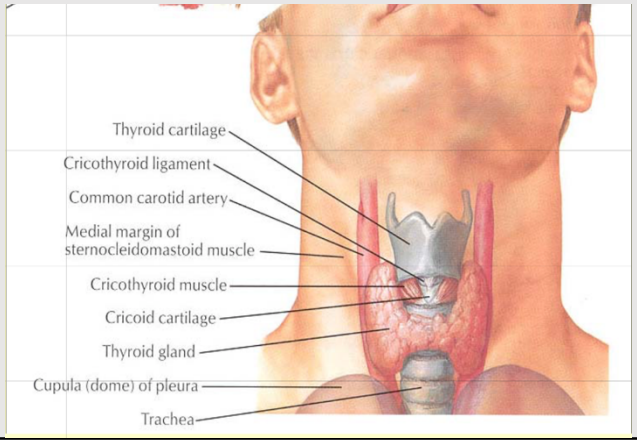
History of patient with neck mass:

1. **Age:** any neck mass in a patient above 40, you have to rule-out malignancy. If the patient is young, the most likely cause is congenital condition or inflammatory.
2. **Gender.**
3. **History of presenting illness:**
   - **Duration:** week or less think about inflammatory, years think of benign conditions, months to year think about malignancy
   - **Location:**
     - Any condition in ENT with unilateral manifestation (nasal obstruction, hearing loss, ear pain, neck mass etc) you have to rule out malignancy.
     - Each pathology has its own specific location.
     - The congenital mass is consistent (its size does not change)
   - **Risk factors:** Alcohol, dust exposure (sinonasal tumors), sun exposure (skin tumors), radiation or surgery (lymphoma or thyroid cancer)
4. **Past medical history**
5. **Social History:** smoking is important.
6. **Family history:** in case of lymphoma and thyroid.
7. **Medications and Allergy:** To know if the patient suitable for the surgery.

Anatomy

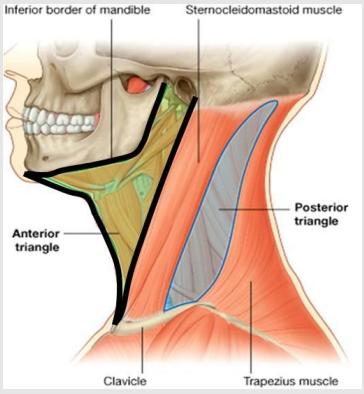
In the mid-line of the neck, there is a cricoid. Anything above the cricoid is called **upper midline**.

Anything below the cricoid to the suprasternal notch, we call it **lower midline**.



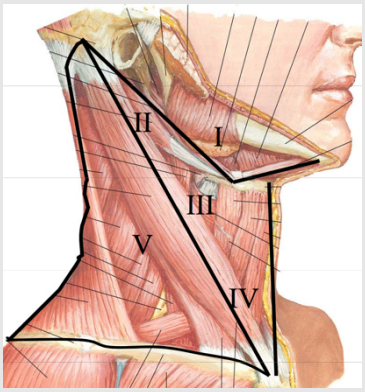
Sternocleidomastoid muscle (SCM) divides the neck into:

- **Anterior triangle:**
  - Boundaries: SCM posterior, mandible superiorly and anteriorly the midline.
  - It has 4 levels of lymph nodes (will be discussed)
- **Posterior triangle:**
  - It has one lymph nodes (number 5)



The lymph nodes in the neck are divided into 7 levels:

- **Level 1:** Between the 2 bellies of digastric muscle (submandibular triangle).
- **Level 2:** Deep jugular chain (from skull base to hyoid bone)
- **Level 3:** Deep jugular chain (between hyoid bone to the omohyoid muscle)
- **Level 4:** Deep jugular chain (below omohyoid muscle)
- **Level 5:** Posterior triangle (from SCM to the trapezius muscle).



"level 6 & 7 are not palpable; you don't need to know them in this level"

- doctor

Examination of the head and neck

It is important to examine 8 areas. Because some patient may have synchronous tumors (thyroid cancer coexisted with parotid cancer in the same time)

1. **Neck:** midline of the neck and 5 levels of lymph nodes
2. **Face:** included the parotid gland.
3. **Oral cavity**
4. **Nose:** (with flexible scope)
5. **Nasopharynx** (with flexible scope)
6. **Oropharynx** (with flexible scope)
7. **Hypopharynx** (with flexible scope)
8. **Larynx**

Investigations of the head and neck

Generally, if you have a patient with a neck mass standard of care is to order investigations listed below (in order*):

If you suspect an inflammatory condition; start empirical treatment **(for 2 weeks)** before investigations

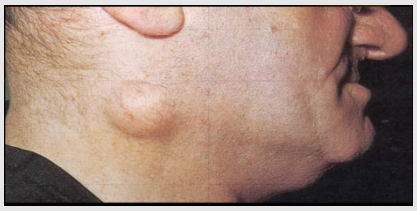
1. **CT scan:** first and most important modality. It gives the surgeon a good image to map the organs.
2. **Fine-needle aspiration:**
   - **Indications:**
     - Any neck mass that is not an obvious abscess
     - Persistence after 2 weeks course of antibiotics
   - **Contraindications:** in vascular tumors.
3. **Ultra-sound:** in case of pregnancy and children.
4. **MRI:** has some limitations.
5. **Radionuclide imaging**

* there are some exceptions. Will be discussed later

Congenital and Developmental Mass

We gonna present the diseases like the doctor did. Case-based for SAQs sake

Case 1: A 70-year-old, he is healthy and not smoker. He has this neck mass (picture) in the level 2. It has been there for 10 years. He has no complaint. He just visited his son in Riyadh and his son brought him to you.



- **Q1: What is level 2 in the neck?**
  - From skull base to the hyoid bone.
- **Q2: What will you do next in this patient?**
  - Examination the 8 areas to exclude other masses
- **Q2: Everything was normal in the examination, what is the next step?**
  - CT scan followed by FNA.

FNA showed epidermoid cyst.

Epidermal and Sebaceous Cysts

- Most common congenital/developmental mass
- Older age groups
- Clinical diagnosis
- Elevation and movement of overlying skin – Skin dimple or pore
- Excisional biopsy confirms

Case 2: A 24-year-old patient presents with level-2-neck mass. He had a history of tonsillitis. On examination: it looks red and tender. Face examination has shown changed in the appearance of the face (VII palsy)

- **Q1: What will you do next in this patient?**
  - Examination and history are suggestive of inflammatory condition. So, empirical treatment.
- **Q2: Mention the most likely diagnosis.**

Branchial Cleft Cysts

Branchial Cleft Cysts

- There are 4 clefts.
  - The most common is the 2nd (95%) – tract medial to XII nerve between internal and external carotids
  - 1st cleft less common–close association with facial nerve possible
  - 3rd and 4th clefts rarely reported
- Present in older children or young adults often following URI (structurally is near from tonsil)
- Most common as smooth, fluctuant mass underlying the SCM
- Skin erythema and tenderness if infected
- **Treatment**
  - Initial control of infection (antibiotcs)
  - Surgical excision, including tract
- May necessitate a total parotidectomy (1st cleft)

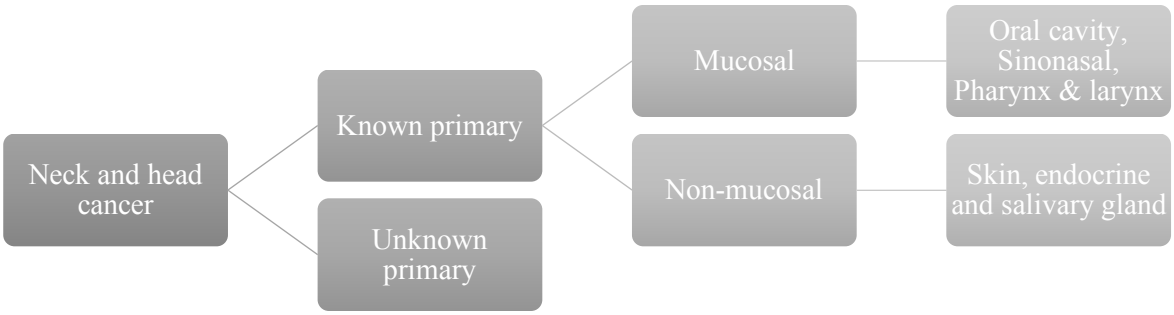
Case 3: A 13-year-old patient presents with midline-neck mass. On examination it moves with swallowing.

- **Q1: What is the most likely diagnosis?**
  Thyroglossal Duct Cyst
- **Q2: Mention other DDx seen in midneck?**
  - Bulging granula (children)
  - Teratoma (children)

Thyroglossal Duct Cyst

- Most common congenital neck mass (70%) • 50% present before age 20
- Midline (75%) or near midline (25%)
- Usually just inferior to hyoid bone (65%)
- Elevates on swallowing/protrusion of tongue
- CT-scan to confirm (ultrasound in children!)
- Treatment is surgical removal (Sis trunk) after resolution of any infection

End of the 1st lecture



Thyroid cancer

Presentation

- Lower midline neck mass.
- Usually it metastasizes to the posterior triangle. (in papillary carcinoma you may see in the CT Psammoma bodies in posterior triangle)
- Rapid growth with compressive (invasive) symptoms
- **Risk factors:**
  - Family history of thyroid cancer
  - History of radiation
  - Age (20-60)
  - Prior thyroid disease (Goiter, Hashimoto, Grave's and adenoma)

Investigations

- Ultrasound (1st modality to use)
- FNA (gold standard) the results will report:
  - **Benign:** treatment is conservative (Ultrasound every 6 months)
  - **Malignant:** surgery (total thyroidectomy)
  - **Intermediate:** Hemi-diagnostic-thyroidectomy
  - **Insufficient:** repeat it with U/S-guided
- Thyroid function tests.
- CT-scan (some paper suggests it is better than U/S but the standard is U/S)

Malignant thyroid cancer		
Type		**Management**
Well-differentiated	Papillary carcinoma	Total thyroidectomy + post-op Radioactive Iodine (I-131)
	Follicular carcinoma	
	Hurthle cell carcinoma (sub-type of follicular)	
Poorly-differentiated	Medullary carcinoma	Total thyroidectomy + Neck dissection*
	Anaplastic carcinoma	Surgery, Adjuvant radiation & Chemotherapy
Other malignant	Lymphoma	
	Metastasis	
* Neck dissection: removal of level 2,3 &4 lymph nodes.		

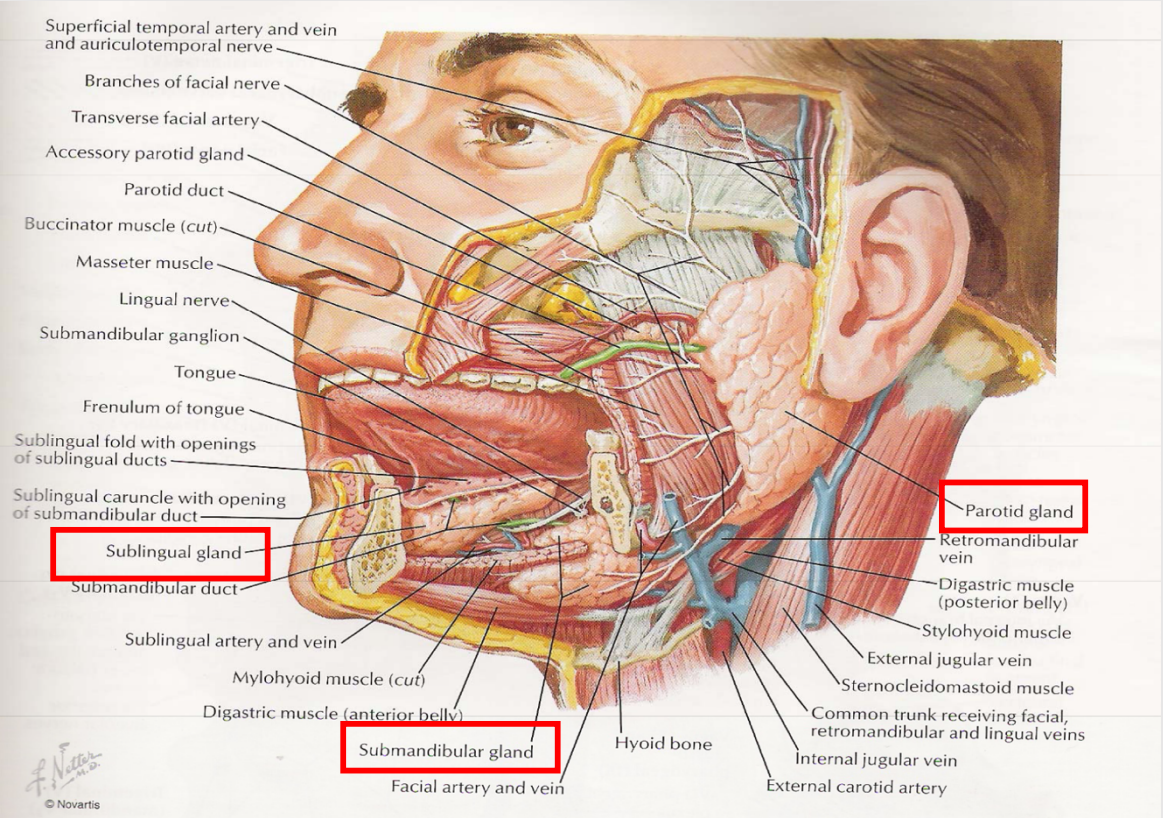
Complications of thyroidectomy:

- Recurrent laryngeal nerve injury.
  - Unilateral: hoarseness
  - Bilateral: airway obstruction
- Hematoma: it may cause airway obstruction
- Hypothyroidism or/and hypoparathyroidism

Salivary gland

Anatomy:

- 6 major salivary glands (2 parotid, 2 submandibular, 2 sublingual) and a lot of minor small glands (in mucosa; lip, tongue, buccal cavity etc)



Submandibular gland:

- Found in level 1 of the neck in submandibular triangle.
- Located between the 2 bellies of the digastric muscle. And near from floor mouth muscles.
- **It is related to 3 nerves:** marginal mandibular branch of the facial nerve (most common injured), lingual nerve and hypoglossal n.
- **Wharton's duct**
- Secretion is more viscous (thick), which makes it prone to stone.

4 factors make submandibular prone to stone:

1. Against gravity (stasis)
2. Angulation around mylohyoid muscle.
3. More viscous secretion.
4. Its secretion contains calcium.

Parotid gland:

- Anterior to the auricle.
- One capsule which it has **superficial lobe** and **deep lobe separated** by facial nerve.
- **Stensen's duct:** travels alongside with buccal branch of facial nerve and runs above Masseter muscle to open against the 2nd upper molar tooth.
- Secretion is more serous (less bacteriostatic), which makes it prone to infection.

Sublingual gland:

- Multiple small ducts found in floor of mouth.
- Physiology is same as submandibular.

Infection of Salivary Gland:

- Parotid gland is the most common infected.
- The predisposing factor is dehydration (ICU patient, old people & post-surgery)
- Acute infection:
  - **Viral:** Mumps (children) and HIV (bilateral cystic parotid glands)
  - **Bacterial:** S.Aures
  - **Presentation:** very tender gland (because the capsule is very tight), fever and discharging gland.
  - **Treatment:** Antibiotics against S.Aures

Stone in Salivary Gland:

- Submandibular gland is the most common infected. (sublingual is too small and does not create a stone)
- **Presentation:** severe pain after drinking orange juice (citrus induces saliva secretion)
- **Treatment:** treat the infection and remove the stone surgically.

Tumors in Salivary Gland:

- **Role of 80:**
  - **80% of salivary gland tumors are found in Parotid** (15% submandibular and 5% sublingual)
  - **80% of parotid gland tumors are benign** (submandibular 50% benign and sublingual 40% benign)
  - **80% of the benign parotid gland tumors are pleomorphic adenoma**
- **Role of the size:**
  - Big-sized tumor is usually benign
  - Small-sized tumor is usually malignant
- The most common type of benign salivary gland tumor is **pleomorphic adenoma**
- The most common type of malignant tumor in parotid is **mucoepidermoid carcinoma**.
- The most common type of malignant tumor in submandibular and sublingual is **adenoid cystic carcinoma**.
- **Treatment:**
  - **Benign:** surgery (there is high risk of transformation to malignant)
  - **Malignant**
    - **High risk:** surgery + neck dissection + radiation

High and low risk depends on histopathology findings. E,g, adenoid cystic is high risk and Acinic cell carcinoma is low risk

- **Low risk:** surgery
- **Complications after surgery:**
  - Nerve injury:
    - **Parotid:** facial nerve injuty
    - **Submandibular:** Marginal mandibular nerve, hypoglossal nerve and lingual nerve.
  - Infection
  - Hemorrhage and hematoma
  - Frey's syndrome (long term complication)

End of the 2nd lecture

Mucosal tumors

	Differential diagnosis	Risk factors	Presentation	Treatment
Sinonasal	SCC*	Dust exposure (occupation)	Unilateral nasal symptom*(maybe ocular or oral pain)	**Early*:** Surgery **Late:** Surgery and radiation
Oral	SCC salivary minor glands (adenoid cystic carcinoma)	Smoking, alcohol, multiple trauma, oral hygiene & HPV	Unilateral oral lesion	
Pharynx	SCC	Smoking, alcohol, HPV & GERD*	Unilateral neck mass (slowly growing).	**Early:** Chemotherapy **Late:** Radiation and Chemotherapy
Larynx	SCC	Smoking, HPV & Laryngopharyngeal Reflux (LPR)	Unilateral neck mass (slowly growing).	

* SCC = squamous cell carcinoma (is the most common mucosal tumor)

* Including nasal obstruction, rhinorrhea, epistaxis , loss of smell etc.

* GERD is not RF for nasopharynx tumors. GENETIC AND EBV play an important role in nasopharynx

* Early and late depending on TNM system. If the N is 1 or more > late e.i. if there is a lymph node involvement = late

Investigations for mucosal carcinoma: CT scan (staging) then biopsy

Case 1: A female presented neck mass shown in the pic.

- **Q1: Describe the image?**
  - Diffused neck swelling more prominent in the lower midline.
- **Q2: What further investigation you would order?**
  - CT scan*
- **Q3: CT reported thyroid mass. What is the next step?**
  - Ultrasound and Fine-needle aspiration.
- **Q4: Histopathologic report revealed benign tumor. What the management?**
  - Surgery because the mass is big (>6 cm) although it is benign.

* We used CT in first place because we didn't know it was thyroid.

Case 2: A 60-year-old heavy smoker presented with pain in the tongue.

- **Q1: Describe the image?**
  - White-nodular lesion below the tongue.
- **Q2: What is the most common cancer seen in this area?**
  - Squamous cell carcinoma
- **Q3: How would you confirm the diagnosis**
  - First CT, then Biopsy.
- **Q4: Histopathologic report revealed SCC. What the management?**
  - Surgery

Case 3: A patient presented with dysphagia. Endoscopy showed this pic.

- **Q1: What is the most common cancer seen in this area?**
  - Squamous cell carcinoma
- **Q2: What investigations you would order?**
  - First CT, then biopsy.
- **Q3: Histopathologic report revealed late stage SCC. What the management?**
  - Chemotherapy and radiation

Done By:

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