Pharynx I-II

Objectives:

- To know the basic pharynx anatomy and physiology.
- To recognize assessment and management of common pharyngeal diseases, include ability to obtain patient's history, perform comprehensive physical and mental status assessment, interprets findings
- To know how to handle common pharyngeal emergencies.
- To be aware of common pharyngeal operations.

- **Pharynx I**
  - anatomy of the pharynx and deep neck spaces (retro and parapharyngeal)
  - physiology (function of pharynx in brief)
  - acute and chronic pharyngitis (non-specific and specific) e.g scarlet fever, infectious moniliasis, fungal, Vincent angina, diphtheria
  - Zenker diverticulation (in brief)
- **Pharynx II**
  - adenoid and tonsil diseases.
  - complication of pharyngeal diseases (Quinsy, para and retropharyngeal, Ludwig's angina) + Radiological illustrations)
  - adenotonsillectomy (indications, complication and management).

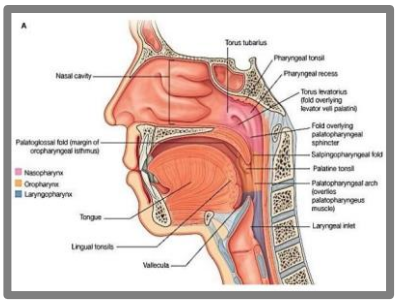
Resources: Slides + Lecture notes of ENT+ Notes + 435team + 433team, team 436 group A

Done by: Waleed Alaskah, Khalid Altwaian, Bader Zawawi

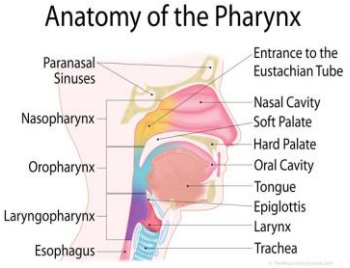
Safa Al-Osaimi, Amal Alshaibi, Shrooq Alsomali

[Color index: Important | Notes | Extra] Editing File

Anatomy of the pharynx:

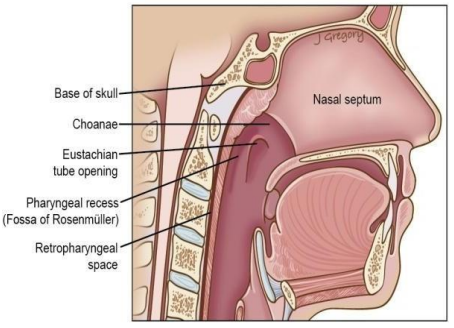


- It extends from the base of the skull to the level 6 cervical vertebra at the lower border of cricoid cartilage.
- Funnel shaped, 10 cm length.
- Widest portion (5cm) at hyoid.
- Narrowest portion(1.5cm) at caudal end.



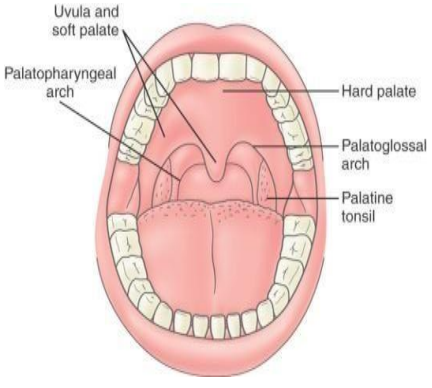
❖ Parts of the pharynx:

1- Nasopharynx (from the base of the skull till the soft palate)



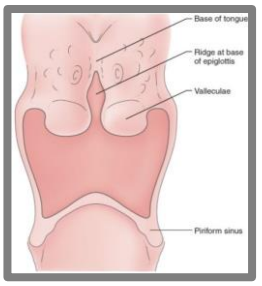
- Opens **anteriorly** to the nose,
- **Above**: the base of skull
- **Below:** soft palate
- **Laterally**:
  - Opening of the Eustachian tube
  - Torus tubarius (the elevated edge of the Eustachian tube opening).
  - **Pharyngeal recess (fossa of rosenmuller)** (Is a depression in the pharyngeal wall behind the torus tubarius) very important to examine nasopharynx in smoker adult complaining of nasal obstruction because Its a **common site for nasopharyngeal carcinoma**. An **adult** pt with hearing problems, upon examination > fluids accumulation found BEHIND the tympanic membrane > it is mandatory to look if there is nasopharyngeal cancer or not.
  - Adenoid (the adenoids especially in children are close to the eustachian tubes, when it enlarges it compresses laterally to the opening of the eustachian tubes. a mouth breather child with obstructive sleep apnea due to enlarged adenoid could result in eustachian tube obstruction > eustachian tube dysfunction and fluids accumulation. So the child presents with otitis media with effusion)
  - **Q:** a picture of tympanic membrane with air bubbles, what's the diagnosis? SECRETORY Otitis media or Otitis media WITH EFFUSION. Not just "otitis media"
  - Nasopharyngeal isthmus (opening in the floor between the soft palate and the posterior pharyngeal wall).
  - Nasopharyngeal mass in child think adenoid, in adult think cancer.

2-Oropharynx



- Opens **anteriorly** to the mouth and divided from the oral cavity by Tonsillar pillar.
- **Above:** soft palate.
- **Below:** the upper border of epiglottis.
- **Palatine tonsils:** between the anterior and posterior pillars we grade the tonsils, an imaginary line from uvula and we see how big are the tonsils. <25⟶ grade 1 <50% ⟶ grade 2 <75% grade 3, 100% (kissing tonsils) grade 4

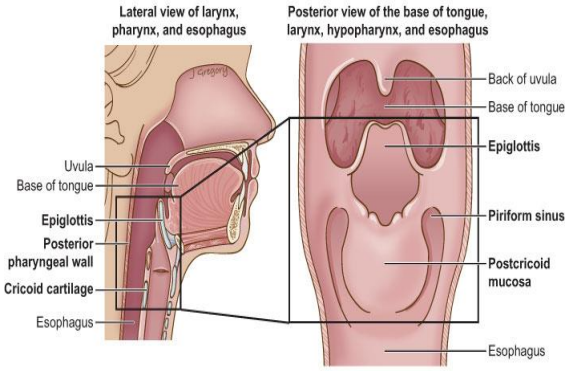
3-Laryngopharynx (Hypopharynx)



From the epiglottis to the cricoid

- Opens **anteriorly** to the larynx
- **Above:** the upper border of the epiglottis
- **Below:** lower border of cricoid

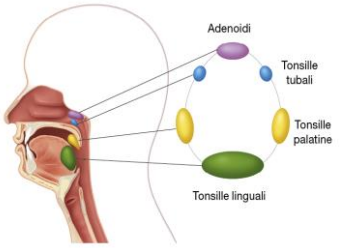
Three parts:



- **Pyriform fossa:** (Is a depression in the mucous membrane on each side of the laryngeal inlet).
- **Posterior cricoid area**
- **Posterior pharyngeal wall**
- When the patient presents with halitosis, check the oral hygiene and make sure that the patient is cleaning the tongue, and exclude other causes like reflux and diverticula.
- Valleculae: Is a depression on each side of the median glossoepiglottic. It is the area between the epiglottis and base of the tongue. Important landmark for intubation and traps saliva to prevent the initiation if the swallowing reflex

❖ Structures of pharynx

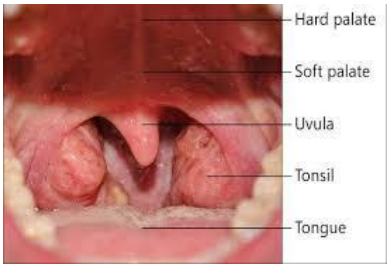
Fibromuscular tube, four layers:



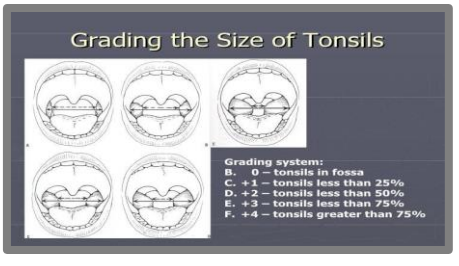
1-Mucous membrane:

- Nasopharynx – Ciliated columnar epithelium
- Oro and hypopharynx –Stratified squamous epithelium
- Transitional epithelium
- Subepithelial lymphoid tissue of the pharynx **(waldeyer's ring)**
- structures of Waldeyer's Ring:
  - Adenoid (No capsule.)
  - Lingual tonsils.
  - Tubal tonsils.
  - Lateral pharyngeal bands.
  - discrete nodules.

Palatine tonsils



- 12--15 crypts.
- The deep surface is separated from the constrictor muscles of the pharynx by connective tissue (capsule).
- Tonsils can never grow back after tonsillectomy because the capsule is removed unlike adenoid which doesn't have a capsule and could grow back.
- When tonsillectomy is performed you have to make the incision in the connective tissue, if the surgeon goes more medially he will enter the tonsils, if more lateral he will enter the muscles



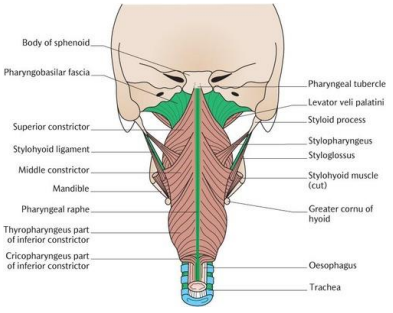
- Food may be trapped in the crypts ⇒ Halitosis

2-Submucosa

- Nerves, blood vessels,and lymphatics.
- Mucous and salivary glands .
- Subepithelial lymphoid tissue (Waldeyer's Ring). Characteristics of Waldeyer's Ring:
    - No afferents
    - Efferent to deep cervical nodes
    - No capsule except the palatine tonsils

Pharyngeal aponeurosis:

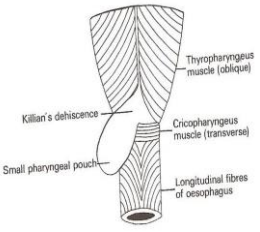
- Incomplete connective tissue coat in the lateral and posterior walls of the pharynx between the muscular layers.
- Pharyngobasilar fascia

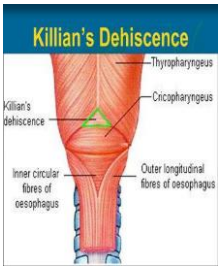


3-Muscle layer

- **External:** Three constrictor muscles:

1. **Superior constrictor:** Arises from pterygoid, pterygomandibular ligament post end of mylohyoid fibers
2. **Middle constrictor:** Arises from the hyoid bone and stylohyoid ligament.
3. **Inferior constrictor:** Thyropharyngeus, Cricopharyngeus.

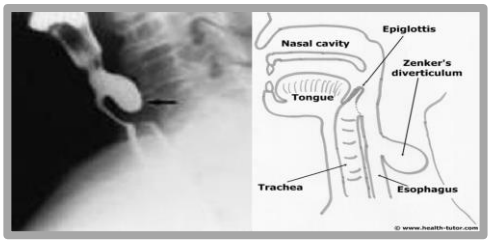




Killian's dehiscence: Potential gap between the thyropharyngeus and cricopharyngeus (Zenker's diverticulum occurs in this weak area and diagnosed by barium swallow).

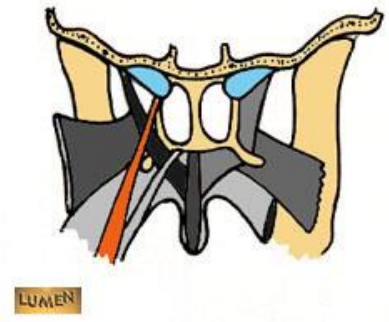
Superior constrictors 4 parts:

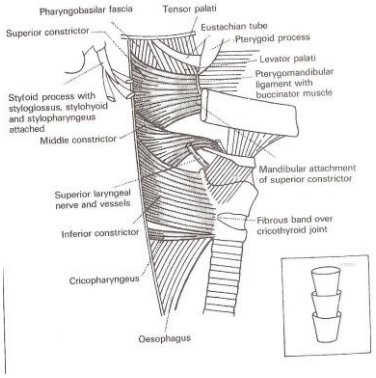
- pterygo-pharyngeal : from pterygoid
- buccopharyngeal: from pterygomandibular ligament
- Mylo-Pharyngeal: mylohyoid
- Glossopharyngeal: from tongue



- **internal:** Three muscles:

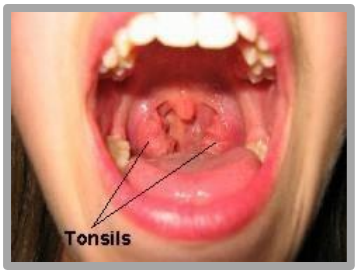
1. Stylopharyngeus
2. Salpingopharyngeus
3. Palatopharyngeus

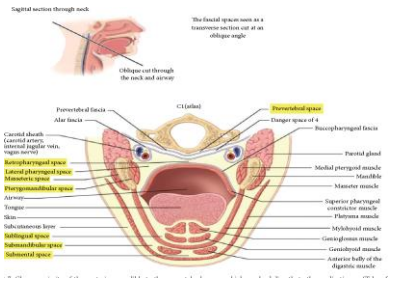




Bucco-Pharyngeal fascia:

- Thin layer covers the muscular layer of pharyngeal wall.

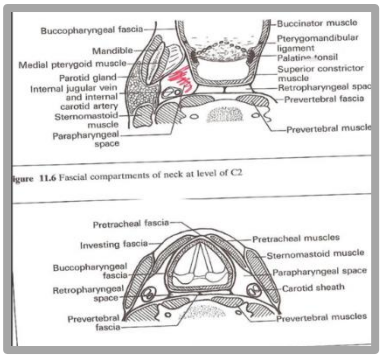




Relations of pharynx:

- **Posteriorly:** prevertebral fascia
- **Anteriorly:** Parapharyngeal space (potential space)

❖ Parapharyngeal Space: (space of collection of pus)



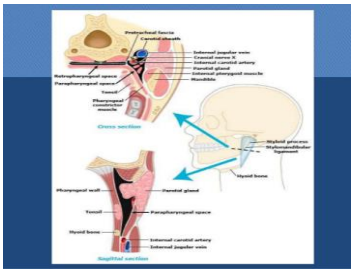
- Potential space lies outside the pharynx.
- Triangular in cross section, it extends from the base of the skull above to the sup mediastinum and apex of hyoid bone.

- **Anteromedial wall:** Buccopharyngeal fascia
- **Posteromedial wall**: Cervical vertebrae, prevertebral muscle and fascia
- **Lateral wall**:
  - **(Up)** the mandible, pterygoid muscle, parotid gland
  - **(Lower)** Sternomastoid muscle

➔ Compartment:

- (if the patient has tonsillitis and on examination there is bulge in lateral pharyngeal wall, on CT there is poststyloid abscess so I have to do incision and drainage since this is a dangerous area, they could have carotid rupture, cranial nerve paralysis)

Prestyloid	**internal maxillary artery, fat, inferior alveolar, lingual, and auriculotemporal nerves.**
Poststyloid (more dangerous, because it has cranial nerves)	**neurovascular bundle (carotid artery,, internal jugular vein, sympathetic chain ,CN IX,X and,XI).**

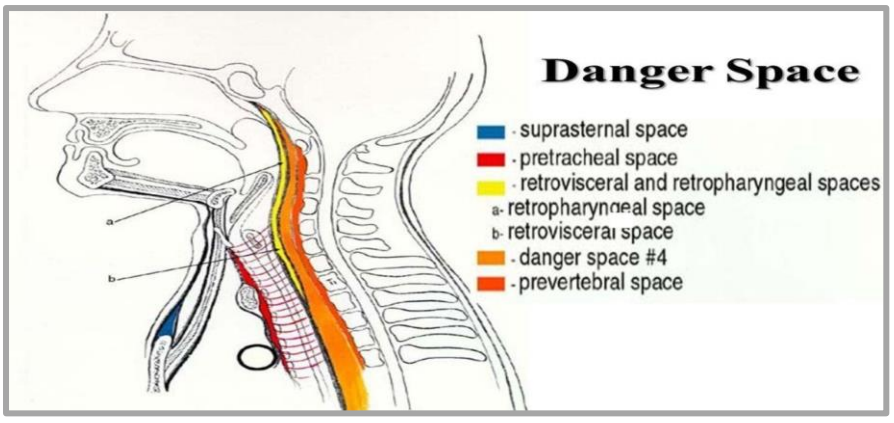


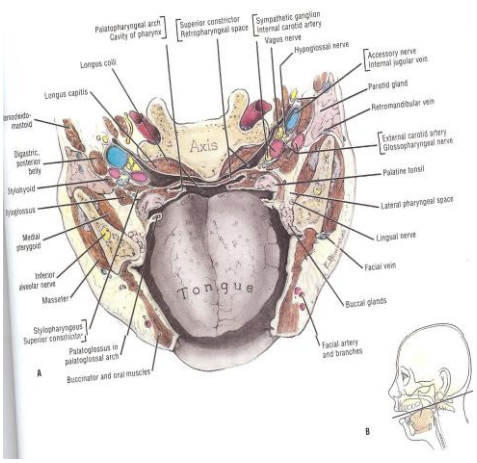
It extend from the base of skull to superior mediastinum. Lies behind the pharynx

In parapharyngeal neck swelling, the neck mass is lateral. But if theres a mass in the retropharyngeal space, when the patient opens his mouth you'll see the mass in front of you.

- **Anterior:** posterior pharyngeal wall and its covering buccophayngeal fascia.
- **Posterior:** cervical vertebrae and muscles and fascia
- **Contents:** Retropharyngeal lymph nodes
- (If a child has tonsillitis and on examination you found a bulge in the posterior wall (in front of you) you do a CT scan. It might be an abscess. an adult with a posterior bulge without acute infection, think of TB).
- Posterior to the retropharyngeal space, there is a Danger Area, any infection in this area will lead to mediastinitis.

- Also there is the Prevertebral Space. any infection in this space will be transmitted all the way down to the coccyx.
- Common area for abscess and metastasis





TEAM 433

Nerve Supply

Sensory: Each of the three sections of the pharynx have a different innervation:

- The **nasopharynx** is innervated by the maxillary branch of the trigeminal nerve (CN V).
- The **oropharynx** by the glossopharyngeal nerve (CN IX).
- The **laryngopharynx** by the vagus nerve (CN X).

Motor: All the muscles of the pharynx are innervated by the vagus nerve (CN X), except for the stylopharyngeus, which is innervated by the glossopharyngeal nerve (CN IX).
Also the Sympathetic fibers of the superior cervical ganglia play a role in the innervation.

Blood supply

Arterial from the external carotid

artery:

- **Ascending pharyngeal**
- **The lingual artery**
- **The facial artery**
- **The maxillary artery**

Venous drainage:

- **to the internal jugular**

Lymphatics:

- **Retropharyngeal nodes.**
- **Deep cervical (jugular) nodes.**

Physiology of the pharynx:

❖ **Functions of the subepithelial lymphoid tissue:**

- Protective functions:
  - Formation of lymphocytes
  - Formation of antibodies
  - Acquisition of immunity
  - Localization of infection
- **Salivation.**

❖ **Functions of the pharynx:**

- Respiration
- Speech
- Resonating cavity
- Articulation
- Taste: taste buds

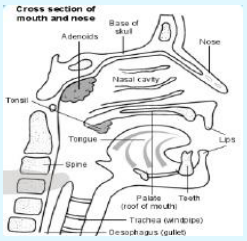
❖ Deglutition: Three stages

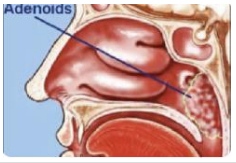
A. Oral stage	• **voluntary** • **closure of mouth** • **cessation of respiration** • **raising of larynx** • **sudden elevation of the tongue to press against the palate, and pushes it backwards towards the oropharynx** • **function of tounge: Mixing food with saliva**
B. Pharyngeal stage	• **reflux** • **contraction of nasopharynx sphincter** • **larynx rises more,** • **laryngeal inlet closure** • **epiglottis diverts the food into cricopharyngeal sphincter** • **contraction of constrictor muscles** • **relaxed cricopharyngeal sphincter** • **cessation of respiration**
C. esophageal stage	

Adenoid (IMPORTANT):

VERY IMPORTANT, YOU WILL BE ASKED ABOUT IT

- **Hypertrophy of the nasopharyngeal tonsils** due to infections and other causes which can cause symptoms of airway obstruction.
- **Most commonly between the age of 3-7 years.**



Pathological types	• **Simple Inflammatory.** • **Tuberculosis.** 
Clinical features:	• **Mouth breathing and snoring.** • **Hyponasality** (loss of normal resonance). • **Adenoid face** (long and open-mouthed face of children with adenoid hypertrophy). • **Nasal discharge and Eustachian tube obstruction.**
Main Adverse effects	• Nasal obstruction. The adenoids obstructing the airway behind the conchas, difficulty breathing. • Pharyngitis (due to dry mouth). • Otitis media. • Rhinosinusitis. • Recurrent upper respiratory tract infections. • Obstructive sleep apnea.  • **Q: what do you see?** Lateral head and neck x-ray showing enlarged adenoid (IMP) • In X-rays and CT scans, there are 3 colors. White> bone, black> Bone, grey> soft tissue
Diagnosis	1) X-ray. (should be done with the neck extended in order to fully visualize the adenoid) 2) Flexible fiberoptic endoscope. (now used instead of x-ray) we see the choanea obstructed by the adenoids  **Using fiberoptic, adenoid hypertrophy is graded based on the degree of obstruction:** Grade 1: <25%obstruction - Grade 2: 25-50% obstruction - Grade 3: 50-75% obstruction - Grade 4 : 75-100% (complete obstruction)  ➢ fiberoptic inserted through the nose showing grade 3 adenoid ➢ Mention the symptoms? ➢ Describe what you see?
Treatment	➔ **Conservative if small.** ➔ **Surgical: adenoidectomy** by Surgical suctioning. We place a catheter on the soft palate and retract it, we use the mirror to see the adenoid, we remove the adenoid by suction and diathermy coagulation at the same time. We cant tell the patient we removed the whole adenoid, remnants remain. ➔ Indications: recurrent / persistent otitis media, recurrent/chronic sinusitis, and obstructive sleep apnea.

Sleep apnea and snoring:

- Sleep apnea: Cessation of airflow at the mouth and nostrils lasting 10 seconds for at least 30 apneic episodes.
- Snoring is a sign of partial obstruction of the upper airway during sleep.
- Snoring happens if there's a deviated septum, or allergic rhinitis with blocked nose, or large adenoids, or big tongue, or large tonsils, or obese.
- Snoring is always present during obstructive sleep apnea.
- Signs of OSA:
  (Snore, moves a lot in their sleep, wakes up at night, wakes up gasping for air or choking, lack of concentration, fatigued, always sleepy, nocturnal enuresis in children…)

➔ Types:

1. Central sleep apnea: Failure of respiratory drive from the brain. no chest movement.
2. Obstructive sleep apnea (OSA): Due to anatomical narrowing of the upper airway. "For example: deviated nasal septum, large inferior turbinate, polyp, adenoid, large tongue, large tonsils and retrognathia (posterior positioning of the maxilla or mandible)".
   *Differentiate central from peripheral by sleep study.
3. Mixed.

➔ Stages of sleep

Slow wave sleep:

- Brain waves are slow in deep restful sleep.
- There's a decrease in vascular tone and respiratory rate and basal metabolic rate.

Rapid eye movement:

- Brain quite active.
- Active dreaming.

➔ Pathophysiology of OSA:

- During REM or deep sleep, obstruction occurs resulting in decrease arterial oxygen and increased arterial carbon dioxide pressure.
- Nocturnal desaturation arouses patient and causes increase pulmonary and systemic arterial pressure.
- Leads to hypersomnolence (excessive sleeping or sleepiness).
- Predisposes to hypertension and stroke.

➔ Predisposing Factors:

- Obesity, nasal or pharyngeal obstruction by tonsils or adenoids in children, increasing age, alcohol, and smoking.

➔ Investigations: (doctor didn't skip this part)

Sleep study:

- EEG
- EKG
- EOG
- pulse oximeter
- respiration rate
- nasal and oral air flow

➔ Treatment:

- ❖ Nonsurgical:
  - behavior modification: reduce weight and coffee intake - reflux management and avoid alcohol at night. Or use positive pressure ventilation. Obese → lose weight. Large turbinate → nasal spray. Deviated septum → fix it. Large tongue → coblation.
  - medical treatment
  - CPAP (continuous positive airway pressure).
- ❖ Surgical: UPPP (Uvulopalatopharyngoplasty) : a procedure that is done when the soft palate is redundant or if big tonsils or adenoids are present. Remove uvula, tonsils, suture pillars. Studies say it's temporary for 1 year.

Acute infections of the oropharynx:

Acute tonsillitis	
CAUSES	• **Viral (most common cause).** • **Bacterial (group A β -hemolytic streptococcus) moraxella, H. influenza, bacteroides).**
Signs and symptoms	• Fever. **there should be fever in order to call it (acute)** • **Sore throat.** • **Pain on swallowing (odynophagia).** • **Jaw stiffness (trismus)** • **Halitosis (bad breath).** • **Phases: erythema, exudative, follicular tonsillitis.** • **Enlarged jugulodigastric lymph nodes are also commonly found.** • Usually a pt presents with fever , sore throat, halitosis. If we gave them improper dose or after antibiotics they improve and they stopped it before the course finishes (partially treated), they then come with severe symptoms like trismus, cant open mouth or talk. Which indicate that they developed peritonsillar abscess.
Complications	• **Peritonsillar abscess (Quinsy).** • Parapharyngeal or retropharyngeal abscess. • **Otitis media.** • Rheumatic fever, glomerulonephritis, **scarlet fever. associated with group A streptococcus (GAS).**
Treatment	• **Oral antibiotics (penicillin), bed rest, hydration, analgesia.** • **If the symptoms are severe: admit the patient and give IV fluids, IV antibiotics and analgesia.**

★ What are the indications for tonsillectomy?

1) Recurrent, 6 attacks in 1 year OR 4 times per year in 2 years OR 3 times per year in 3 years.
2) Grade 3 or 4 tonsils → (OSA)
3) Asymmetrical tonsillar enlargement + smoker > you have to remove it to take biopsy
4) Peritonsillar abscess.

Membranous Tonsillitis

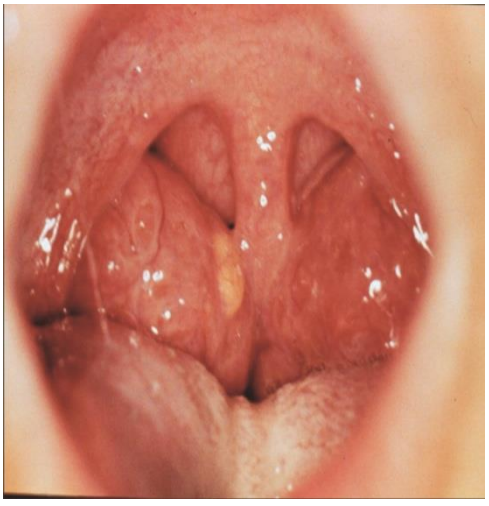
white membrane on tonsils.

Follicular Tonsillitis

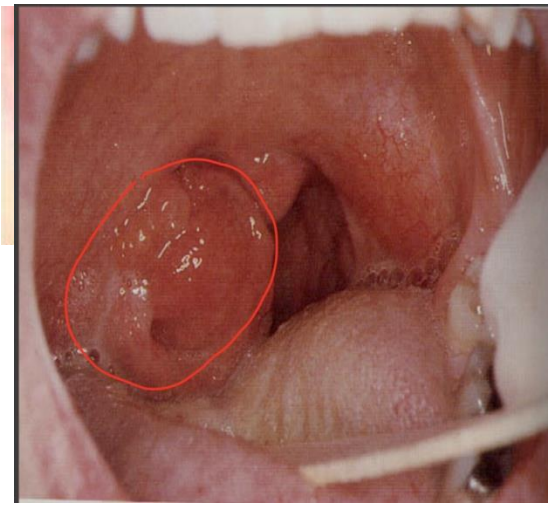
Q: pt presents with fever, sore throat, bilateral adenopathy or splenomegaly, and on examination theres a membrane covering the tonsils. What could be the cause? EBV

Catarrhal Tonsillitis

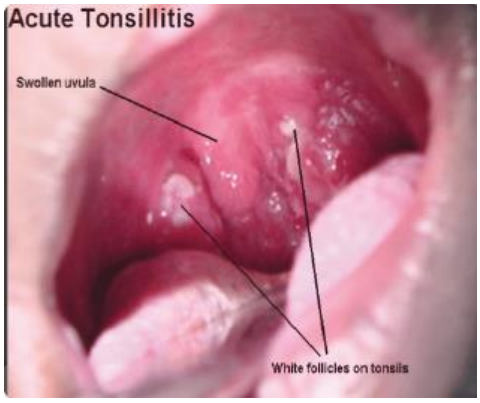
Parenchymatous Tonsillitis



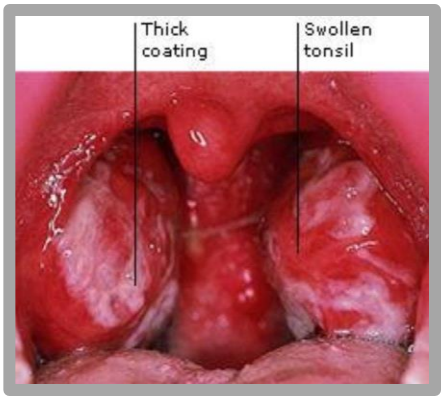
Lymphoma.



Squamous cell carcinoma



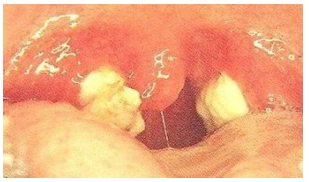
INFECTIOUS MONONUCLEOSIS IMP	
Pathogen	• Epstein bar virus. Adolescents are especially susceptible (kissing disease).
Signs and symptoms	• Fever. • Lymphadenopathy. • Malaise. • Exudative tonsillitis. • Hepatosplenomegaly. • Membrane on tonsils (membranous tonsillitis)
Diagnosis	➔ Monospot test. ➔ Paul bunnel test (heterophile antibodies in serum) 80% mononuclear and 10% atypical lymphocytes on smear.
Complications	• Involvement of cranial nerves. • Meningitis. • Autoimmune hemolytic anemia. • Splenic rupture (activity restriction may be necessary to prevent splenic rupture in patients with splenic enlargement).
Treatment	• Hydration, analgesia and oral hygiene. avoid ampicillin causes maculopapular rash.

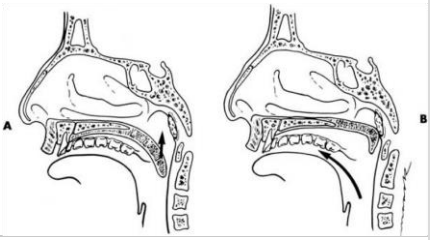


Scarlet fever (Scarlatina) IMPORTANT

Cause	**Endotoxin produced by by type A B-hemolytic streptococcus** ➔ The rash of scarlet fever is caused by the streptococcal pyrogenic exotoxins (ie, SPE A, B, C, and F).
Signs and symptoms	• **Red pharynx** • Strawberry tongue • **Perioral skin erythema and desquamation** • **Dysphagia** • **Malaise** • **Severe cervical lymphadenopathy.** 
Diagnosis	➔ **Dick test** a test to determine susceptibility or immunity to scarlet fever by an injection of scarlet fever toxin.
Treatment	• **Antibiotic.**

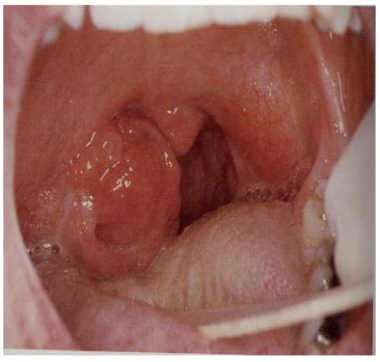
Diphtheria

Pathogen	• **Corynebacterium diphtheriae.** The incidence has fallen markedly because of immunization.
Signs and symptoms	• **Sore throat.** • **Fever.** • Green (book: gray) plaques friable membrane **on uvula and tonsils bleeds with scrapping. So a membrane on the tonsils give us 2 ddx, EBV or diptheria** • **Onset can be rapid and characterized by a grey membrane (difficult to remove) on the tonsils, fauces and uvula. Pyrexia is usually low and diagnosis is confirmed by examination and culture of a swab.** • Systemic symptoms due to the exotoxins: Toxemia , Mild fever , Tachycardia and Paralysis. • unilateral mostly.
Diagnosis	➔ **Culture**
Complications	• Myocarditis. • **Nephritis.** • **Airway obstruction** • **death** 
Treatment	• **Antibiotics** (penicillin or erythromycin)**, antitoxin.**

Vincent's angina	
Cause	• Gram negative fusiform bacillus and a spirillum with anaerobic. • Causative organisms: Bacillus fusiformis and Borrelia vincentii • Acute ulcerative lesion. • Big ulcers on the tonsils
Signs and symptoms	• Sudden in onset. • Severe Pain. • Fever. • Cervical adenitis. • The base of the deep ulcers bleed when the membranous slough is removed. • The symptoms subside in 4-7 days. 
Treatment	• Its gram negative so > Metronidazole (flagyl) not amoxicillin, antiseptic, mouthwash.

This is grade 4 tonsils (kissing tonsils), they will have Obstructive sleep apnea

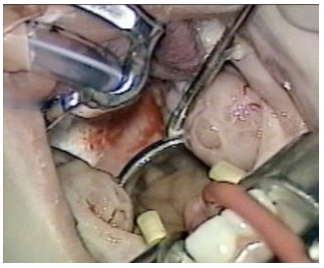
We have to remove asymmetrical tonsils in adults because it could be cancerous



Tonsillar hypertrophy grading:

- ➔ **Grade 0 :** Tonsils are found confined to the space between the anterior and posterior pillars
- ➔ **Grade 1 :** Tonsils are enlarged and is just seen coming out of the anterior pillar. (cover 25% of the space between the pillars)
- ➔ **Grade 2 :** The enlarged tonsil reaches to about half the distance of uvula. (cover 50% of the space between the pillars)
- ➔ **Grade 3 :** The enlarged tonsil comes into contact with the uvula. (cover 75% of the space between the pillars)
- ➔ **Grade 4 :** The enlargement of tonsil is so much that both tonsils lie virtually in contact with each other i.e. kissing tonsils

Indications of Tonsillectomy:



1. **Recurrent tonsillitis:** 6 attacks or more during 1 year or 4 attacks per year for 2 years, or 3 attacks per year for 3 years.
2. Hypertrophied tonsils causing airway obstruction.
3. **Unilateral (asymmetrical) tonsillar enlargement:** tonsillar enlargement suspicious of malignancy (firm unilateral enlargement in an adult smoker).
4. **Peritonsillar abscess (Quinsy)** -treated by incision and drainage - wait for 6 weeks then book the patient for tonsillectomy

Tonsillectomy complications:

Its normal to have a whitish membrane or sloughed tissue on the tonsil bed 24 hours after surgery. Its important to mention this to the parents because they might get concerned and take him to another hospital and get misdiagnosed with bacterial tonsillitis and given antibiotics.

Once the child starts to eat and move his jaw, this sloughed tissue will slowly detach and get swallowed which is normal. If the child didn't eat this process might take longer and it will make a good media for infections and bleeding. So its imp to encourage them to eat.

1. **Hemorrhage:**
   - ➢ Primary
   - ➢ Reactionary
   - ➢ Secondary
2. **Respiratory obstruction**. (because of uvular edema, hematoma, aspirated material).
3. **Injury** to near-by structures.
4. Pulmonary and distant **infections**.

❖ Primary hemorrhage

- ➢ Bleeding occurring during the surgery
- ➢ Causes:

- Bleeding tendency
- Acute infections
- Bad technique

➢ Management:
- General supportive measures
- Diathermy, ligature or stitches
- Packing

❖ Reactionary hemorrhage

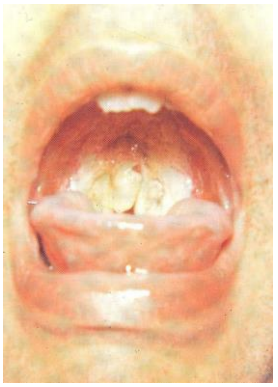
➢ Bleeding occurring within the first 24 hours postoperative period
➢ Causes:
- Bleeding tendency
- Slipped ligature (slipped suture)

➢ Diagnosis:
- Rising pulse & dropping blood pressure
- Rattle breathing
- Blood trickling from the mouth
- Frequent swallowing
- Examination

➢ Treatment:
- General supportive measures
- Take patient back to OR
- Control like reactionary hemorrhage

❖ Secondary hemorrhage (the cause is infection)

➢ Occur 5-10 days postoperatively
➢ Due to infection
➢ Treated by antibiotics
➢ May need diathermy or packing

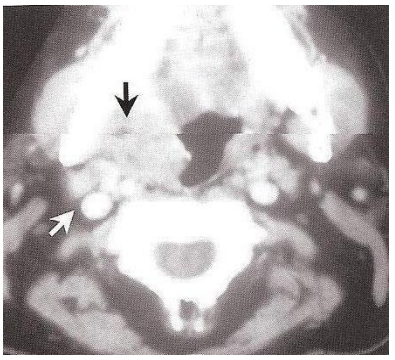


- Notes:
  - Encourage eating/drinking after tonsillectomy to reduce slough tissue
  - Slough tissue is a good media for infection this is why it's important to reduce it
  - It usually takes children 1 week to heal after tonsillectomy. Adults → 2 weeks.

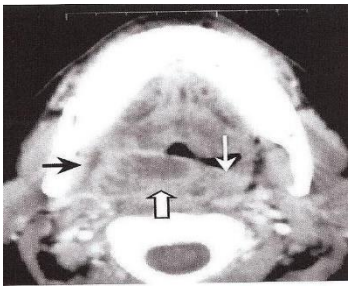
Moniliasis:

- White patches caused by candida albicans fungus.
- In bronchial asthma patients, due to usage of inhaled steroids (patients are instructed to wash mouth with water after usage) or immunocompromised patients like patients on renal dialysis.
- RX: nystatin.

Parapharyngeal abscess

Source	➢ Source of the infection: odontogenic, tonsils, parotid
Signs and symptoms	• Trismus • fever • Neck mass • muffled voices (hot potato voice) • intraoral bulge (lateral) • Investigations: • Laboratory and bacteriology • CT (best modality) • MRI 
Complications	➢ Aspiration ➢ Cranial nerve palsy ➢ Airway compromise ➢ Septic thrombophlebitis ➢ Carotid blowout ➢ Endocarditis
Treatment	• EXTERNAL drainage • IV ABX • Airway management • You have to mention all three

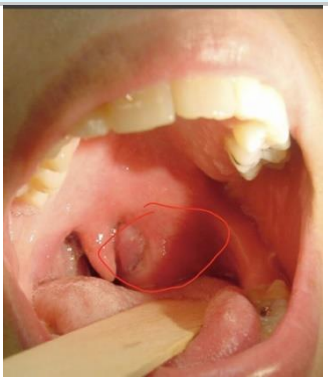
Retropharyngeal abscess (more in children) (IMP)

Signs and symptoms	• Odynophagia • Hot potato voice • Drooling • Stiff neck • Fever • Stridor 
Complications	➢ Mediastinitis ➢ Respiratory distress ➢ Rupture abscess
Treatment	• Drainage (TRANSORAL) it is important to know that retropharyngeal abscess drainage is transoral while in parapharyngeal abscess it is external • IV antibiotics • Make sure to secure the airway. MENTION ALL 3!

Peritonsillar abscess (quinsy):

An abscess between the tonsil capsule and the adjacent lateral pharyngeal wall

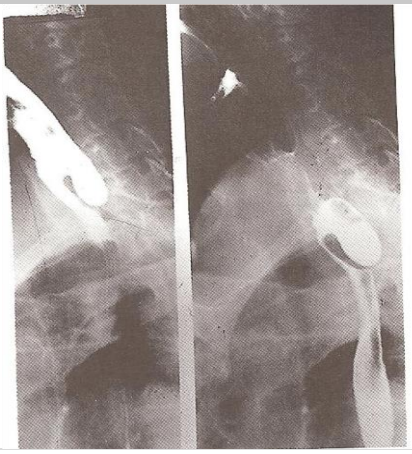
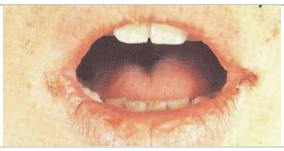
Signs and symptoms	• Fever • Otalgia • Odynophagia • Uvular deviation. • Trismus • Drooling of saliva • Hot potato voice • On one side
Complications	➢ Para and retropharyngeal abscess ➢ Aspiration pneumonia
Treatment	• I&D • Aspiration • Iv ABX • Tonsillectomy



- **Ludwig's angina**: Bilateral cellulitis of submandibular and sublingual spaces.
  - occurs in diabetics after dental procedure⇒ difficulty in breathing

Signs and symptoms	• Wooden floor of the mouth (hard) • Neck swelling and indurations • Drooling • Respiratory distress • Swollen tongue • Dysphagia • Trismus • Often seen with teeth abscess
Complications	➢ Airway distress the abscess pushes the tongue upwards -> blocks airway ➢ Sepsis
Treatment	• Tracheotomy (airway management) • External drainage • IV ABX

Chronic pharyngitis	
Pathogenesis	• Postnasal drip • Irritant (dust. Dry heat, smoking, alcohol) • Reflux esophagitis, we have 2 types or reflux. 1) Laryngopharengeal reflux is important to us, its when the acidity reaches the larynx. They present with chronic throat clearance. 2) Gastroesophageal reflux, in which they present with heartburn. Treatment: lifestyle modifications (less coffee, less pickles, less spicy food, never sleep on a full stomach…) medications like: anti acids and PPI. • Chronic mouth breathing people who have allergic rhinitis, or chronic sinusitis. • Allergy • Granulomatous disease • Connective tissue disease • Malignancy
Signs and Symptoms	➢ Constant mouth clearing ➢ Dry throat ➢ Pharyngeal crusting ➢ Thick granular wall
Treatment	• Address underlying etiology

Zenker's diverticulum: Herniation of the mucosa at killian's triangle due to increased intraluminal pressure		
Signs and Symptoms	• Dysphagia • Regurgitation of undigested food • Aspiration	
Diagnosis	➢ Barium swallow	
Treatment	• Cricopharyngeal myotomy. To relax the esophagus and to release pressure from the weal areas. • Diverticulectomy	

Aphthous Ulcer: Usually due to stress, stays for a few days and spontaneously resolves. Unknown cause could be due to stress or food.

- Angular stomatitis: suspect anemia, refer to hematology

430 teamwork

❖Bifid uvula (there was a picture in the slides)

➢Signs & symptoms: snoring and mouth breathing.

➢Sometimes, the adenoid helps close the soft palate. So, before deciding on removing the whole adenoid (adenoidectomy), the doctor should examine the uvula to make sure it's not short or bifid and palpate the soft palate to check for submucosal cleft. If any of the three conditions mentioned are there, it is contraindicated to do an adenoidectomy. Partial adenoidectomy could be done in bifid uvula.

➢This picture shows a bifid uvula and soft palate.

➢In this case, only the upper part of the adenoid is removed (partial adenoidectomy), while the lower part is kept; to bridge the gap between the soft palate and pharynx in order to prevent velopharyngeal insufficiency and hypernasality

^ + First we have to make sure that the patient doesn't have a bifid uvula, because if we remove the adenoids, he'll have an area where air can pass from pharynx through the nose causing hypernasality.
Sometimes pts have normal uvula but have a submucosal cleft, detected by palpation of the palate and feeling a defected area without bone. The adenoids can support the area between the posterior pharyngeal wall and the soft palate, removing the adenoids will cause hapernasality.
IMP, before deciding to remove the adenoids we have to examine those