

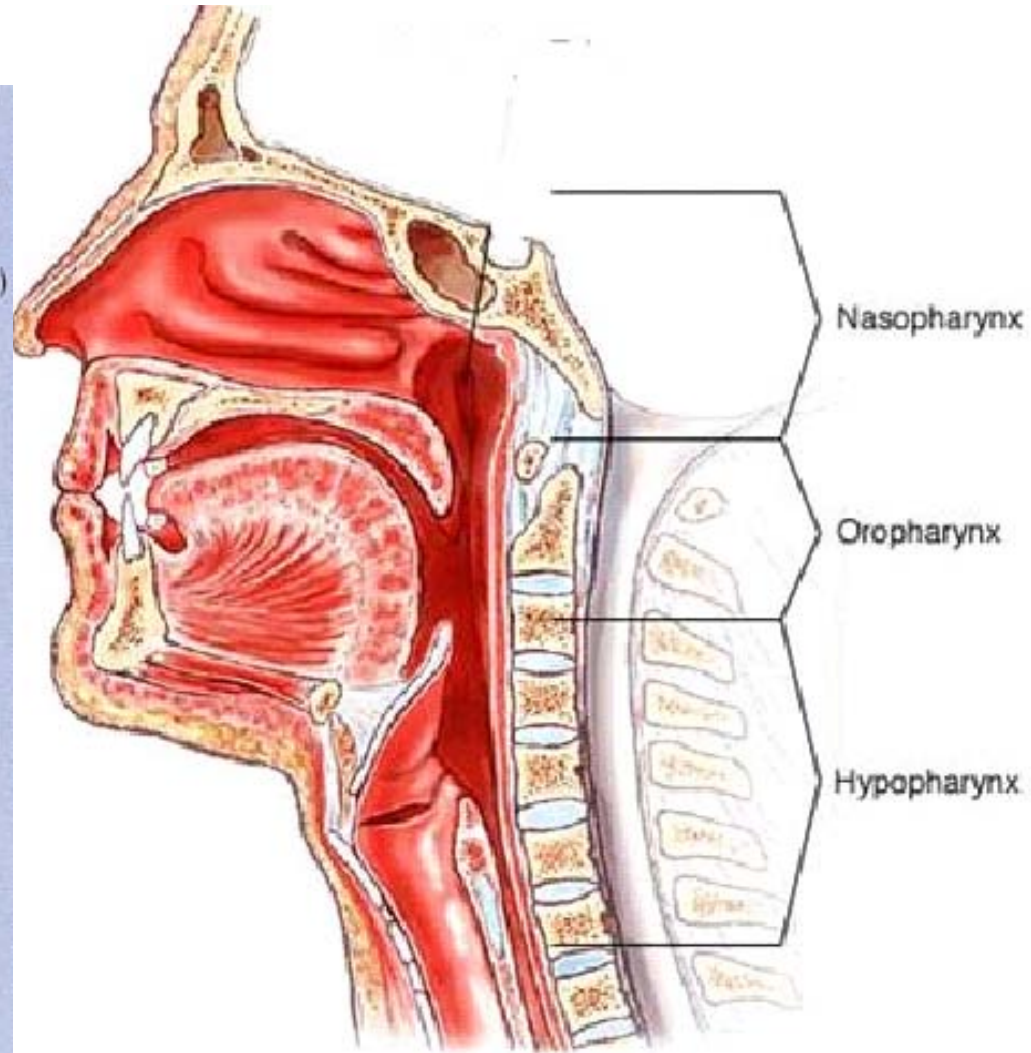
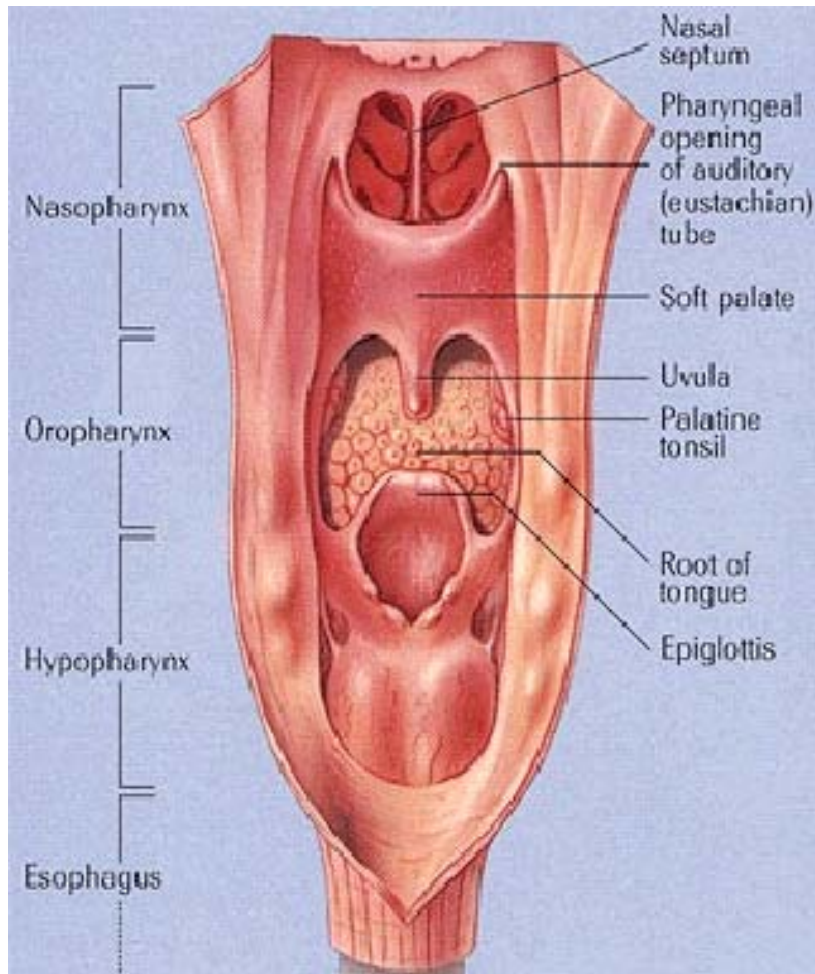
بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

THE PHARYNX

Anatomy

- Skull base
 - Cricoid cartilage anteriorly
 - Inferior border of C6 posteriorly
- Widest portion (5cm) at hyoid
- Narrowest portion (1.5cm) at caudal end
- Divided into 3 parts:
 - Nasopharynx
 - Oropharynx
 - Hypopharynx

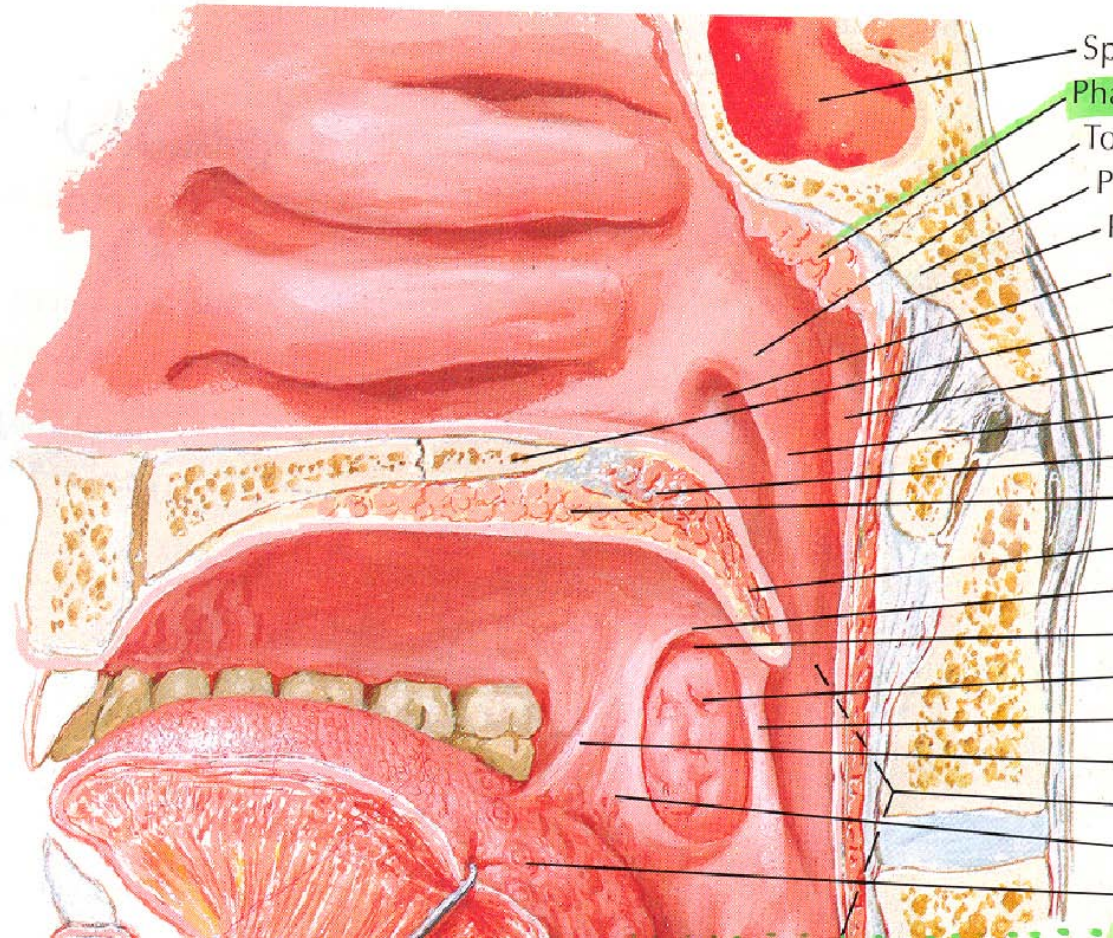
Cavity of the pharynx



Nasopharynx

- Respiratory function
- Anterior: choana (posterior nasal aperture)
- Posterior: superior constrictor muscle
- Superior: basilar portion of occipital bone
- Inferior: soft palate

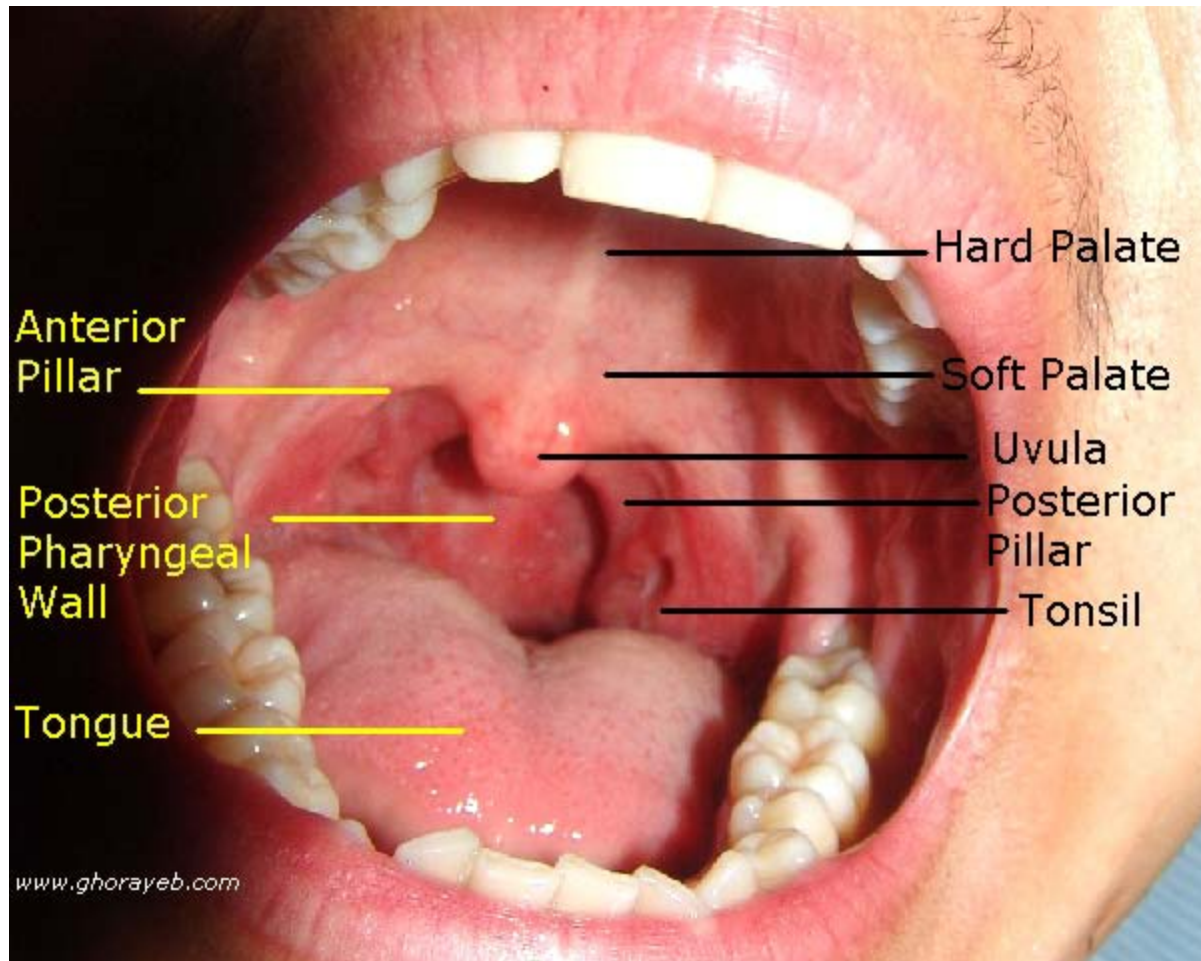
The Nasopharynx



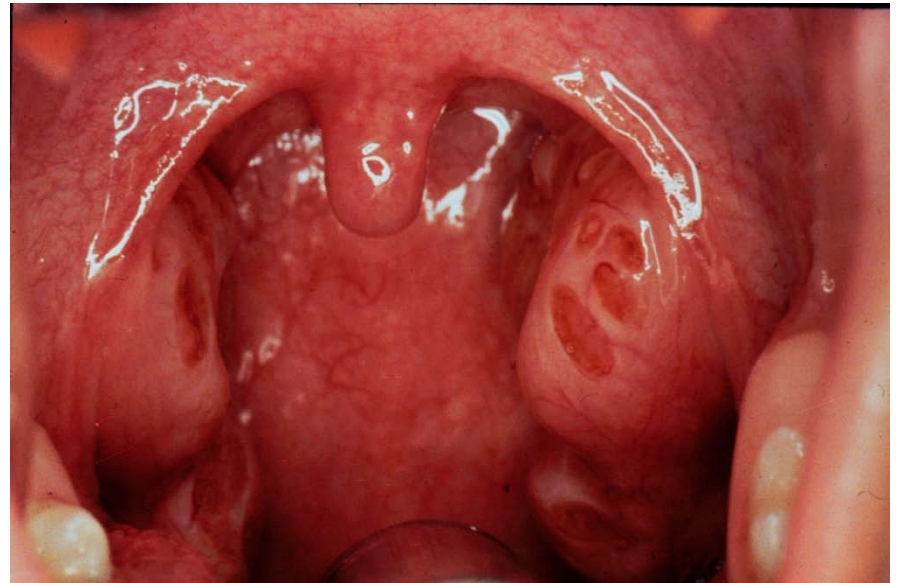
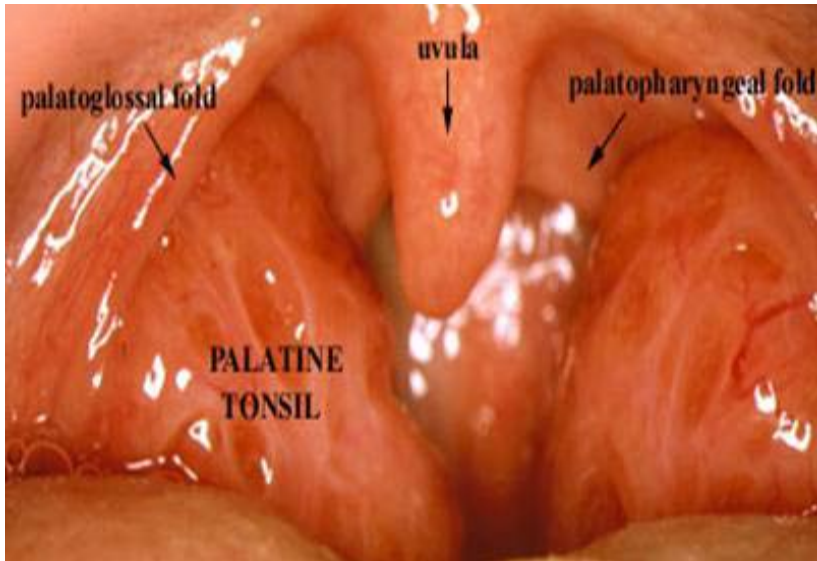
Oropharynx

- Respiratory & Digestive function
- Anterior: anterior tonsillar pillar
- Posterior: superior & middle constrictors
- Superior: soft palate
- Inferior: base of tongue, superior epiglottis
- Laterally:
 - Palatoglossal
 - Palatopharyngeal arches
 - Parapharyngeal space

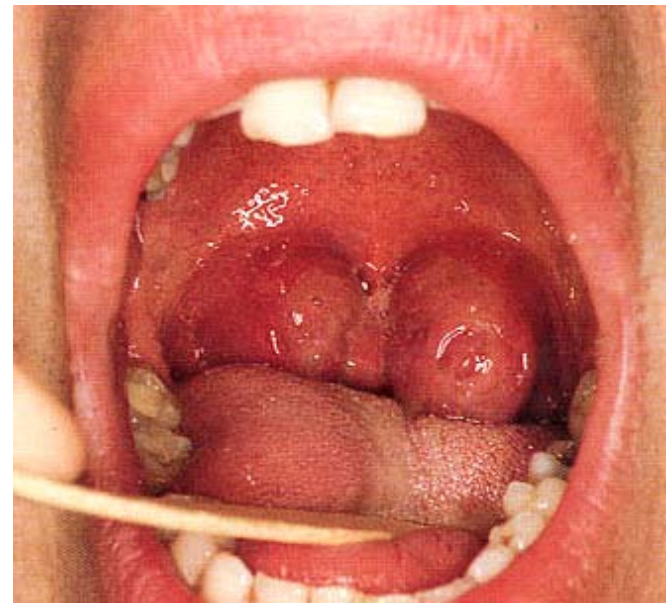
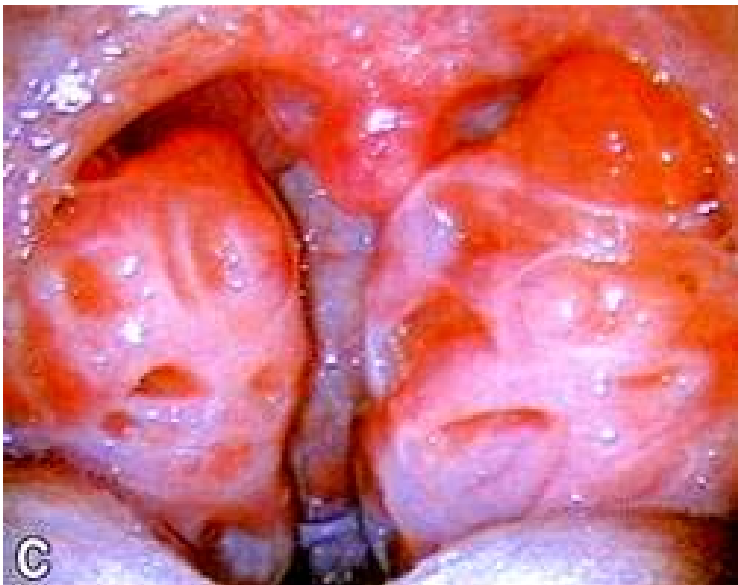
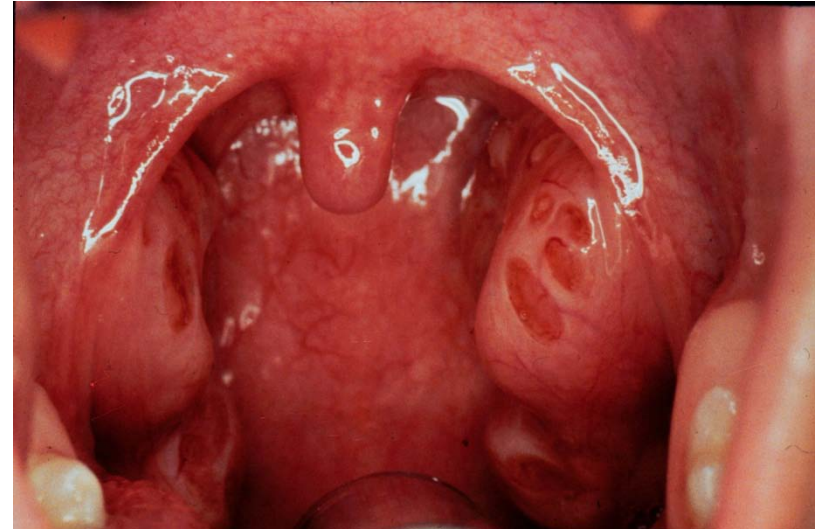
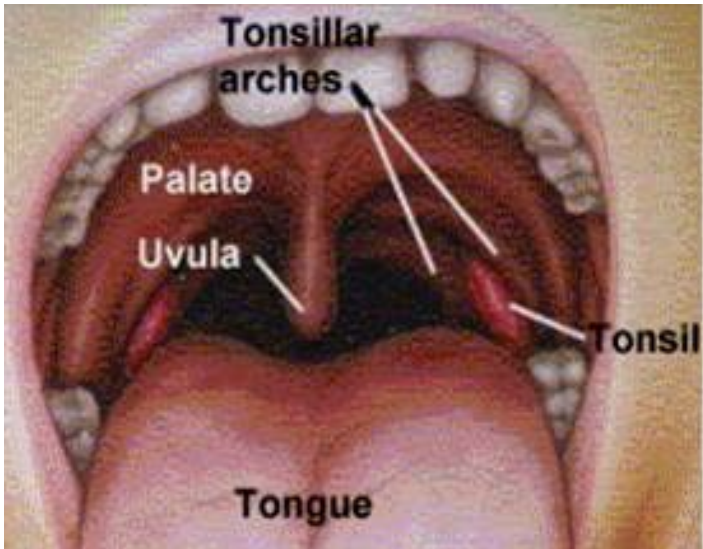
The Oropharynx



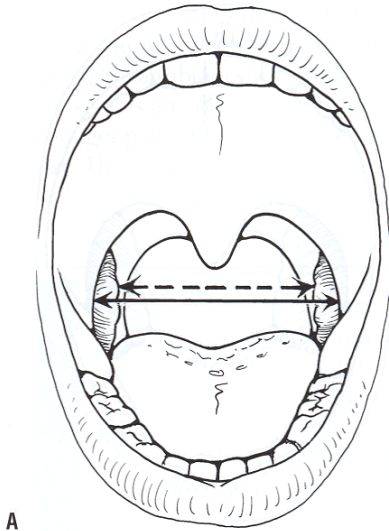
The oropharynx



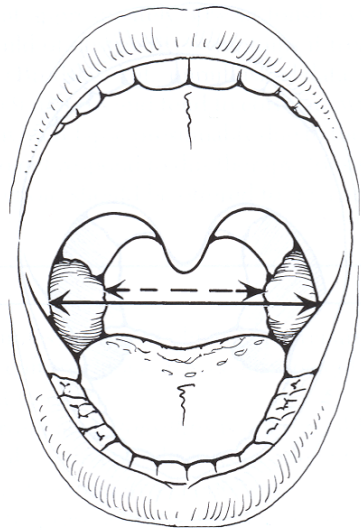
Tonsils Size



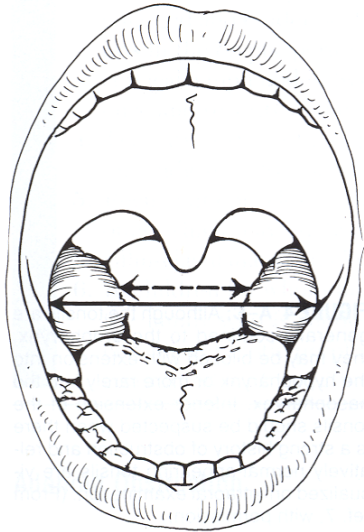
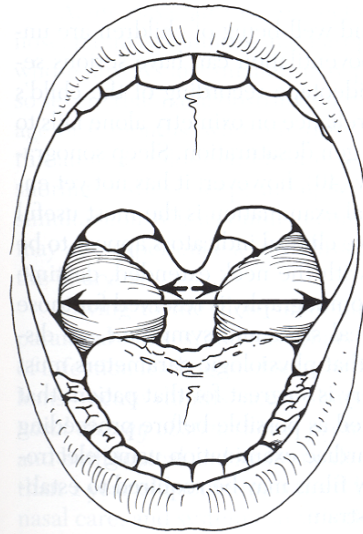
Grading the Size of Tonsils



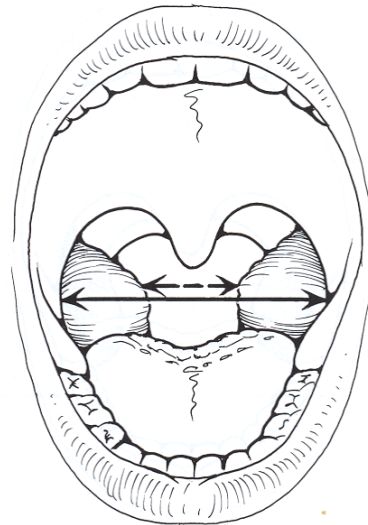
A



B E



C



D

Grading system:

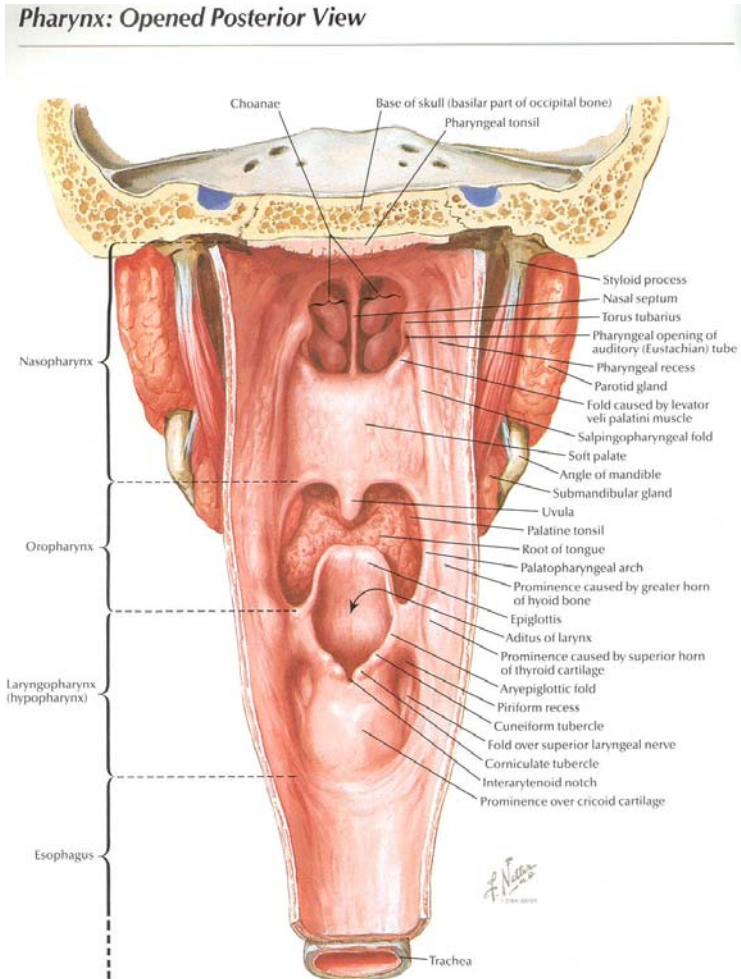
- A. 0 – tonsils in fossa
- B. +1 – tonsils less than 25%
- C. +2 – tonsils less than 50%
- D. +3 – tonsils less than 75%
- E. +4 – tonsils greater than 75%

Hypopharynx

- Digestive function
- Lies posterior to the larynx
- Superior: superior border of epiglottis and pharyngoepiglottic folds
- Inferior: inferior border of the cricoid
- Posterior/lateral: middle & inferior constrictors, bodies of C4-C6
- Anterior: laryngeal inlet

The Laryngopharynx (Hypopharynx)

Pharynx: Opened Posterior View



Pharyngeal Wall

Mucous membrane

Submucosa

Muscular layer

Fibrous layer (Buccopharyngeal fascia)

Mucous membrane

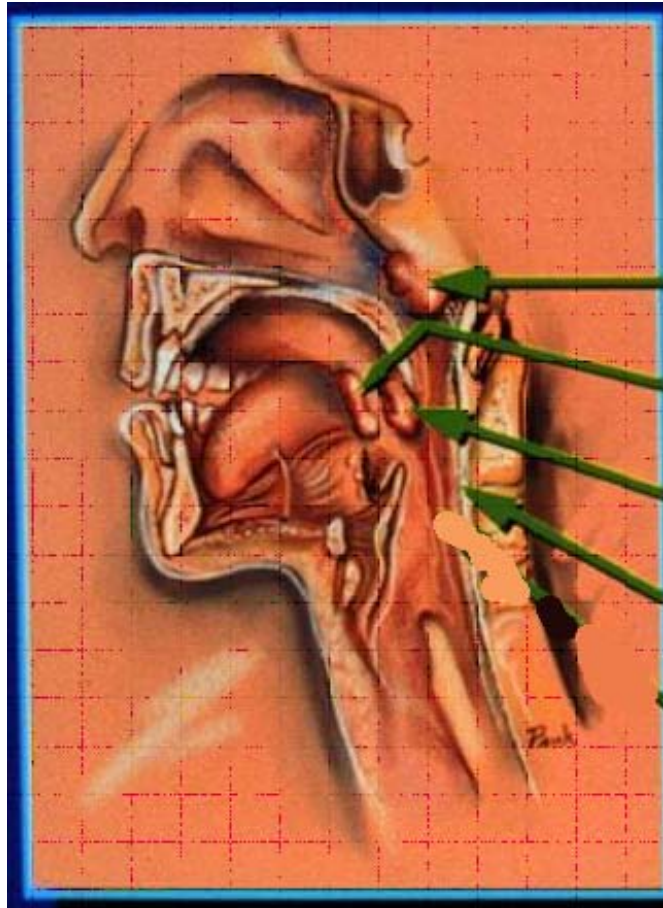
- Nasopharynx
 - Ciliated columnar epithelium

- Oro and hypopharynx
 - Stratified squamous epithelium

Submucosa

- Nerves, blood vessels, and lymphatics
- Mucous and salivary glands
- Subepithelial lymphoid tissue

Subepithelial lymphoid tissue

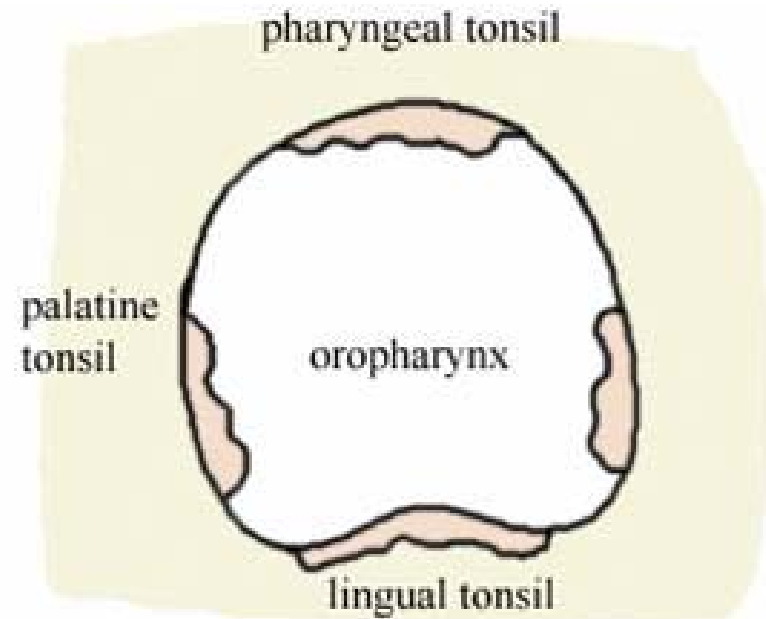


WALDEYER'S RING

- Adenoids (Pharyngeal tonsils)
- Lingual tonsils
- Palatine tonsils
- Pharyngeal lymphoid islands

Characteristics of Waldeyer's Ring

- No afferents
- Efferent to deep cervical nodes
- No capsule except the palatine tonsils



Pharyngeal Wall

Mucous membrane

Submucosa

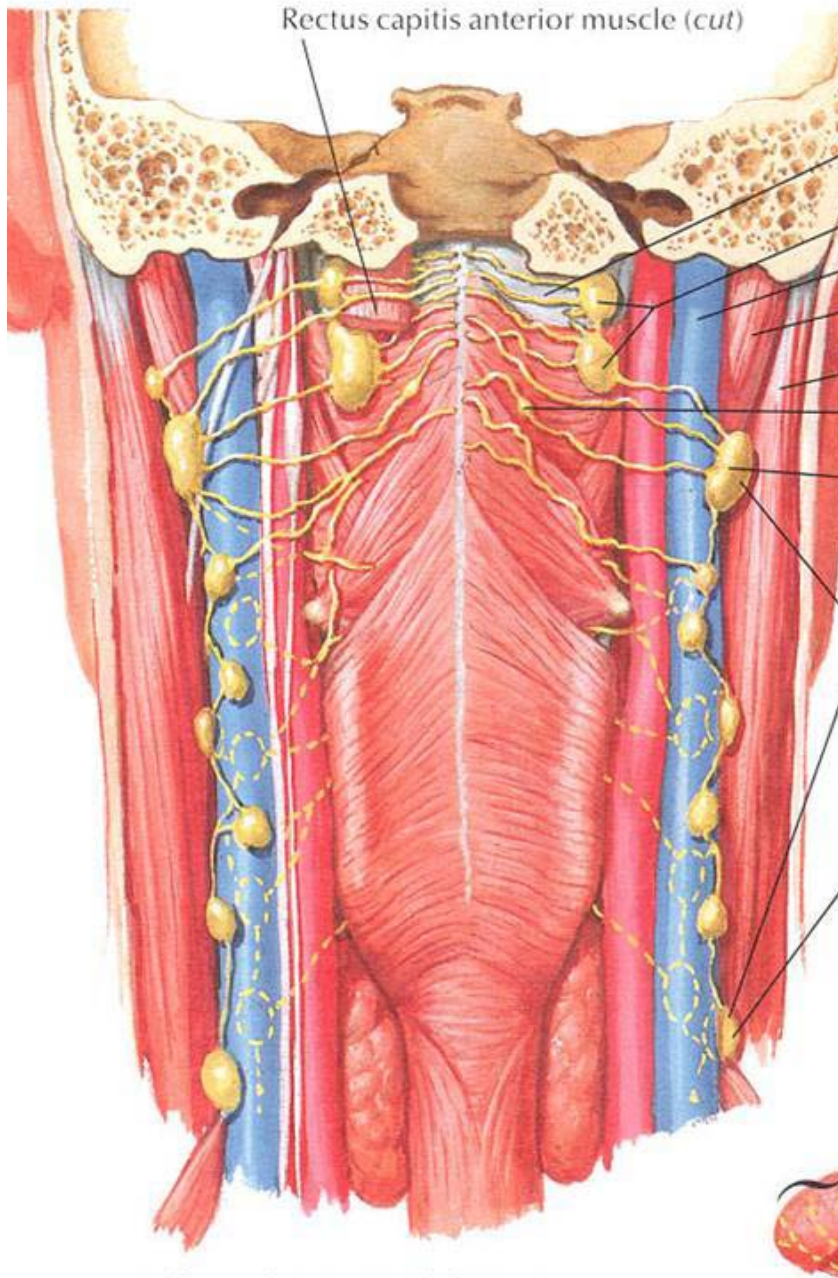
Muscular layer

Fibrous layer

Buccopharyngeal fascia

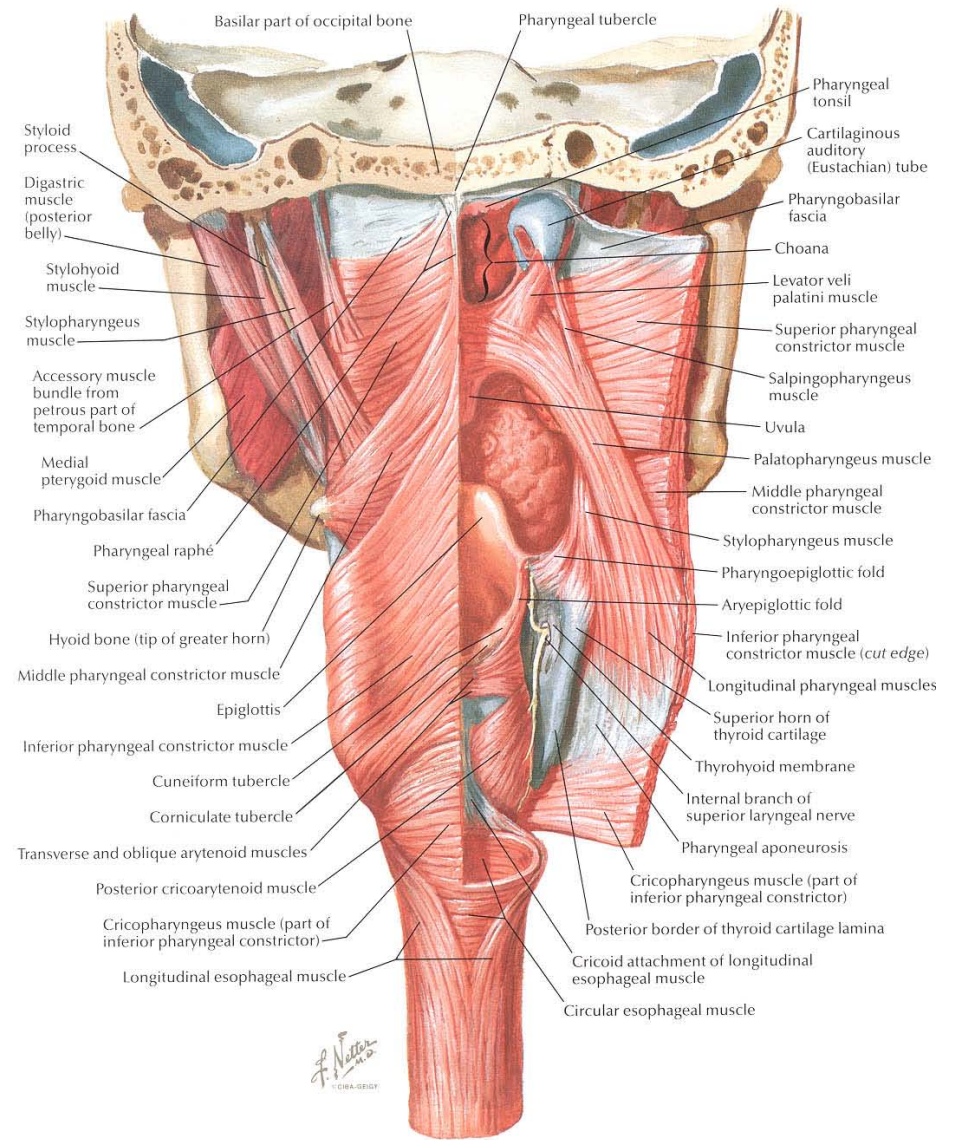
Muscular layer

- External:
 - The three constrictors -1 –superior 2 –middle
3 - inferior
- Internal:
 - Stylopharyngeus
 - Salpingopharyngeus
 - Palatopharyngeus



Muscles of Pharynx: Partially Opened Posterior View

SEE ALSO PLATE 223



Pharyngeal Wall

Mucous membrane

Submucosa

Muscular layer

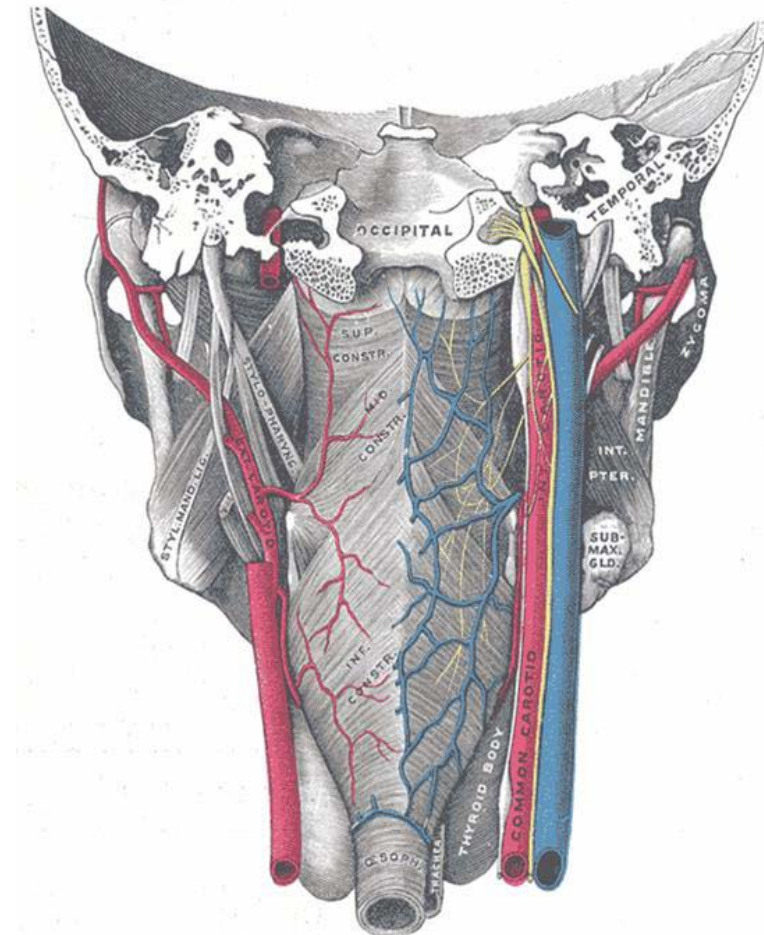
Fibrous layer (Buccopharyngeal fascia)

Nerve Supply

- Trigeminal
- Glossopharyngeal
- Vagus
- Sympathetic: cervical ganglia

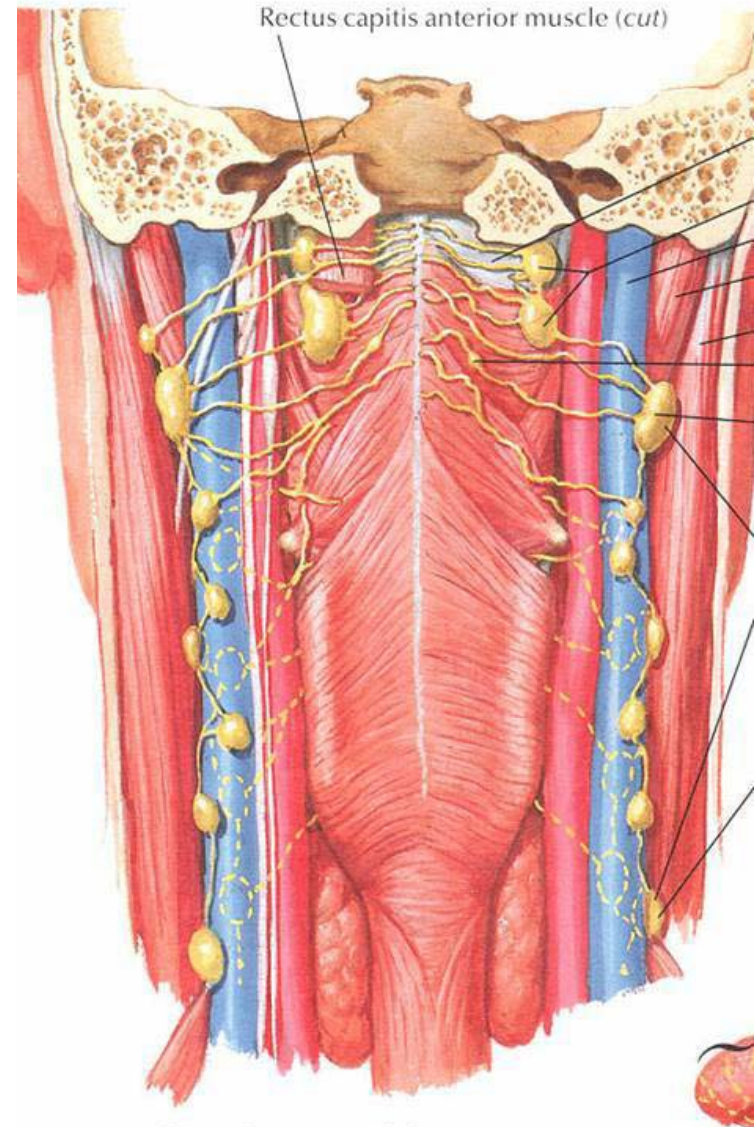
Blood supply

- Arterial from the external carotid artery
 - Ascending pharyngeal
 - The lingual artery
 - The facial artery
 - The maxillary artery
- Venous drainage to the internal jugular

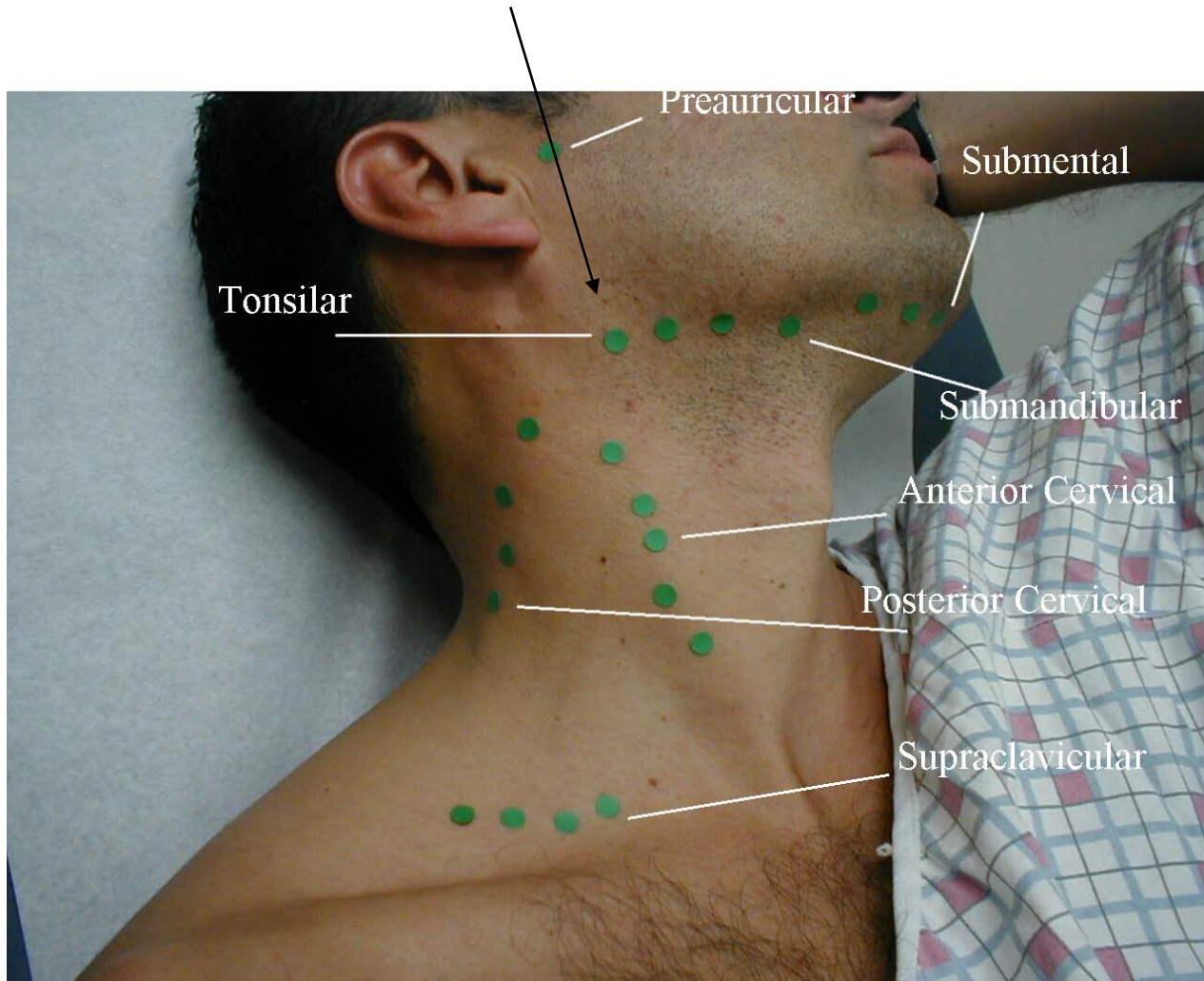


Lymphatics

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



Jugulo-Diagastic nodes

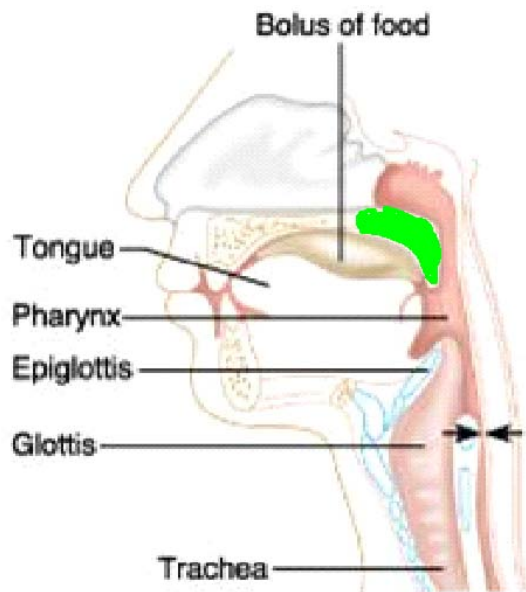


Physiology of the Pharynx

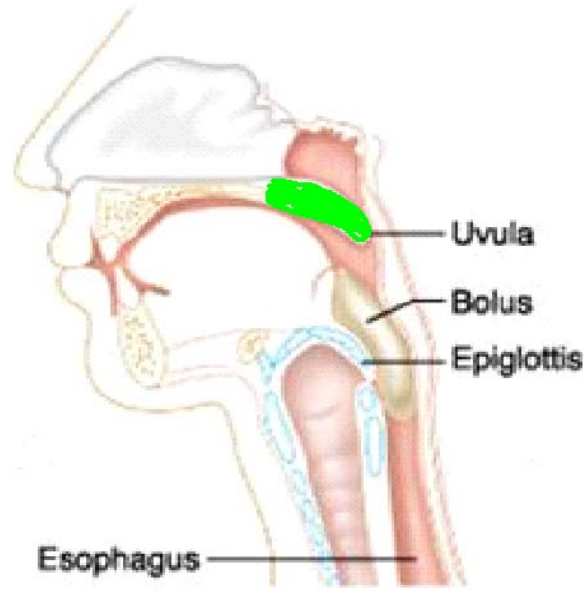
Functions of the pharynx

- Respiratory Channel
- Deglutition

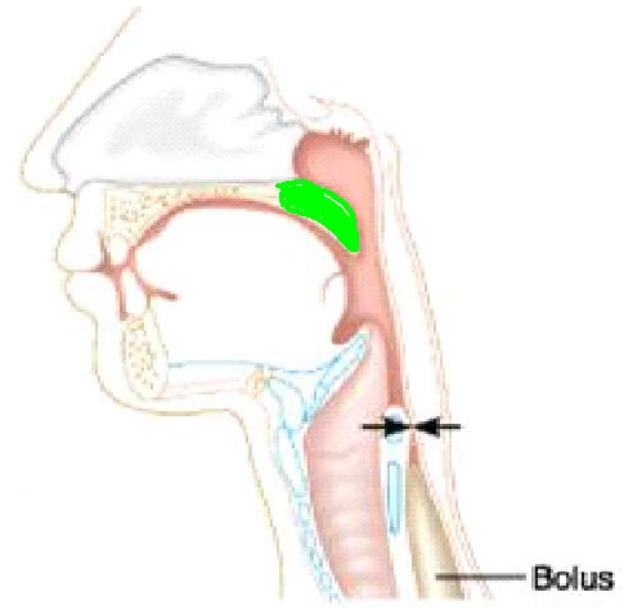
Deglutition



Oral Stage



Pharyngeal Stage



Esophageal stage

Functions of the pharynx

- Respiratory Channel
- Deglutition
- Speech
- Taste
- Immunity

Immunity function of the pharynx

- Production of immunoglobulins, plasma cells and lymphocytes by the subepithelial lymphoid tissue

DISEASES OF THE NASOPHARYNX

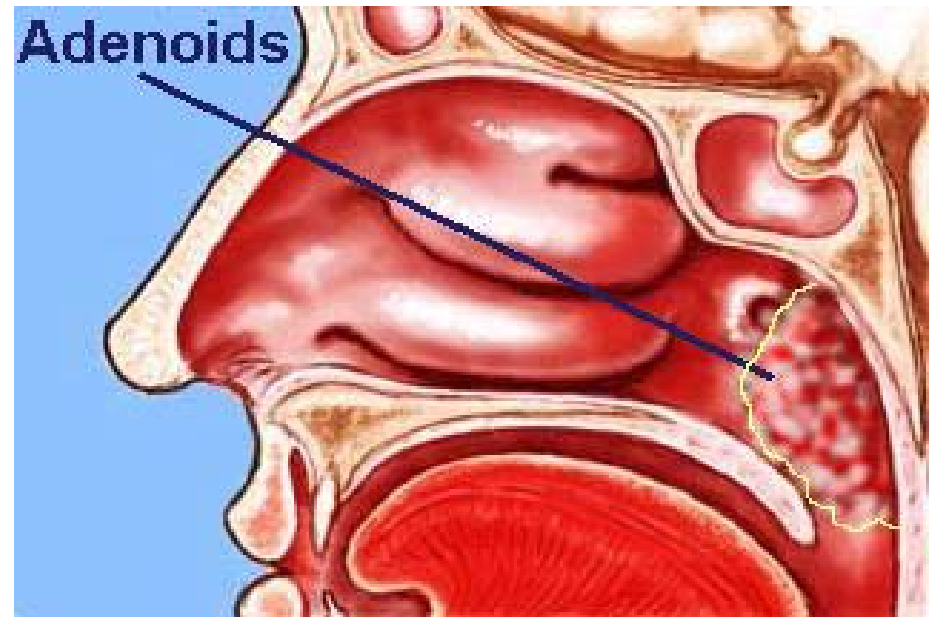
ACUTE INFECTION OF NASOPHARYNX

- Pathologically: is a part of acute rhinitis
(common cold)
- Clinically: has no specific clinical features

ADENOIDS

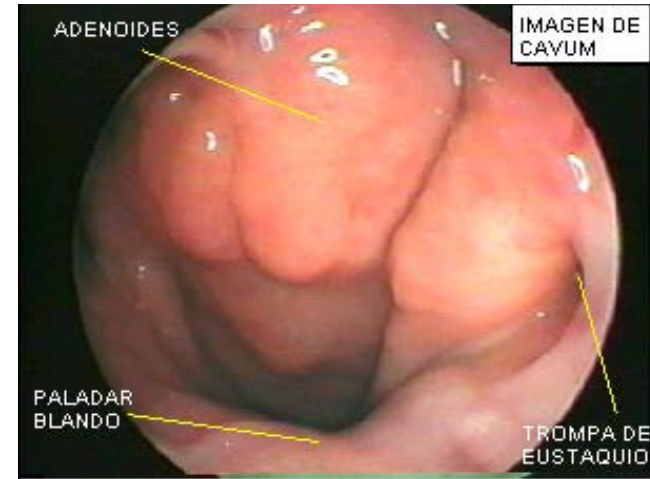
DEFINITION

- Hypertrophy of the nasopharyngeal tonsils sufficient to produce symptoms



CLINICAL FEATURES

- Usually in children
- Nasal obstruction
 - Mouth breathing
 - Snoring, sleep disturbance, apnea etc
- Ear symptoms due to Eustachian tube obstruction
- Adenoid face

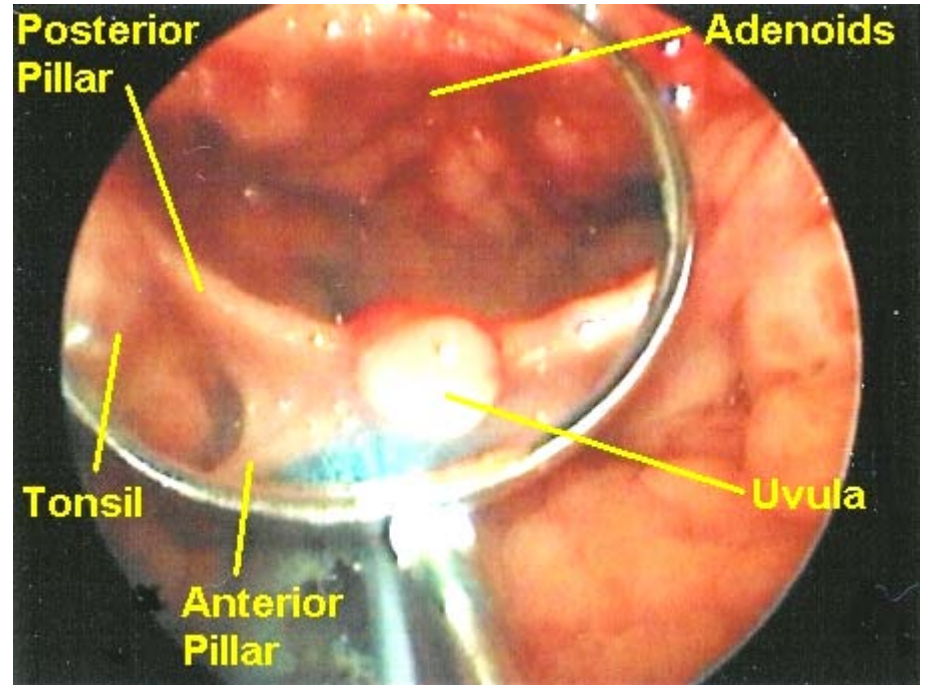
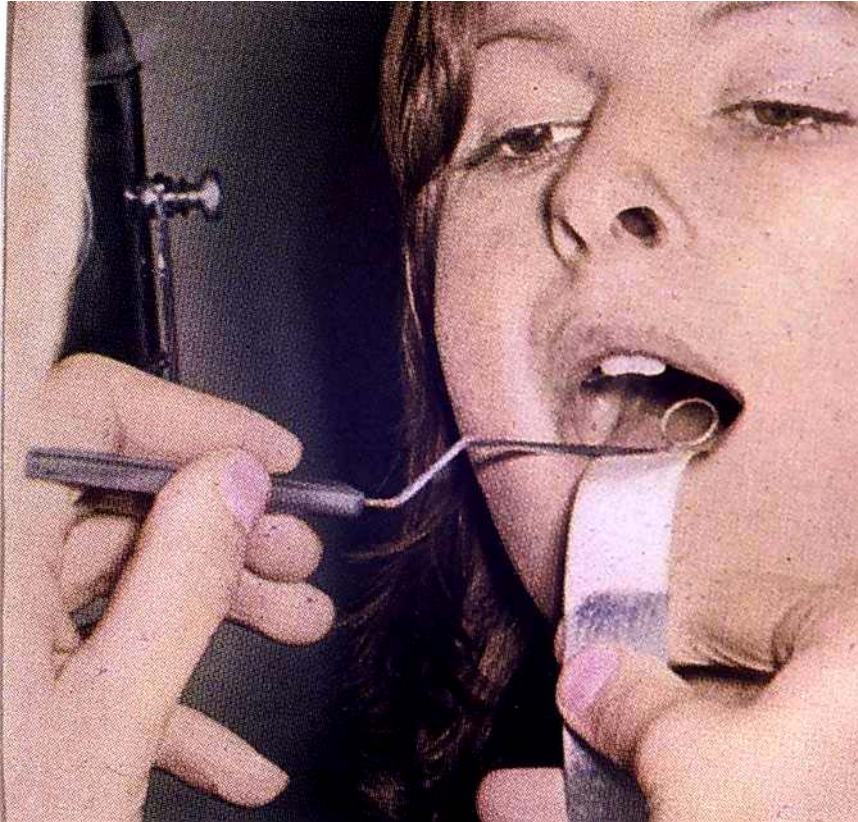


Adenoid

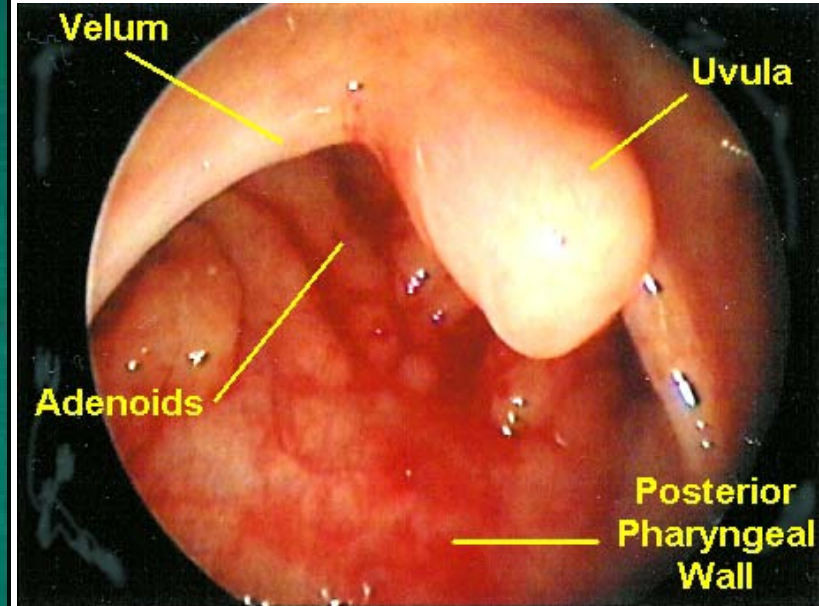
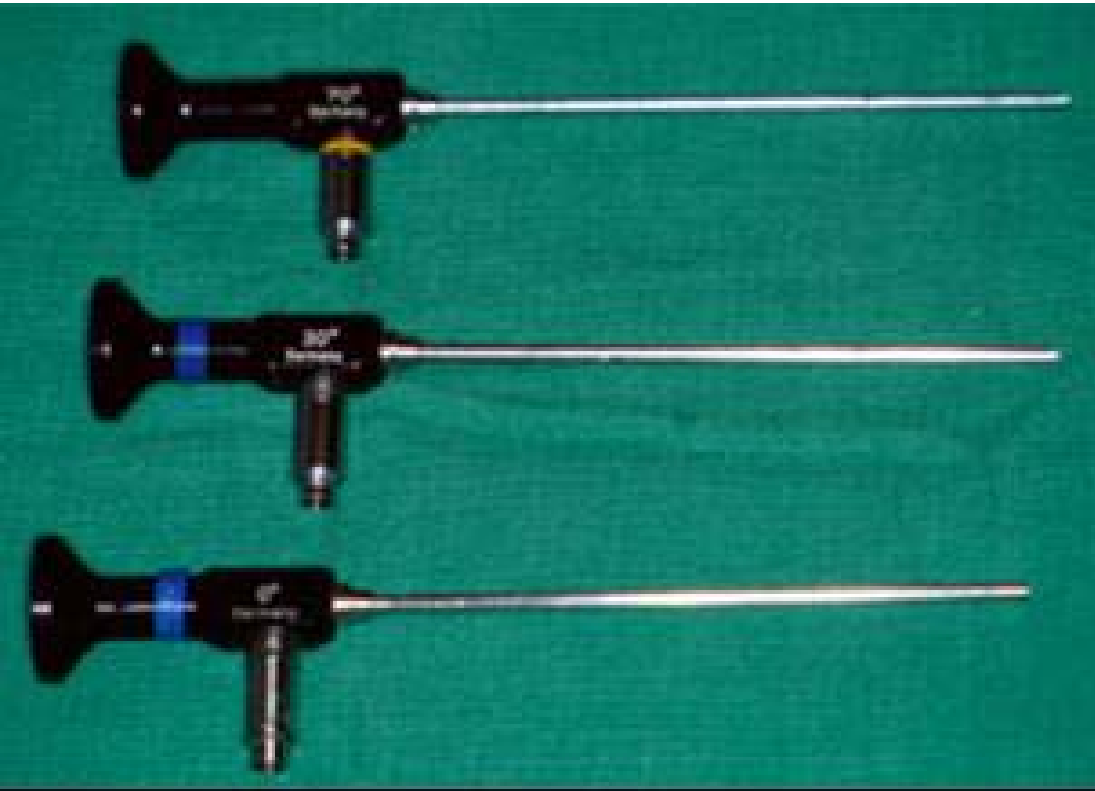
- **Child**
- **Snoring**
- **Mouth breathing**
- **Nasal Tone**
- **Bilateral OME**
- **Bilateral nasal obstruction**



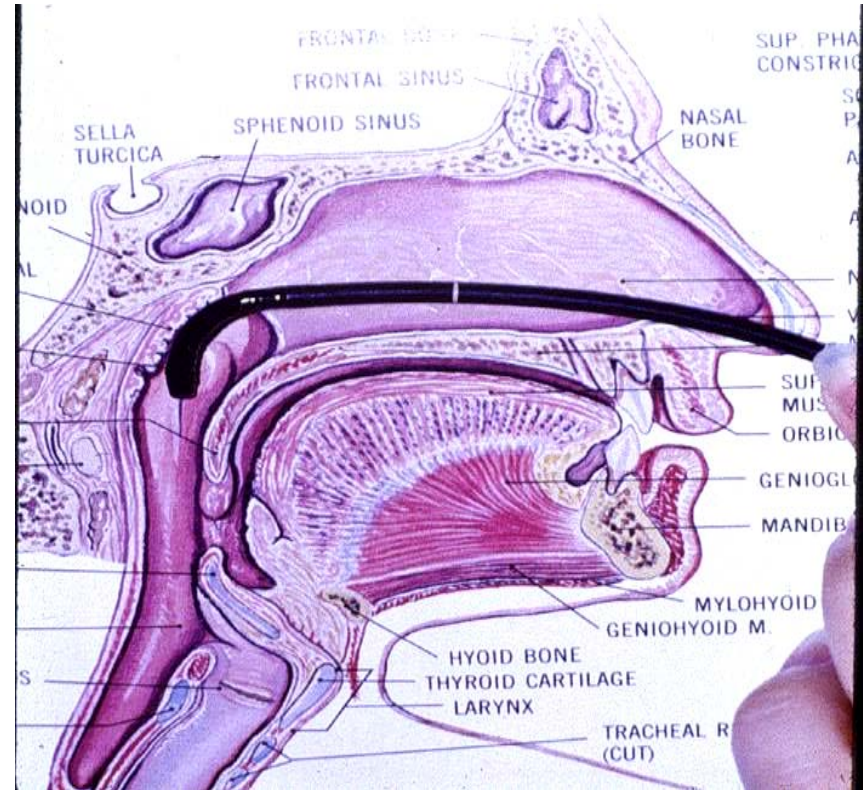
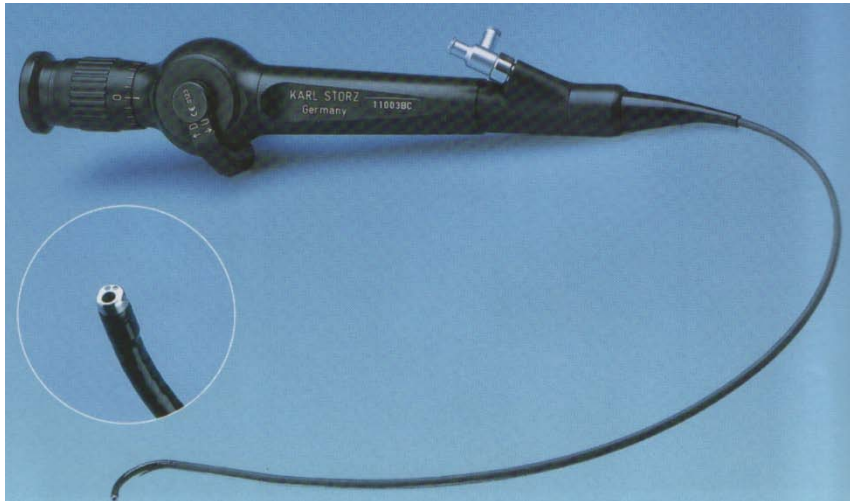
EXAMINATION

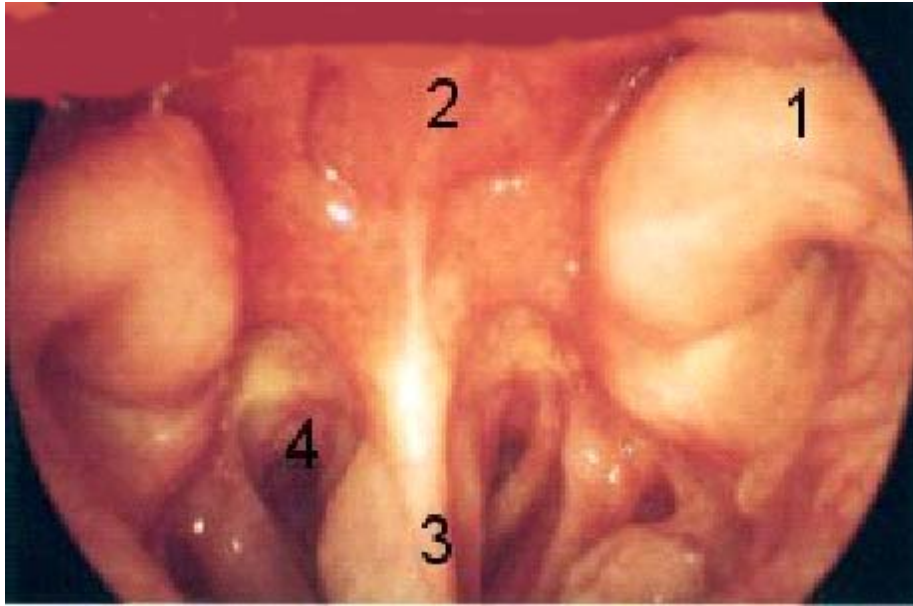


EXAMINATION

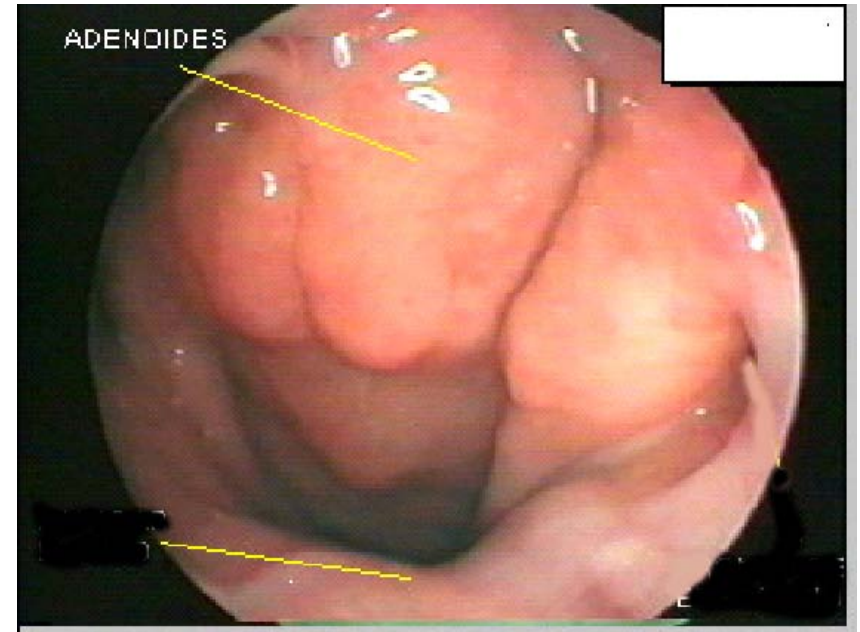


EXAMINATION

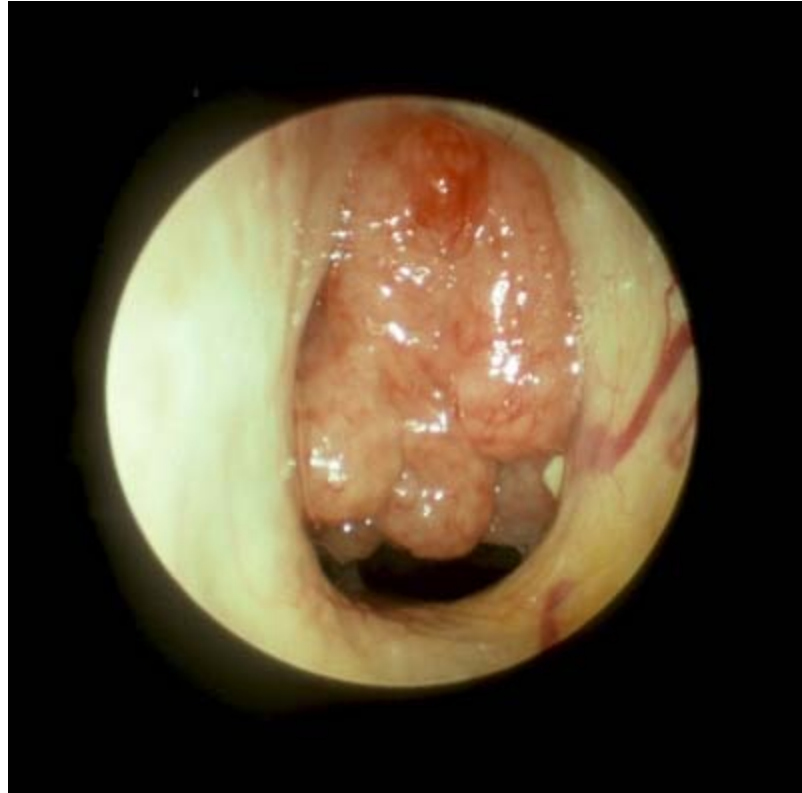




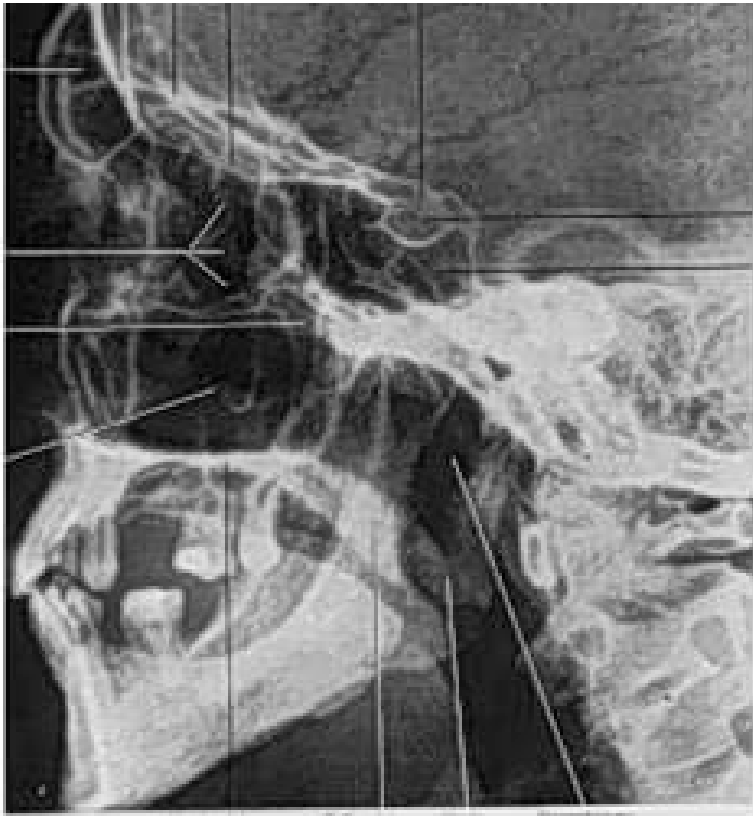
Normal nasopharynx



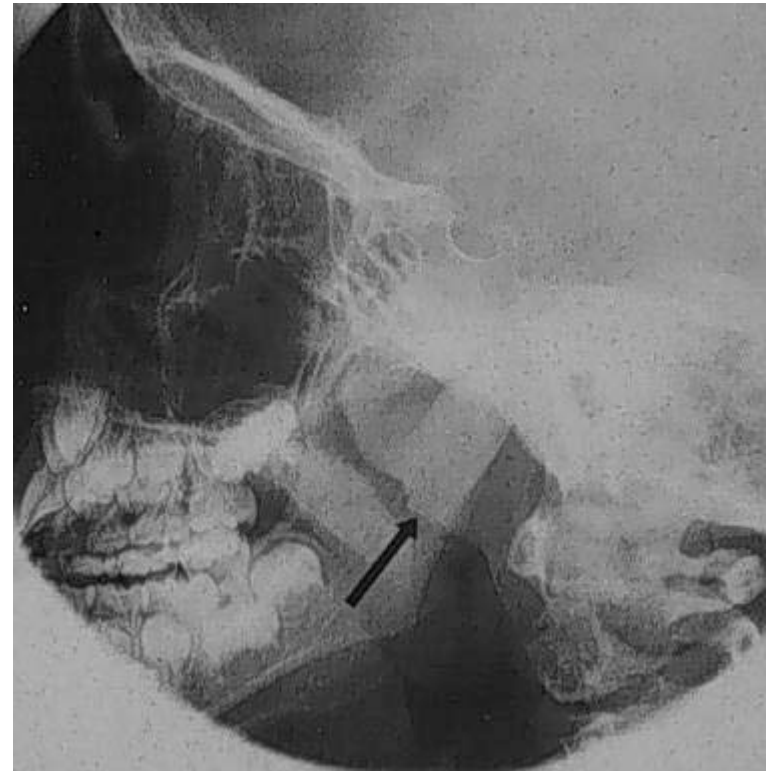
Adenoid



PLAIN X- RAY

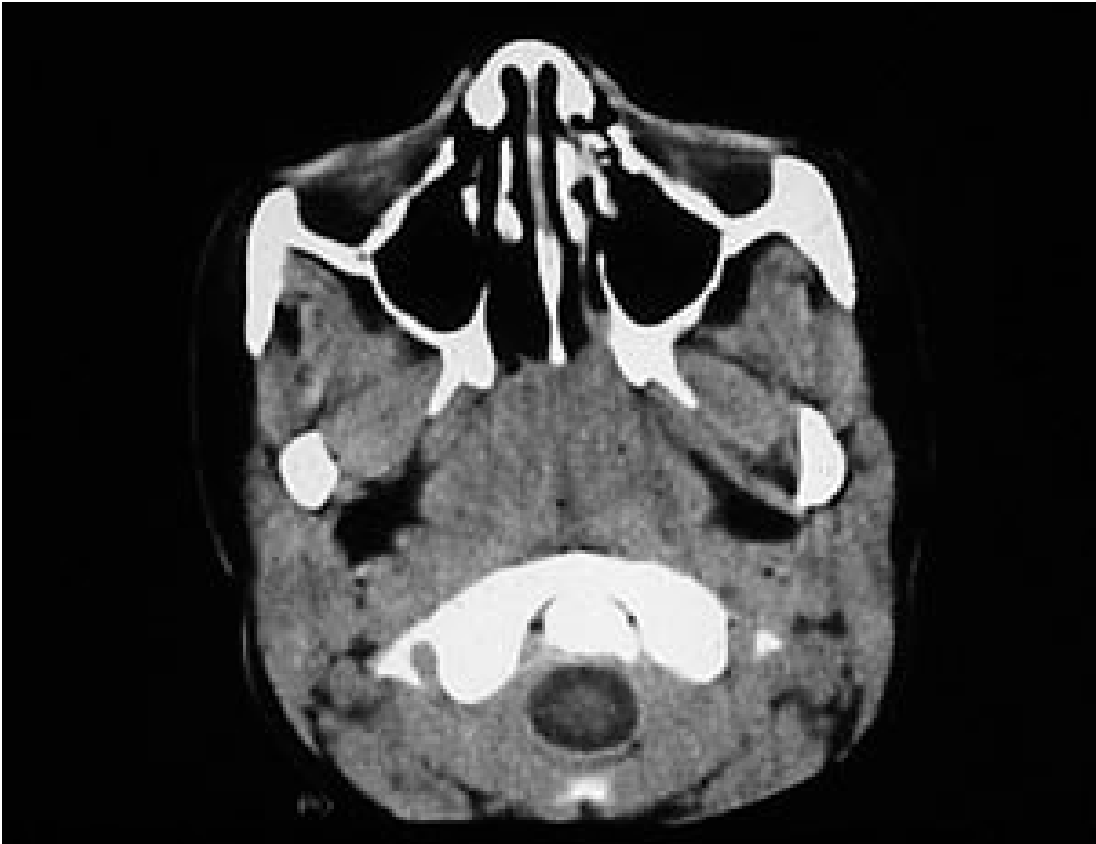


Normal



Adenoid





TREATMENT

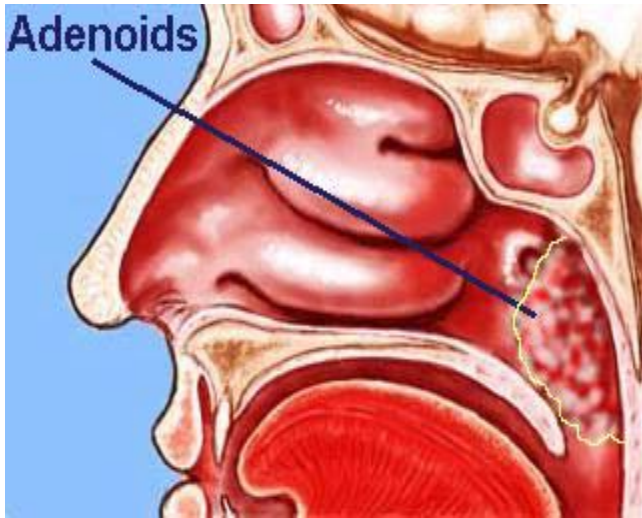
Adenoidectomy





Local Contraindication of Adenoidectomy

Palatopharyngeal incompetence



DISEASES OF THE OROPHARYNX

ACUTE INFECTIONS OF THE OROPHARYNX

- Acute tonsillitis
- Acute non-specific pharyngitis
- Acute diphtheria
- Infectious mononeuclosis
- Vincent's angina
- Scarlet fever
- Moniliasis

ACUTE TONSILLITIS

ETIOLOGY

- A disease of childhood, with a peak incidence at about 5 to 6 years of age

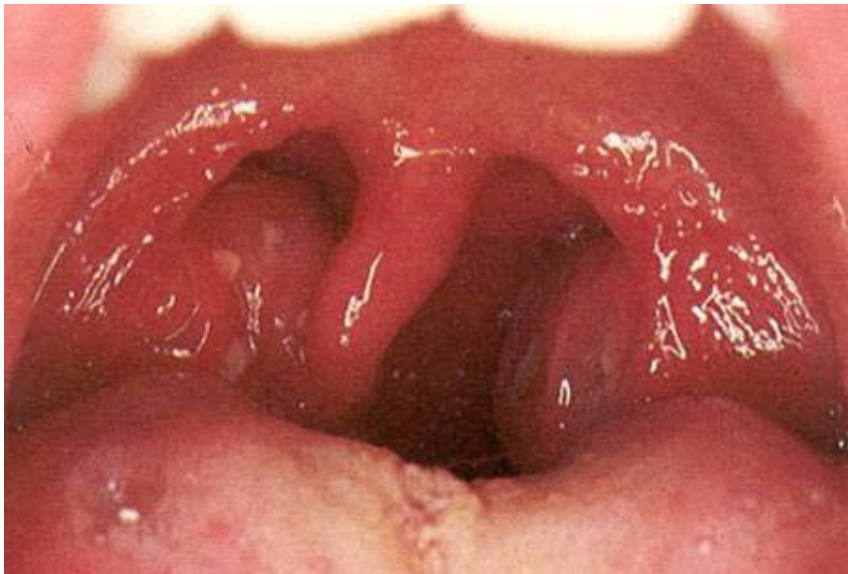
CAUSATIVE ORGANISMS

- Viral:
 - Influenza, Parainfluenza, Rhinovirus, Adenoviruses, Respiratory syncytial virus, Coronaviruses
- Bacterial:
 - Beta Hemolytic Streptococcus (Group A)
 - Others: Strept pneumonia, H. infleunzae, Staph. aurius etc

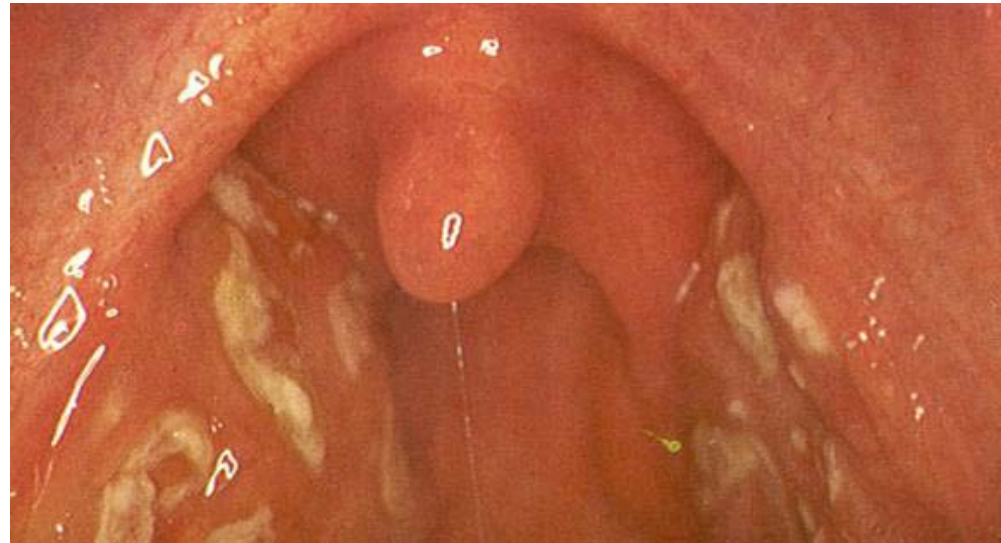
Clinical features

- Malaise, fever, headache, limb and back pain
- Sore throat, odynophagia, dysphagia
- Otalgia

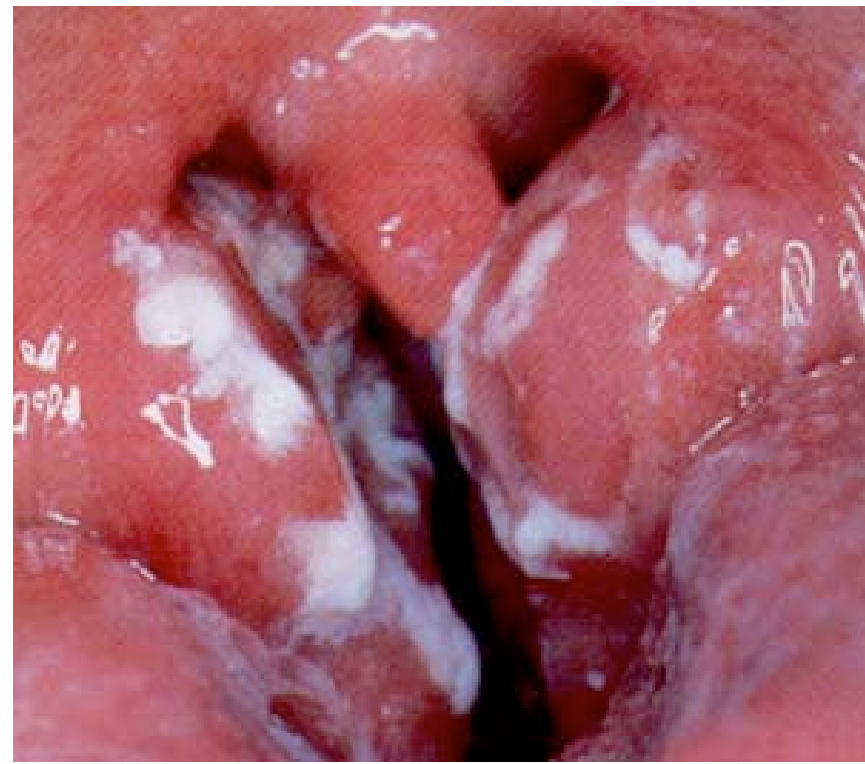
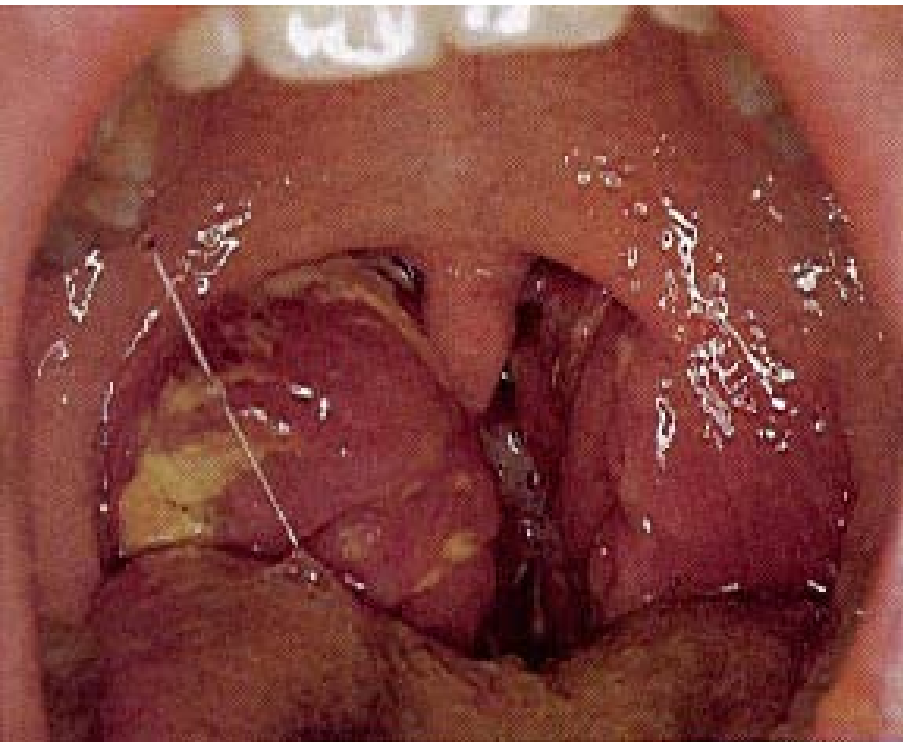
THROAT EXAMINATION

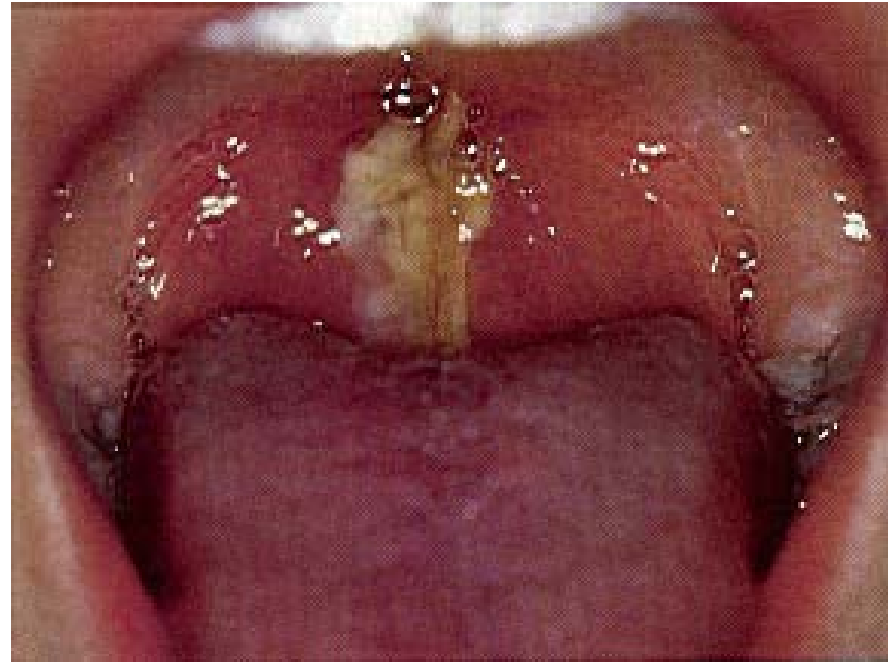


A. Parenchymatous tonsillitis



B Follicular tonsillitis

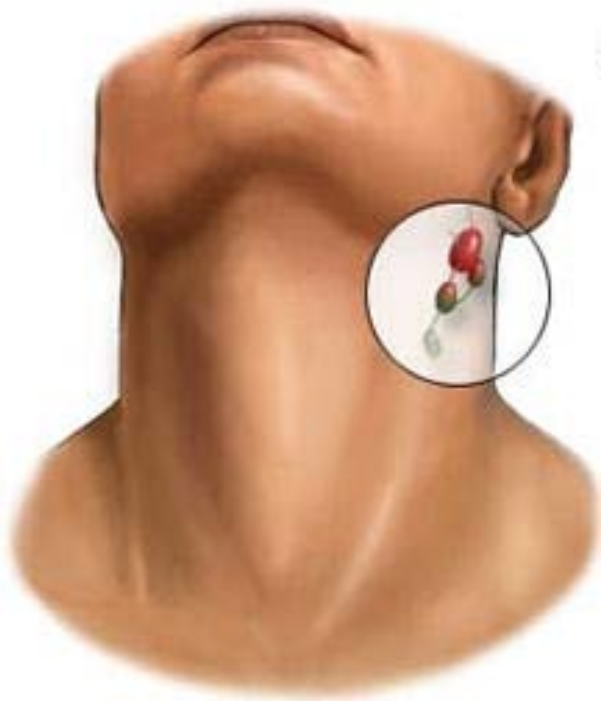




C. Membranous tonsillitis

NECK EXAMINATION

Enlargement and tenderness of the jugulo-digastric lymph nodes



INVESTIGATIONS

- Throat swab
- CBC



TREATMENT

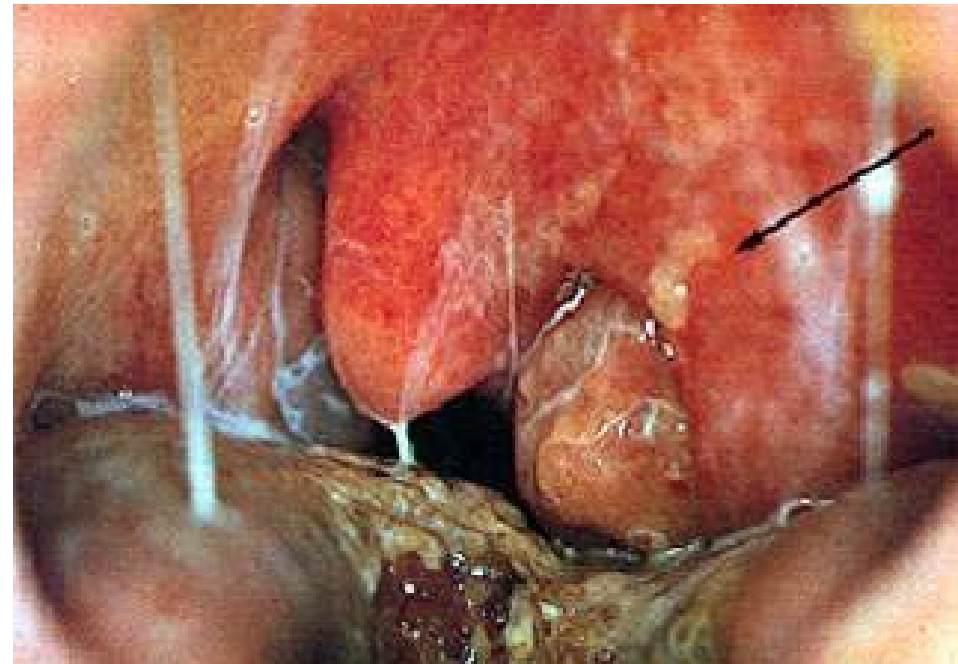
- Symptomatic & supportive treatment
- Antibiotics
 - Penicillin V for 5-7days – drug of choice
 - Erythromycin – second line
 - Amoxicillin and Ampicillin – better absorption

COMPLICATIONS OF ACUTE TONSILLITIS

- General:
 - Acute rheumatism
 - Acute glomerulonephritis
 - Septicaemia
- Local:
 - **Peritonsillitis & peritonsillar abscess (Quinsy)**

PERITONSILLAR ABSCESS (QUINSY)

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



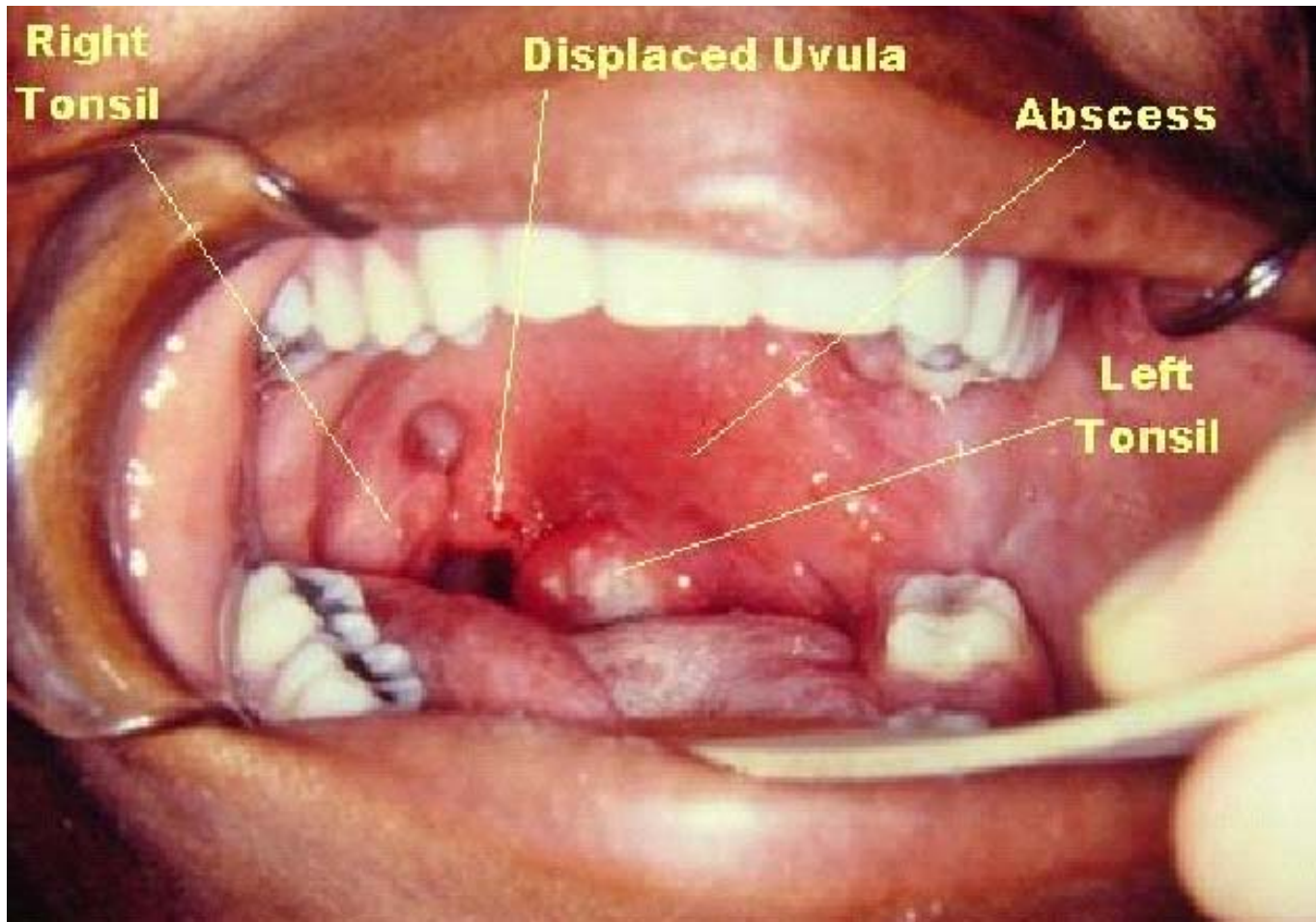
CLINICAL FEATURES

- More common in adults
- Usually unilateral
- Usually follow an attack of tonsillitis
- Severe pain > one side
- Unilateral earache and cervical lymphadenitis
- More odynophagia & drooling
- Trismus
- Thickened speech (hot potato voice)

EXAMINATION

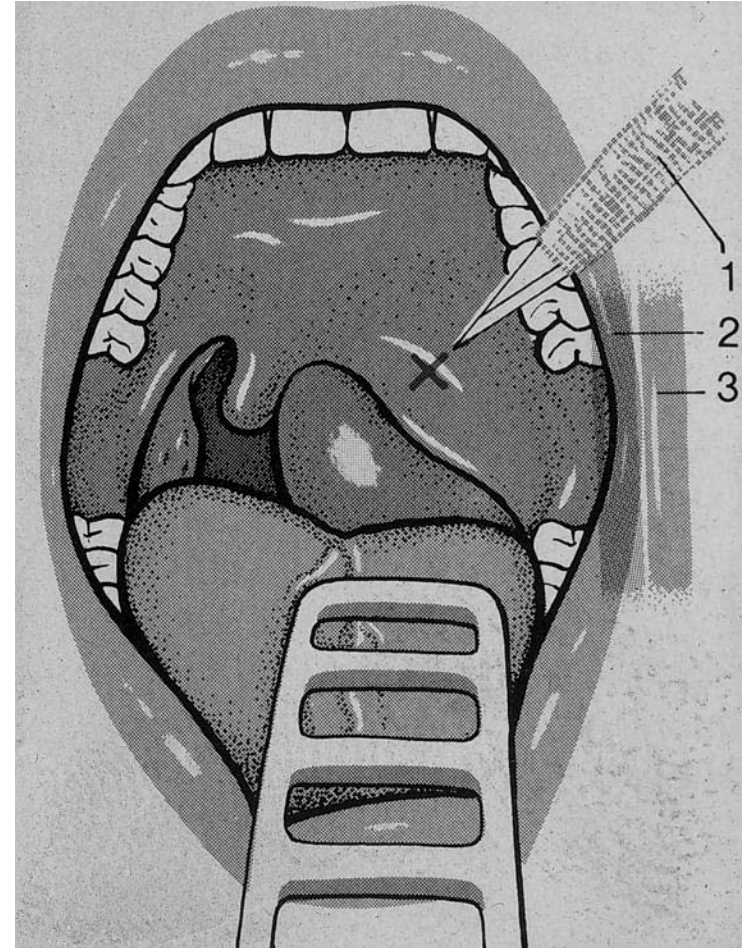


EXAMINATION



TREATMENT

- IV antibiotics
- Incision and drainage followed by elective tonsillectomy 6 -8 weeks later
- ? Hot (abscess) tonsillectomy



COMPLICATIONS OF ACUTE TONSILLITIS

- General:
 - Acute rheumatism
 - Acute glomerulonephritis
 - Septicaemia
- Local:
 - Peritonsillitis & peritonsillar abscess (Quinsy)
 - **Neck Abscess**

Neck abscess

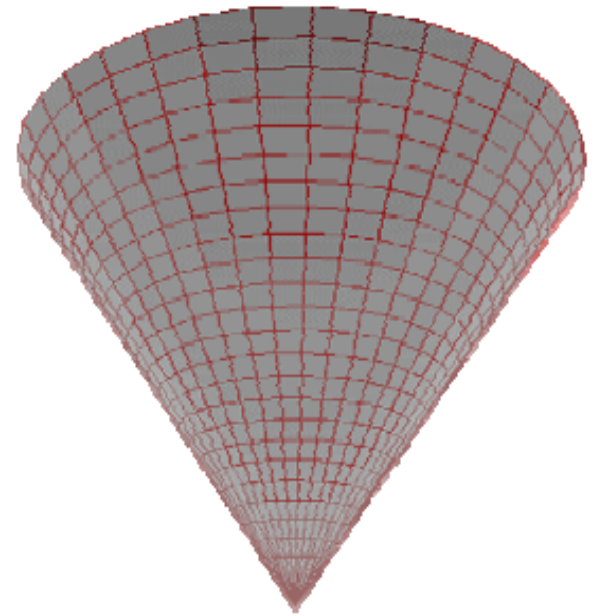


COMPLICATIONS OF ACUTE TONSILLITIS

- General:
 - Acute rheumatism
 - Acute glomerulonephritis
 - Septicaemia
- Local:
 - Peritonsillitis & peritonsillar abscess (Quinsy)
 - Neck Abscess
 - **Parapharyngeal abscess**

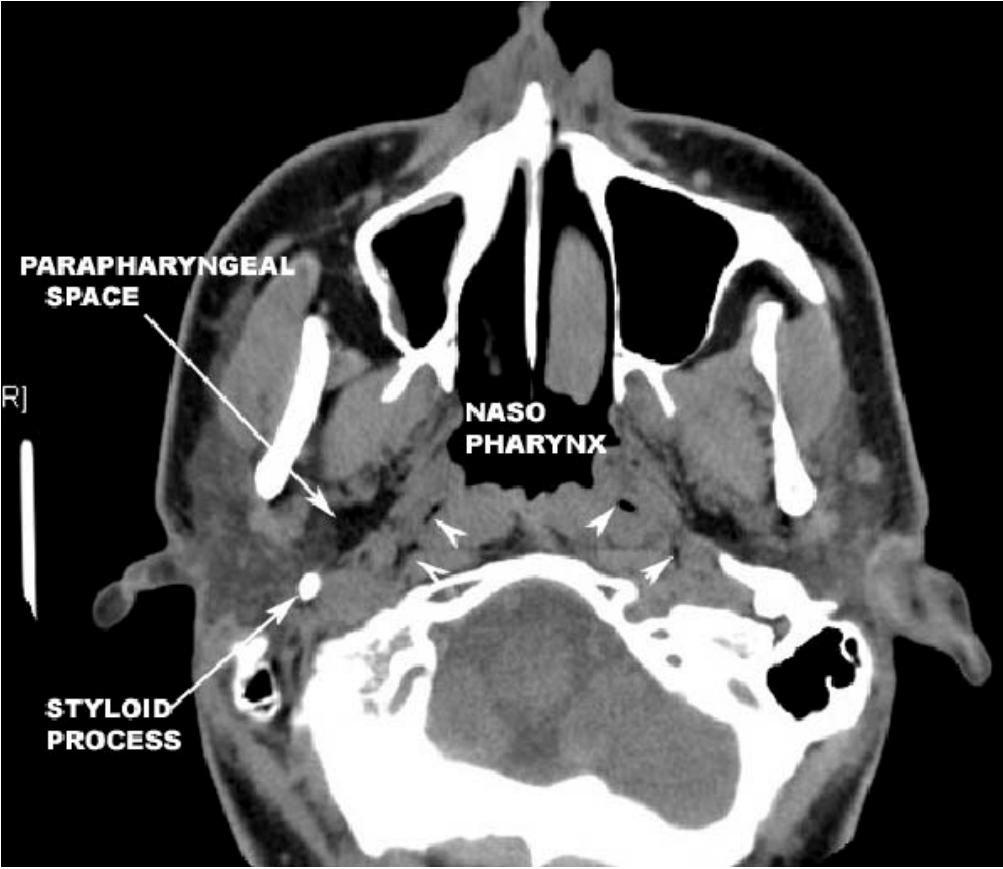
The parapharyngeal space (PPS)

- Cone shaped
 - Base at temporal bone
 - Apex at the hyoid bone
- Between
 - Pharyngeal
 - Lat + med pterygoid muscles



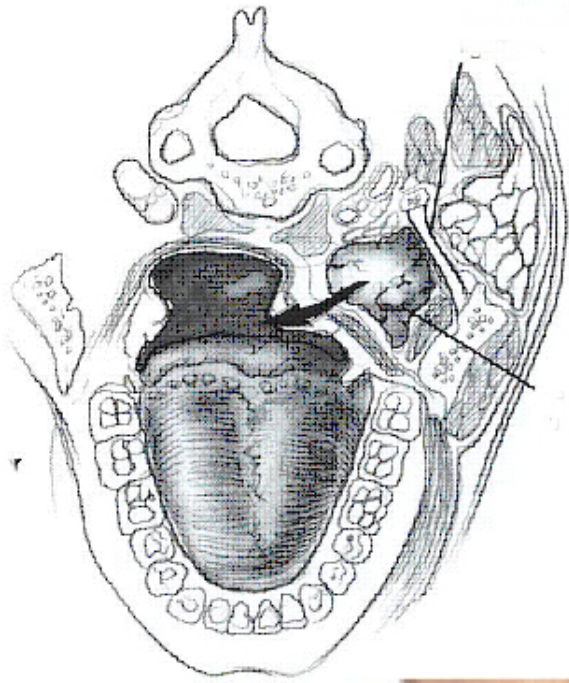
Contents

- Loose fibrofatty tissues
- Carotid artery
- Internal jugular vein
- Cranial nerves IX, X, XI, and XII;
- Cervical sympathetic chain
- Lymph nodes
 - Nasal cavity, paranasal sinuses
 - Nasopharynx and oropharynx,
 - Mastoid tip



Clinical features of parapharyngeal abscess

- Systemic manifestations
- Pain, trismus, swelling



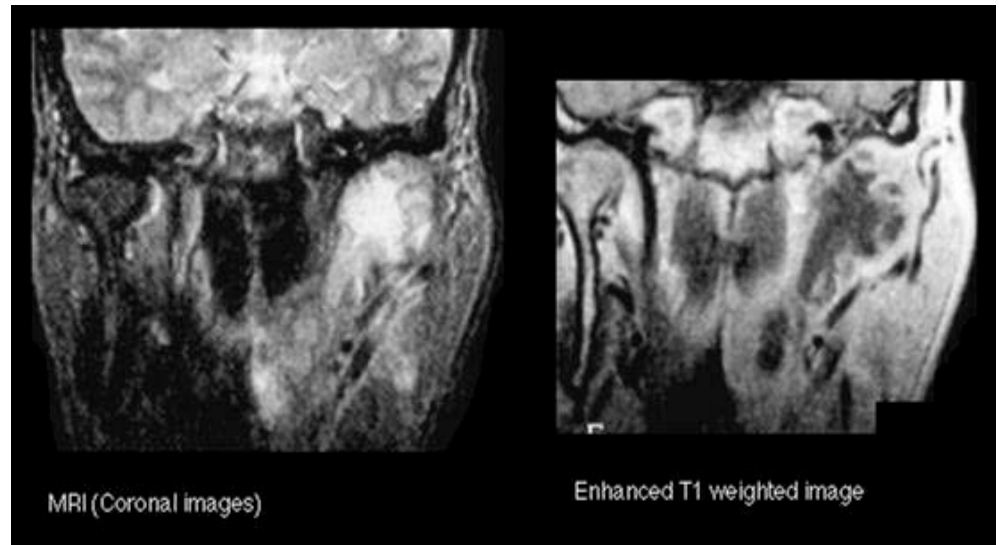


CLINICAL FEATURES

- Systemic manifestations
- Pain, trismus, swelling

INVESTIGATION

- Laboratory and bacteriology
- CT
- MRI



MRI (Coronal images)

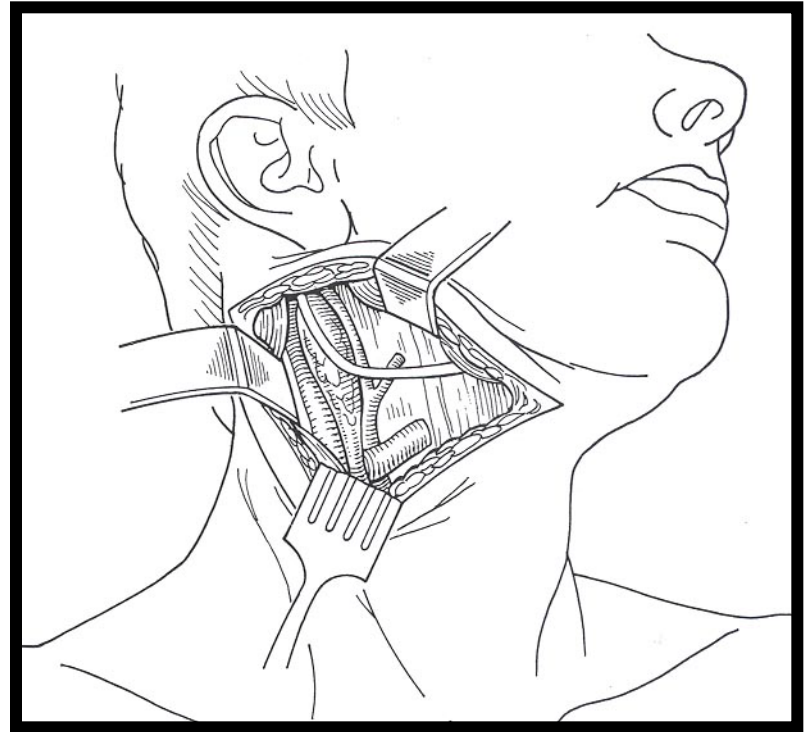
Enhanced T1 weighted image

PRINCIPLES OF TREATMENT

- Secure the airway
- Antimicrobial therapy
- Surgical drainage

DRAINAGE OF PARAPHARYNGEAL ABSCESS

- External cervical incision
- In order to avoid injury to the great vessels



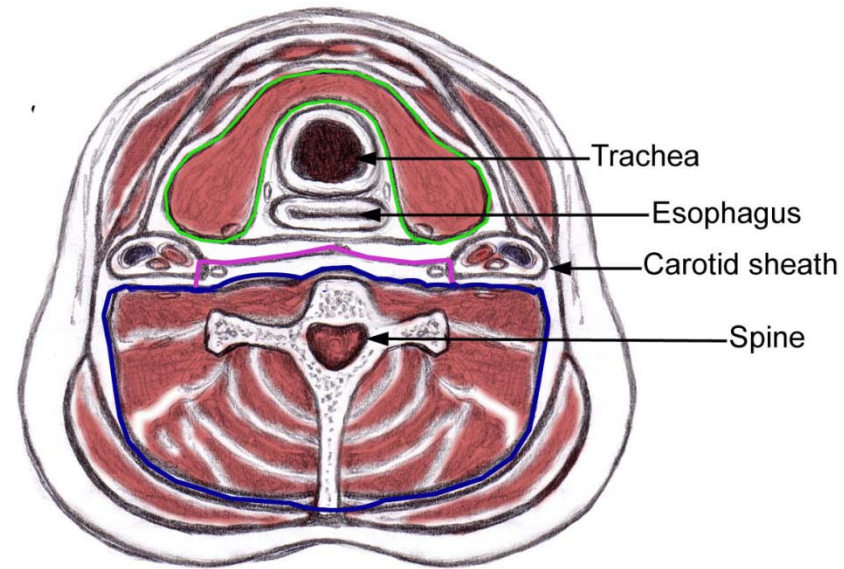
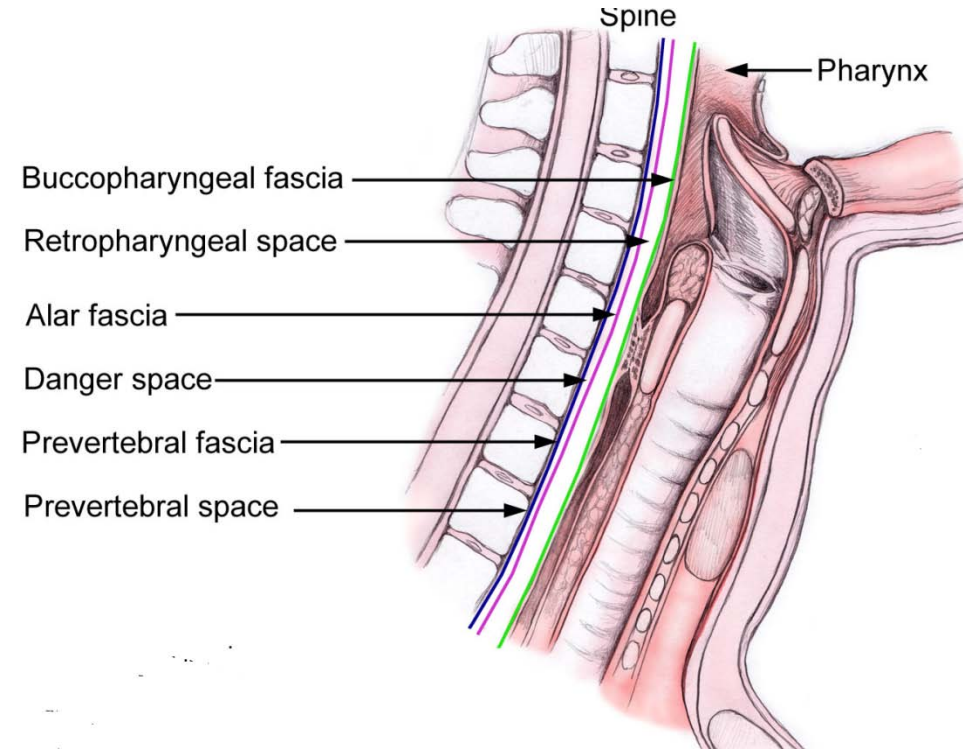
COMPLICATIONS OF ACUTE TONSILLITIS

- General:
 - Acute rheumatism
 - Acute glomerulonephritis
 - Septicaemia
- Local:
 - Peritonsillitis & peritonsillar abscess (Quinsy)
 - Neck Abscess
 - Parapharyngeal abscess
 - **Retropharyngeal abscess**

Retropharyngeal space

- Between
 - Prevertebral fascia
 - Posterior pharyngeal wall and esophagus fascia
- From
 - Skull base
 - Tracheal bifurcation
- Major route → mediastinum.

Anatomy of retropharyngeal space

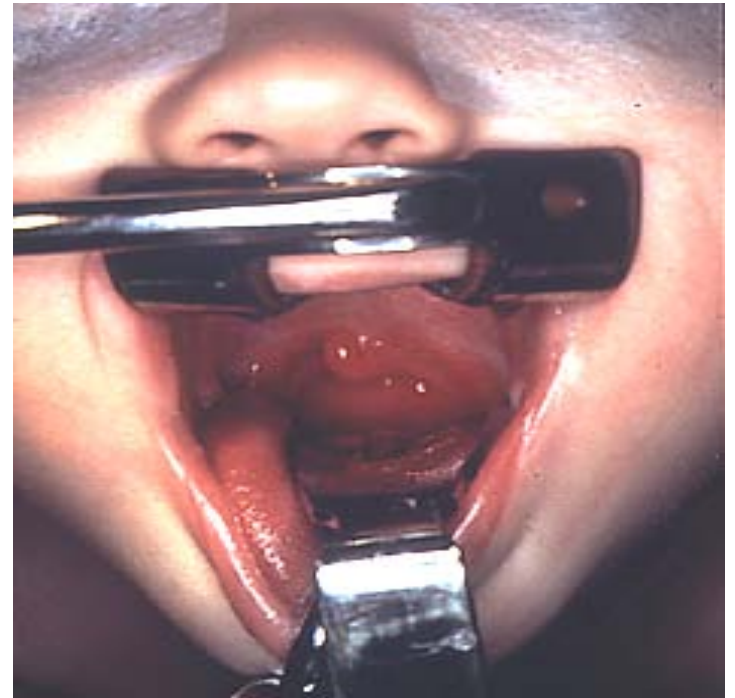


ACUTE RETROPHARYNGEAL ABSCESS

- Due to suppuration of the retropharyngeal lymph nodes present in the retropharyngeal space

CLINICAL FEATURES

- Systemic manifestations
- Respiratory obstruction
- Odynophagia & Dysphagia
- Swelling of posterior pharyngeal wall (usually unilateral)



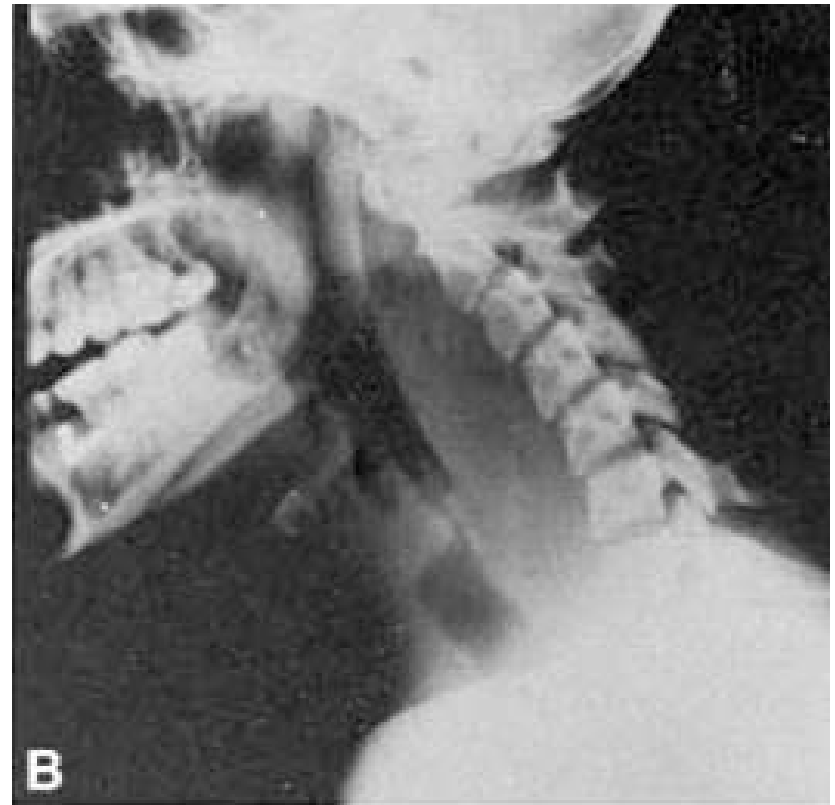
INVESTIGATION

- Laboratory and bacteriology
- Plain X-rays

PLAIN X-RAYS



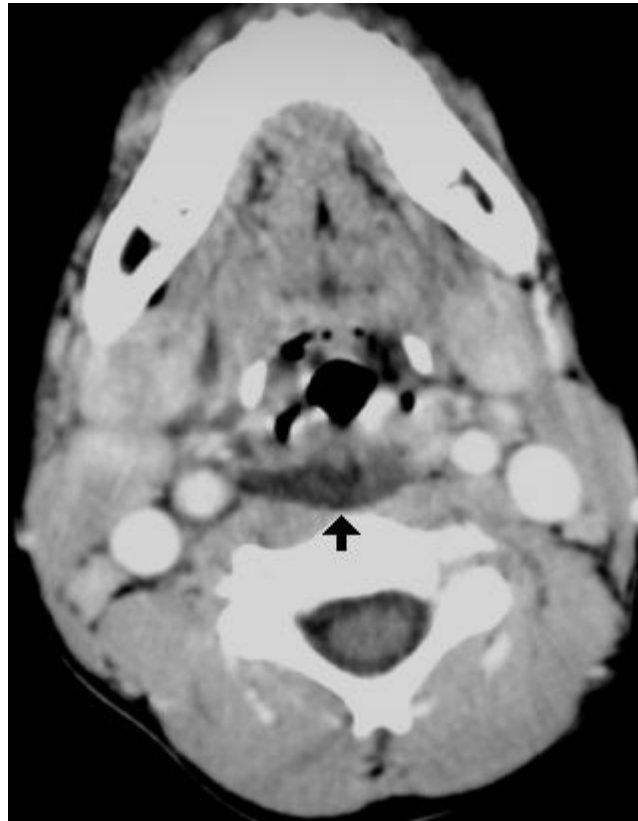
Normal



Retropharyngeal abscess



CT

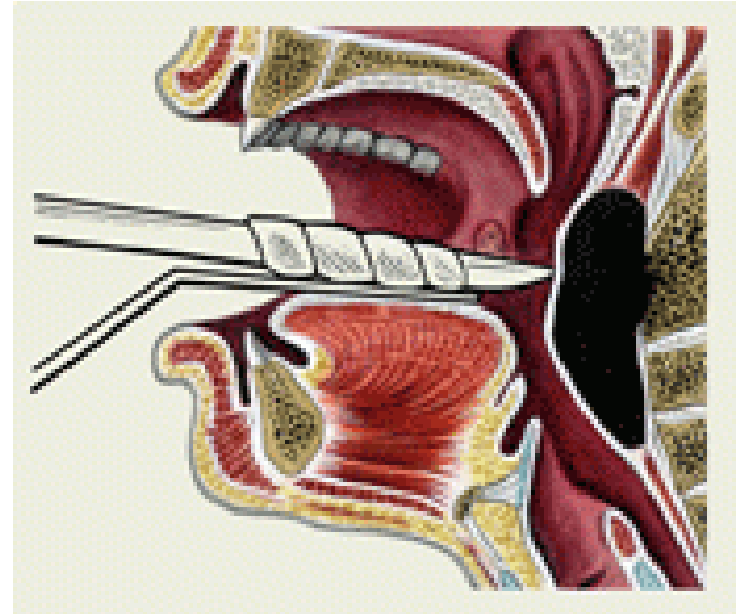


MRI



TREATMENT OF ACUTE RETROPHARYNGEAL ABSCESS

- Secure airway
- Antimicrobial
- Surgical drainage
 - Trans oral



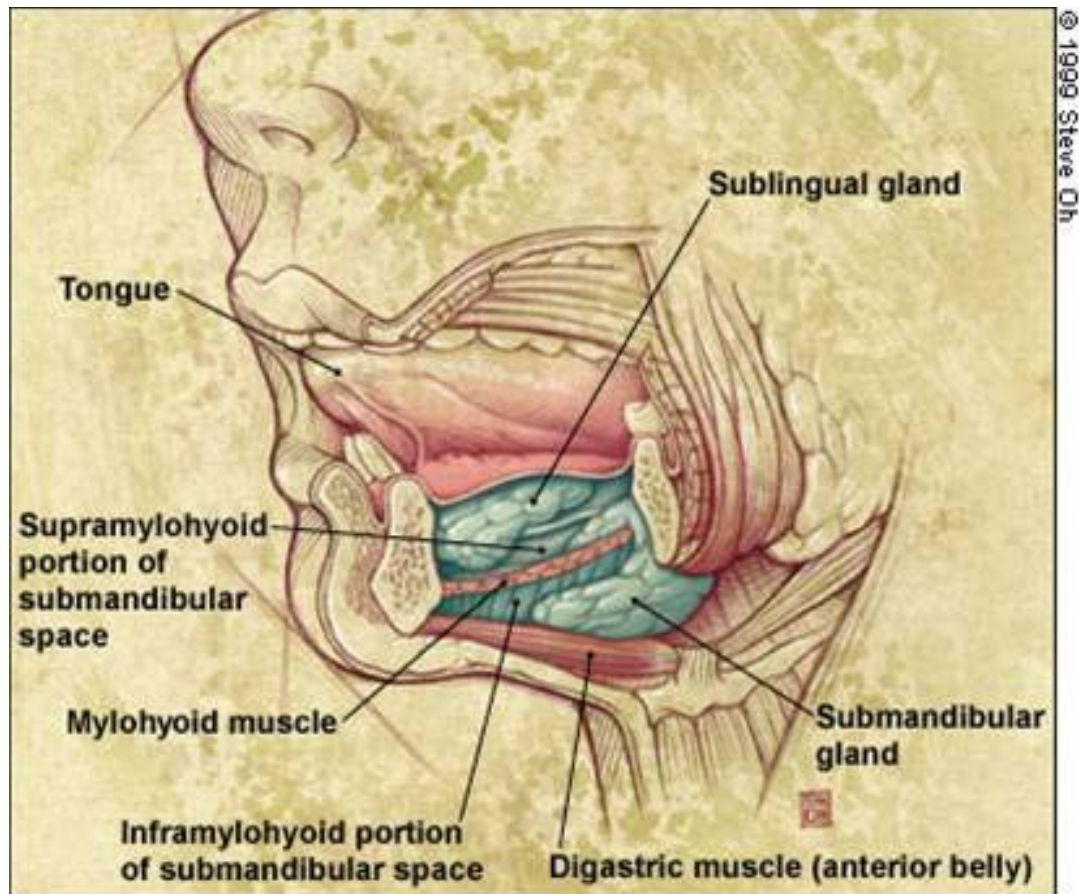
CHRONIC RETROPHARYNGEAL ABSCESS

- Tuberculous (cold abscess)
- Usually due to TB spines but may be secondary to TB lymphadenitis
- Symptoms are insidious
- Treatment is by anti tuberculous medication, repeated aspiration and external drainage



Ludwig's Angina

- Infection of the submandibular space



Causes of Ludwig's Angina

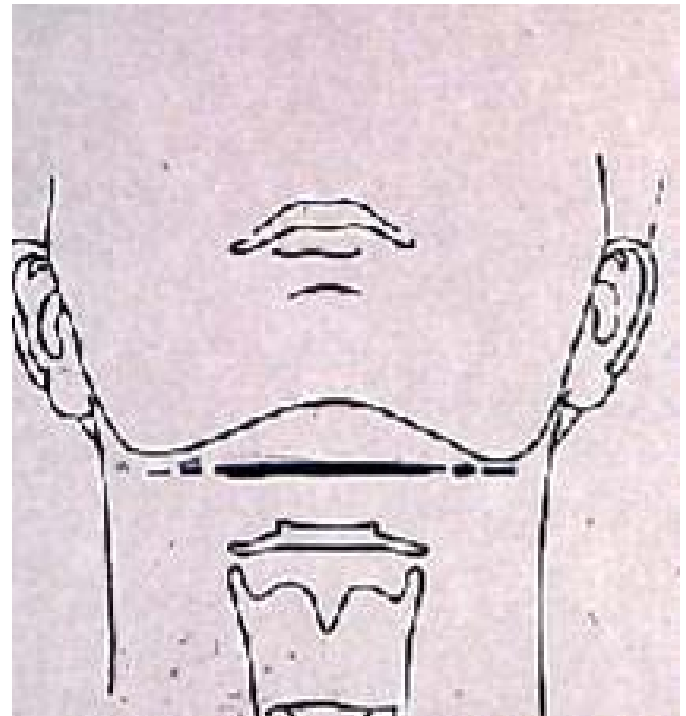
- Usually secondary to dental infection or trauma

Presentation of Ludwig's Angina



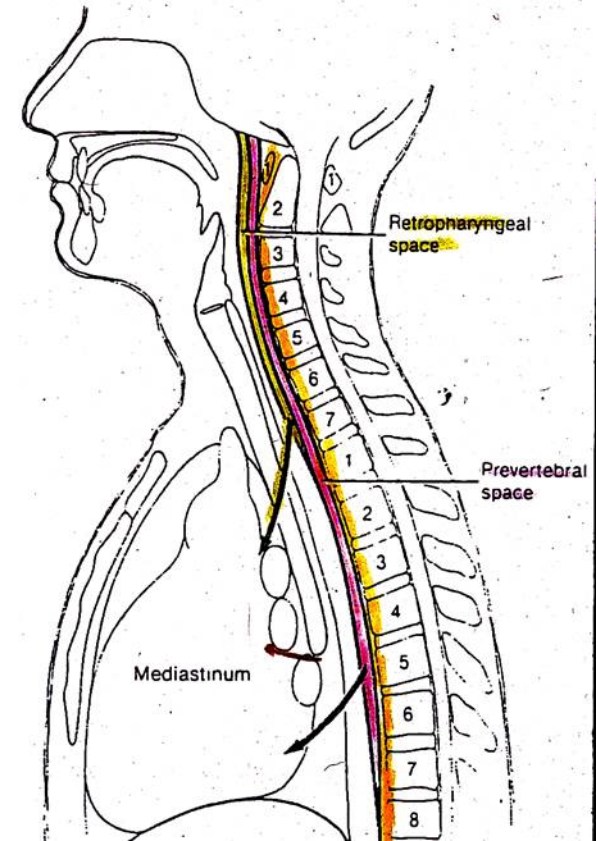
TREATMENT

- Secure airway
- Most cases respond to antibiotics
- Drainage may be needed



Complications of neck spaces infections

- Respiratory obstruction
- Spontaneous rupture (inhalation pneumonia)
- Extension of infection
 - Other spaces
 - Carotid & internal jugular
 - Mediastinitis



ACUTE INFECTIONS OF THE OROPHARYNX

- Acute tonsillitis
- Acute non-specific pharyngitis
- Acute diphtheria
- Infectious mononucleosis
- Vincent's Angina
- Scarlet fever
- Moniliasis

ACUTE NONSPECIFIC PHARYNGITIS



ACUTE INFECTIONS OF THE OROPHARYNX

- Acute tonsillitis
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ACUTE DIPHTHERITIC PHARYNGITIS

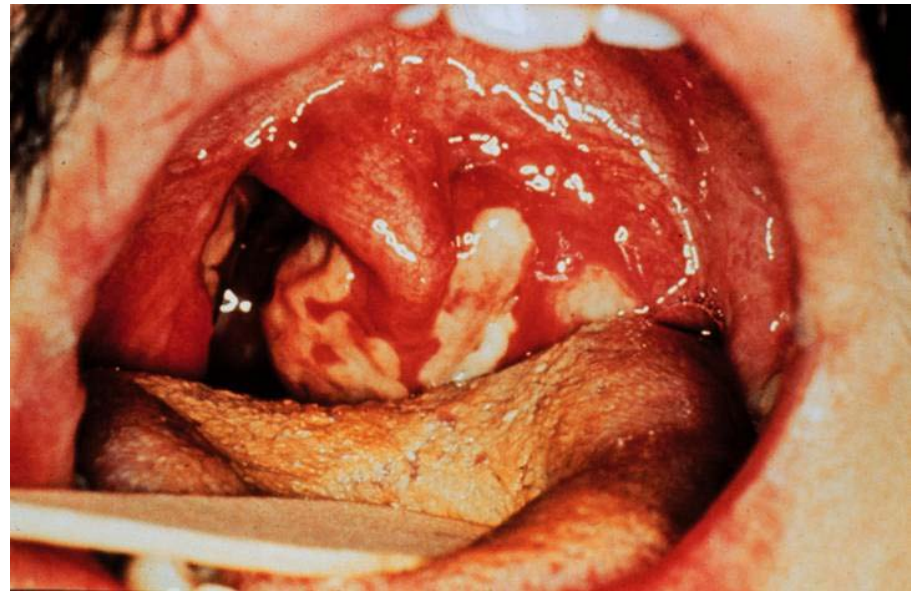
- A severe infection caused by *Corynebacterium diphtheriae*
- Affect children at age 2-5 years
- Spread by droplets or contaminated articles
- The incidence has fallen markedly because of immunization

PATHOLOGY

- Local grayish membrane (composed of fibrin, leukocytes, and cellular debris)
- Exotoxins travels to heart and nervous system

CLINICAL MANIFESTATIONS

- Systemic symptoms due to the exotoxins
 - Toxemia
 - Mild fever
 - Tachycardia
 - Paralysis
- Local manifestations
 - Sore throat
 - Membrane
 - Marked lymphadenitis ('bull neck')





DIAGNOSIS

- Isolation of the organism

TREATMENT

- Starts before culture confirmation
 - Airway maintenance
 - Antitoxin
 - Antibiotics (erythromycin, penicillin G, rifampin, or clindamycin)

PREVENTION

- Vaccine

COMPLICATIONS

- Respiratory obstruction
- Heart failure
- Muscular paralysis

ACUTE INFECTIONS OF THE OROPHARYNX

- Acute tonsillitis
- Acute non-specific pharyngitis
- Acute diphtheria
- **Infectious mononucleosis**
- Vincent's Angina
- Scarlet fever
- Moniliasis

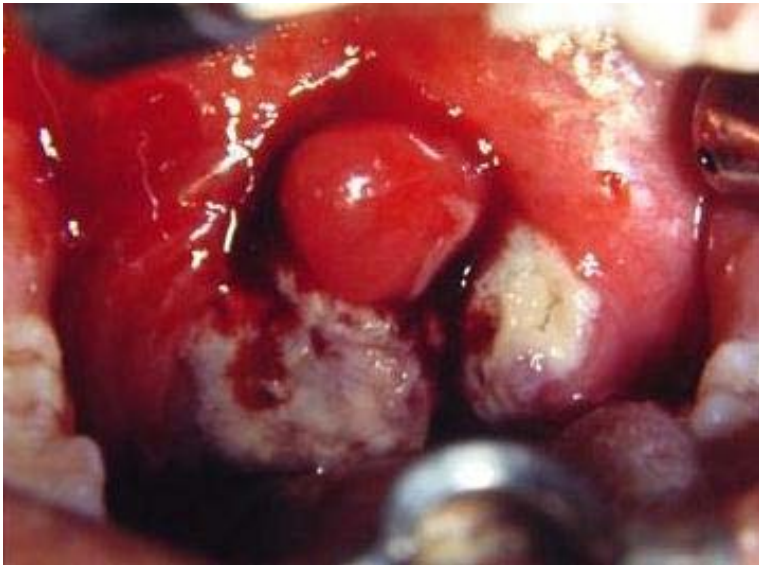
INFECTIOUS MONONUECLOSIS

- Systemic infection caused by Epstein-Barr Virus (EBV)
- Selectively infects B-lymphocytes
- Clinical disease is usually seen in young adults

CLINICAL MANIFESTATIONS

- Clinical triad
 - Fever
 - Lymphadenopathy
 - Pharyngitis and/or tonsillitis

INFECTIOUS MONONUCLEOSIS



CLINICAL MANIFESTATIONS

- Clinical triad
 - Fever
 - Lymphadenopathy
 - Pharyngitis and/or tonsillitis
- Other clinical findings
 - Splenomegaly – 50%
 - Hepatomegaly – 10%
 - Rash – 5%



DIAGNOSIS

- CBC with differential (atypical lymphocytes)
- Detection of heterophil antibodies (Paul-Bunnell or Monospot test)

TREATMENT

- Symptomatic & supportive treatment
- Steroids (severe cases)
- Avoid ampicillin



COMPLICATIONS

- Autoimmune hemolytic anemia
- Cranial nerve palsies
- Encephalitis
- Hepatitis
- Pericarditis
- Airway obstruction

VINCENT'S ANGINA

- ❑ Subacute infection due to *Spirochaeta denticolata* and Vincent's fusiform bacillus
- ❑ Most commonly in overcrowded conditions
“trench fever”
- ❑ Mild local and systemic symptoms

VINCENT'S ANGINA



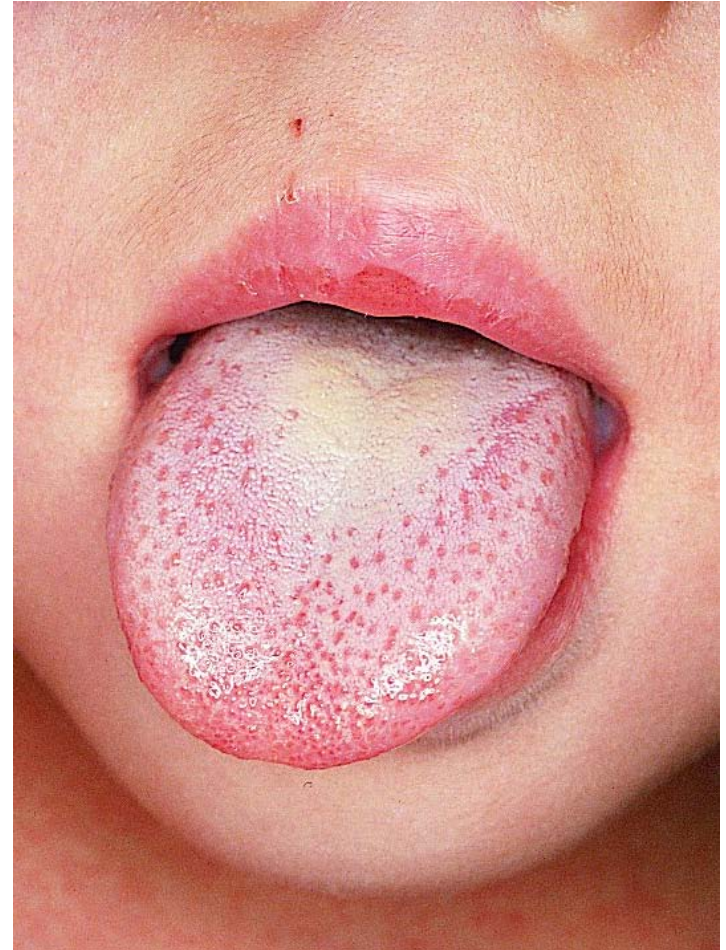
VINCENT'S ANGINA

- Subacute infection due to *Spirochaeta denticolata* and Vincent's fusiform bacillus
- Most commonly in overcrowded conditions "trench fever"
- Mild local and systemic symptoms
- Management is with penicillin and local oral hygiene

SCARLET FEVER



SCARLET FEVER



SCARLET FEVER



FUNGAL PHARYNGITIS

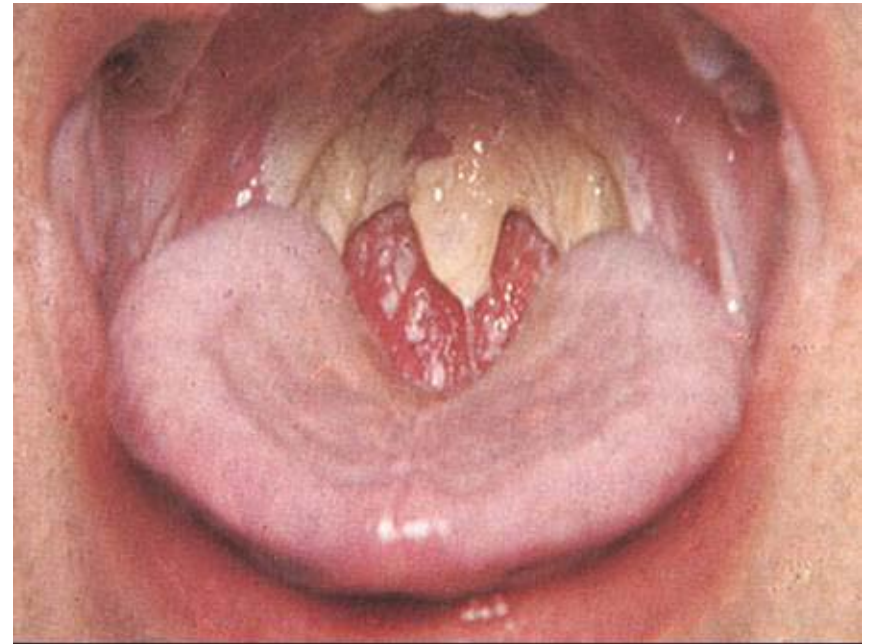
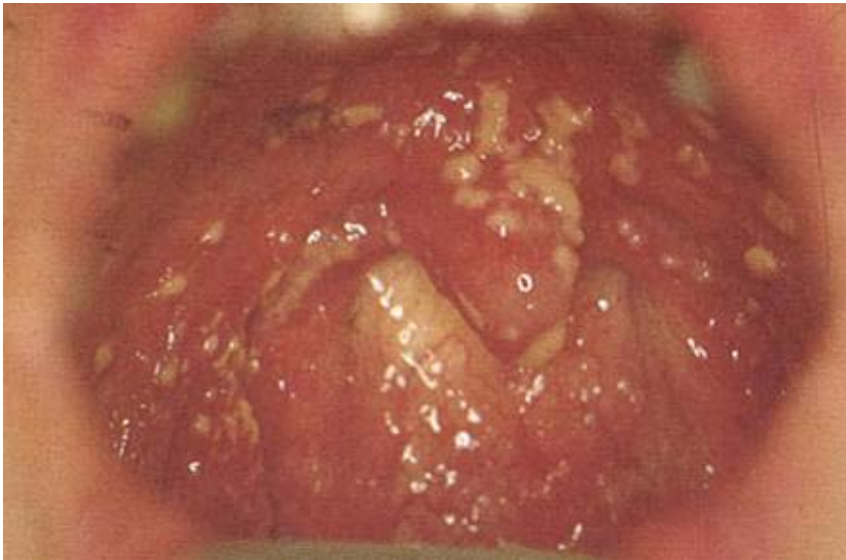
CAUSES

- Long term antibiotics
- Immunosuppression (Leukopenia,
Corticosteroid therapy etc)

CANDIDIASIS (MONILIASIS, THRUSH)



CANDIDIASIS (MONILIASIS, THRUSH)



Treatment

- Nystatin
- Fluconazole

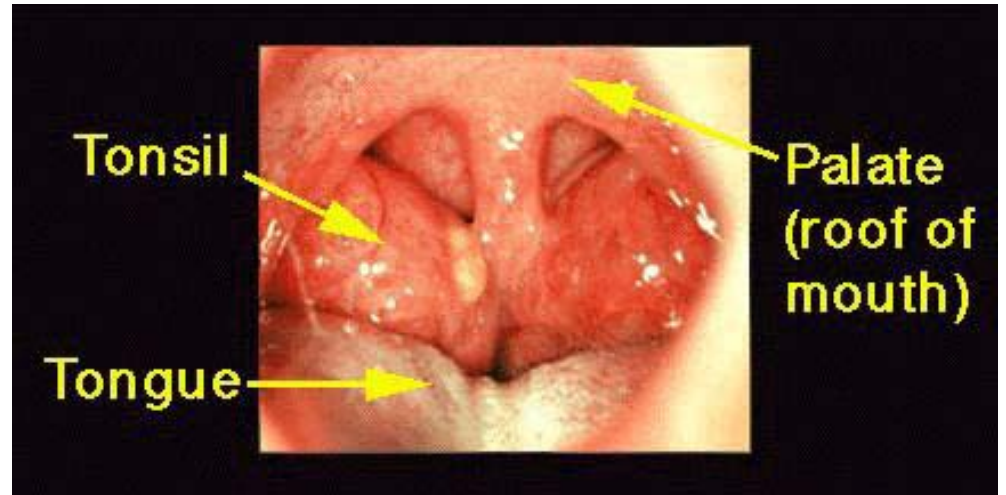
CHRONIC TONSILLAR HYPERTOPHY

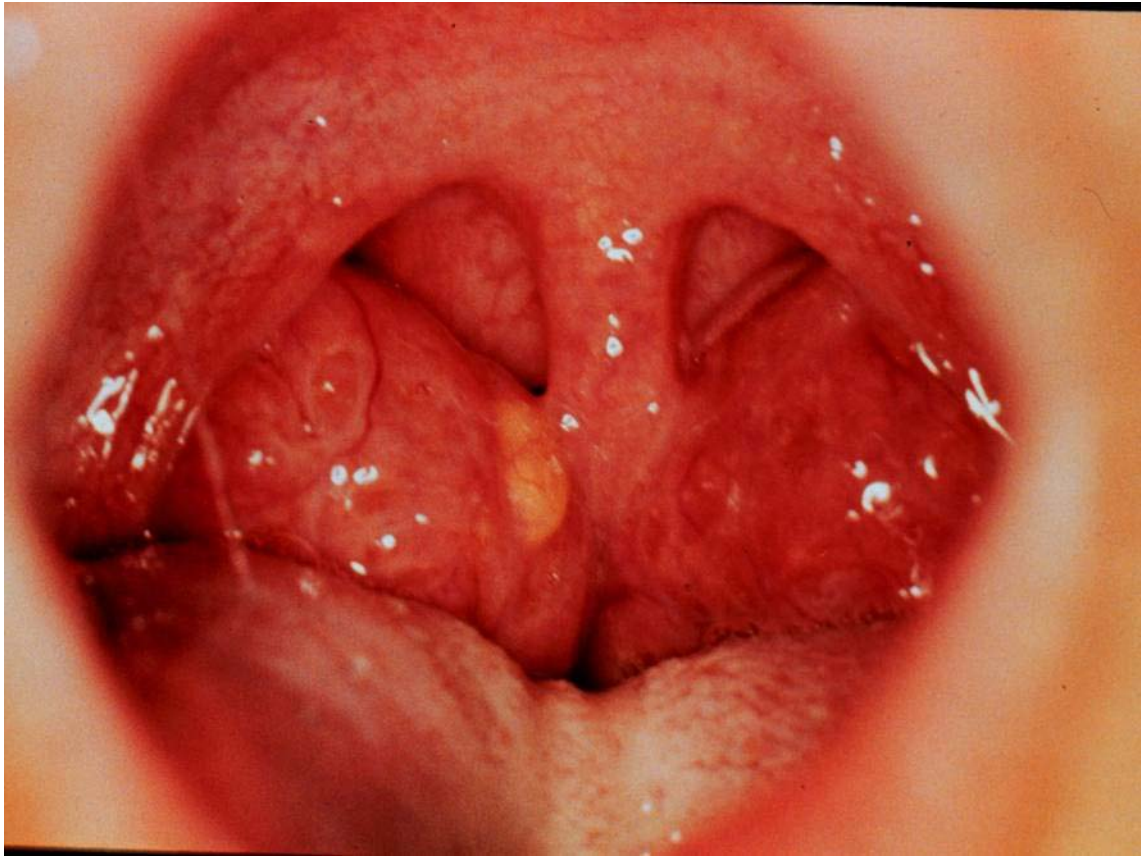
CAUSES

- Chronic or frequent acute infections
- Idiopathic (?exaggerated immune response)

PRESENTATION

- Upper airway obstruction
 - Mouth breathing, snoring
 - Disturbed sleep and apnea
- Pulmonary hypertension, cor pulmonale and heart failure





TREATMENT

- Tonsillectomy & adenoidectomy

CHRONIC INFECTIONS OF THE PHARYNX

CHRONIC NON-SPECIFIC PHARYNGITIS

- Primary
- Secondary
 - Sinonasal disease
 - Dental infections
 - Chest infections
 - Smoking
 - Gastro esophageal reflux

CLINICAL FEATURES

- Sore throat
- Irritation
- Cough
- O/E





TREATMENT

- Treatment of the cause
- Humidification

CHRONIC SPECIFIC PHARYNGITIS

- Tuberculosis
- Syphilis
- Lupus vulgaris
- Leprosy
- Sarcoidosis

CHRONIC TONSILLITIS

- Persistent or recurrent sore throat
- Persistent cervical adenitis
- Halitosis
- Congested tonsils



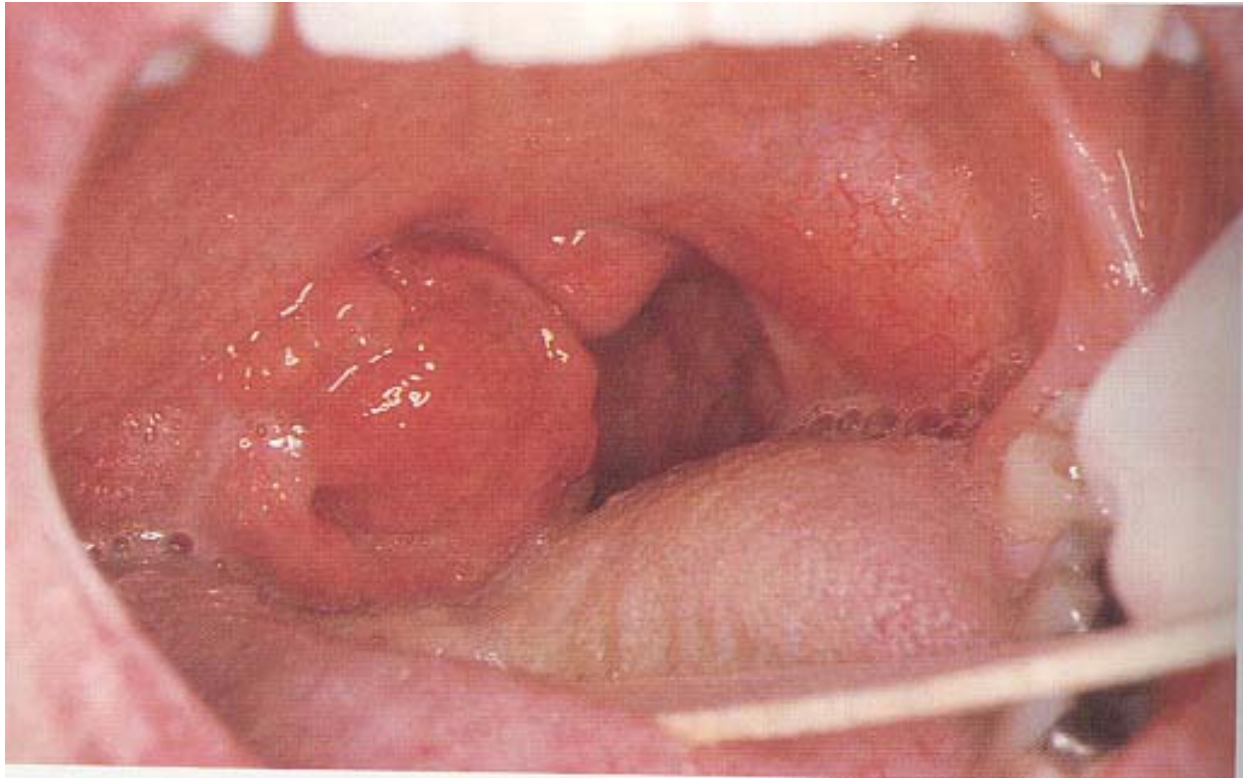
TREATMENT

Tonsillectomy

TONSILLECTOMY

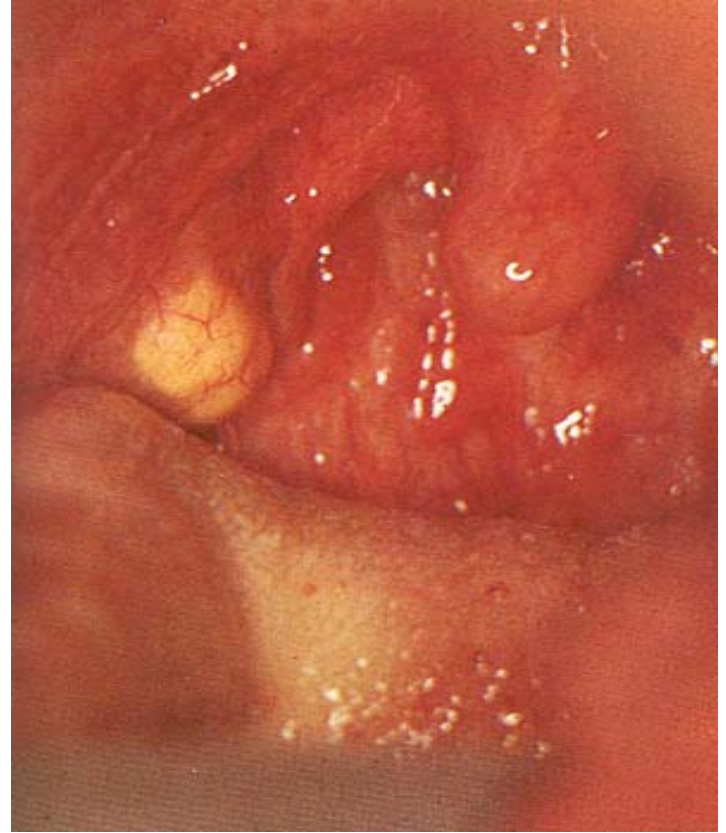
INDICATIONS

- Obstructing tonsillar enlargement
- Suspected malignancy



INDICATIONS

- Obstructed tonsillar enlargement
- Suspected malignancy
- Repeated attacks of tonsillitis
- Chronic tonsillitis
- One attack of quinsy
- Others



CONTRAINDICATIONS

- Bleeding tendency
- Recent URTI

COMPLICATIONS

- Hemorrhage
 - Primary
 - Reactionary
 - Secondary
- Respiratory obstruction
- Injury to near-by structures
- Pulmonary and distant infections

Primary Hemorrhage

- Bleeding occurring during the surgery
- Causes
 - Bleeding tendency
 - Acute infections
 - Aberrant vessel
 - 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
- Diagnosis
 - Rising pulse & dropping blood pressure
 - Rattle breathing
 - Blood trickling from the mouth
 - Frequent swallowing
 - Examination

Reactionary Hemorrhage

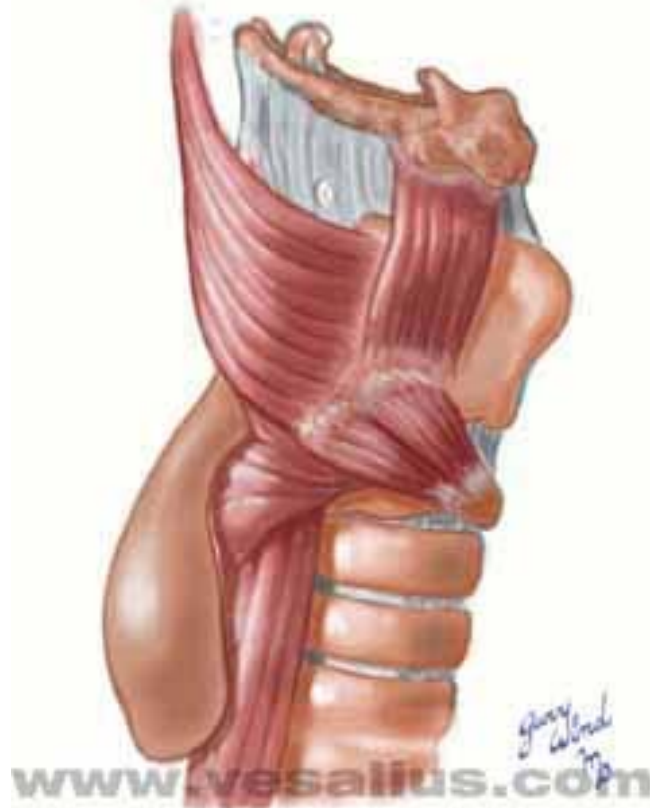
- Treatment
 - General supportive measures
 - Take the patient back to OR
 - Control like reactionary hemorrhage

Secondary hemorrhage

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

Pharyngeal (Zenker's) Pouch

A mucosal sac protruding through Killian's dehiesence



Pathogenesis

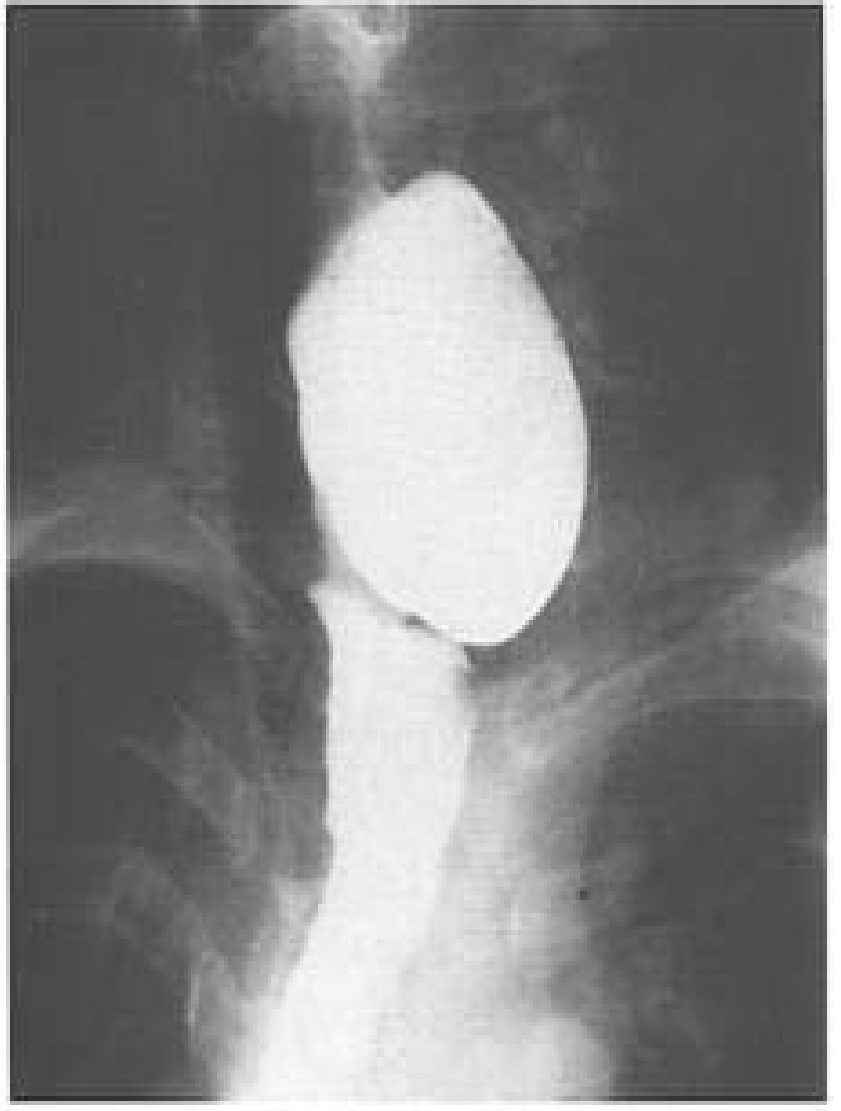
- Most probably related to neuromuscular incoordination
 - ? Failure of relaxation of cricopharyngeus
 - ? Early closure of cricopharyngeus
 - ? Spasm of cricopharyngeus

Clinical Features

- Dysphagia
- Regurgitation
- Aspiration

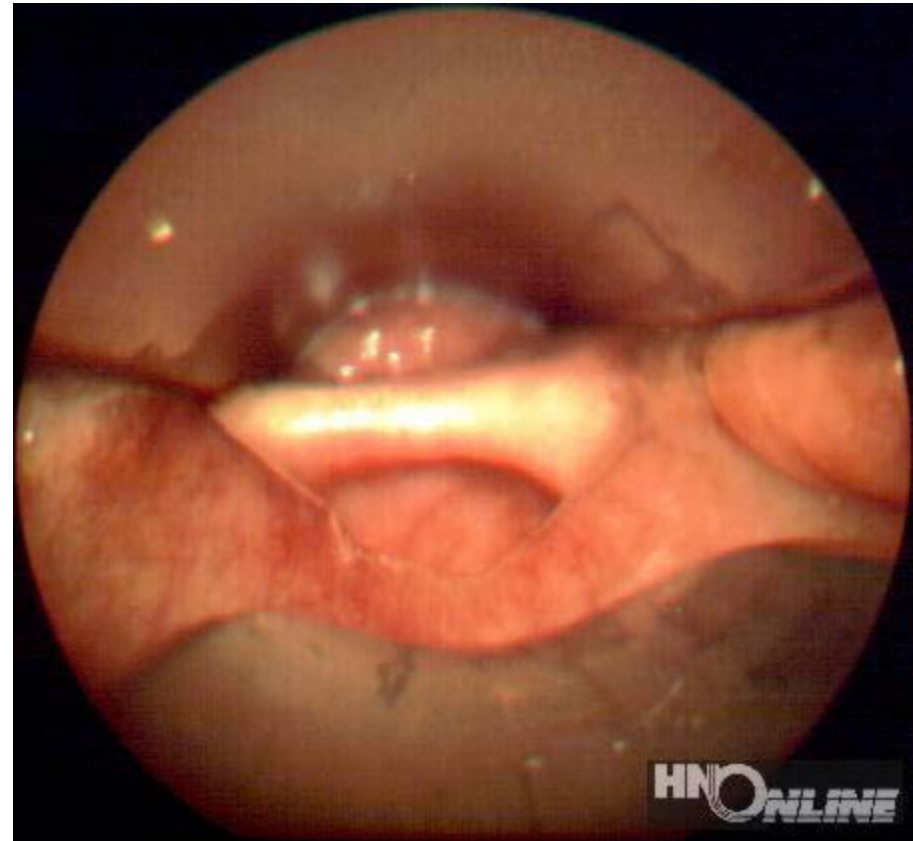
Diagnosis

- Clinical examination
- Barium swallow



Diagnosis

- Clinical examination
- Barium swallow
- Endoscopy



Treatment

- Excision

THANK YOU