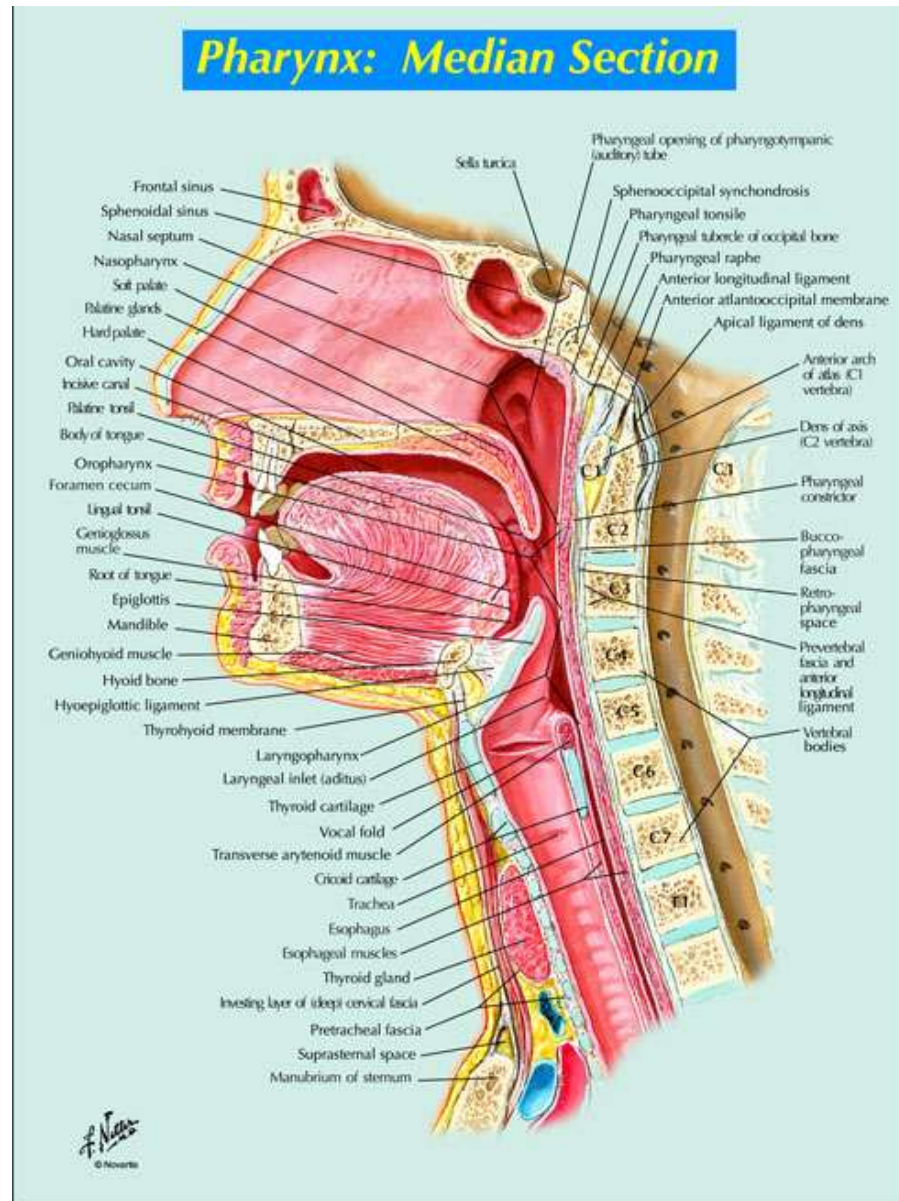


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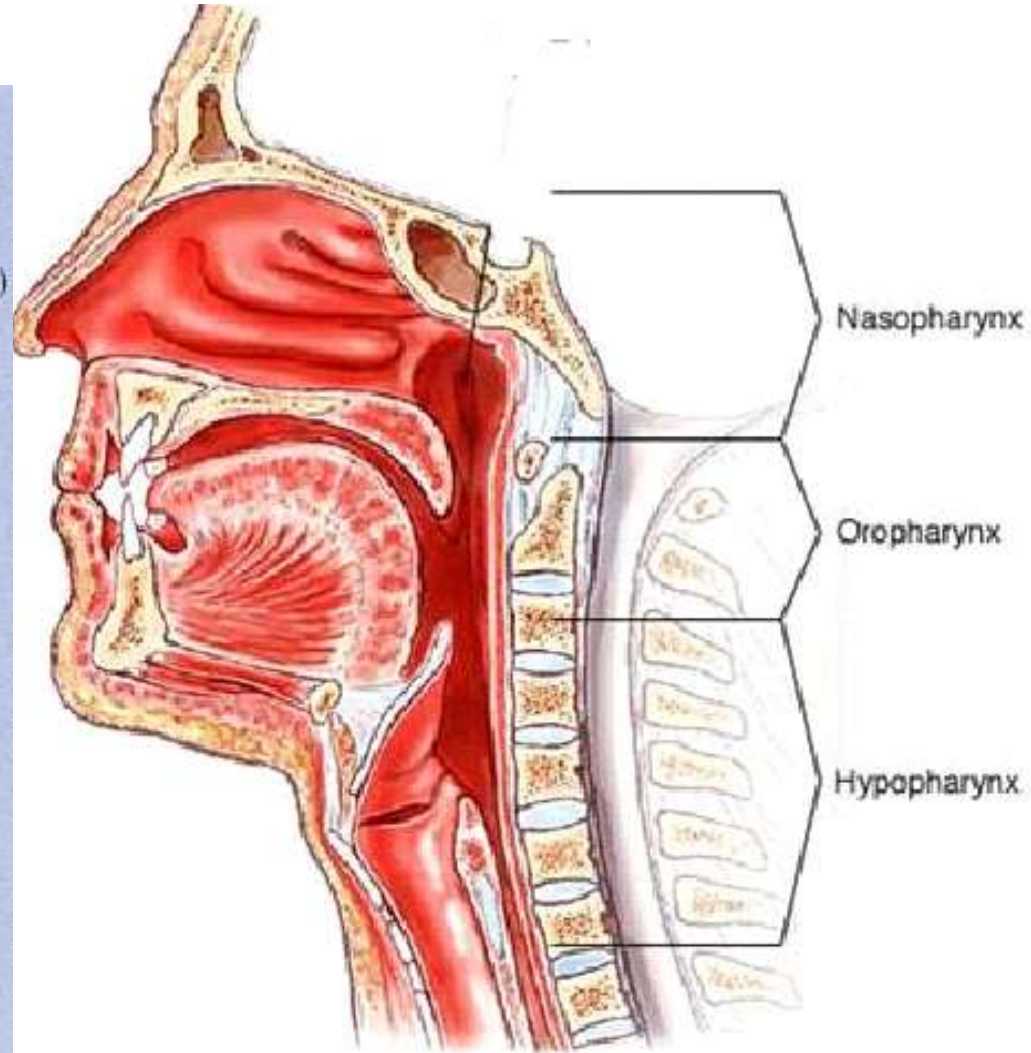
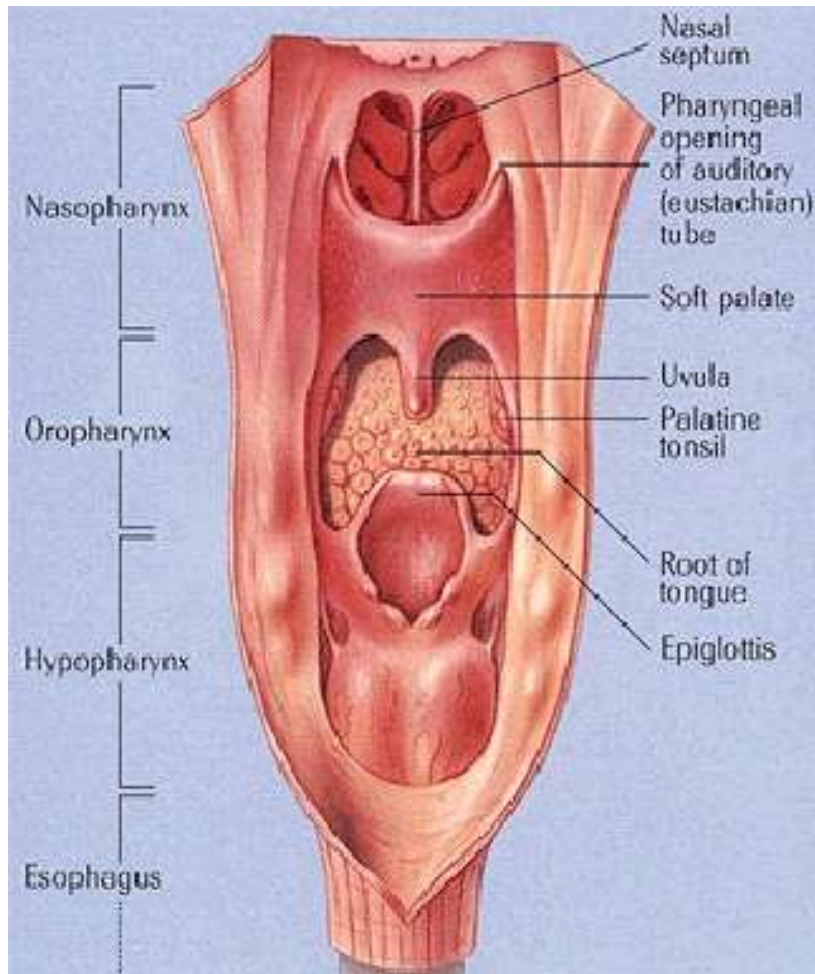
# THE PHARYNX

# ANATOMY OF THE PHARYNX

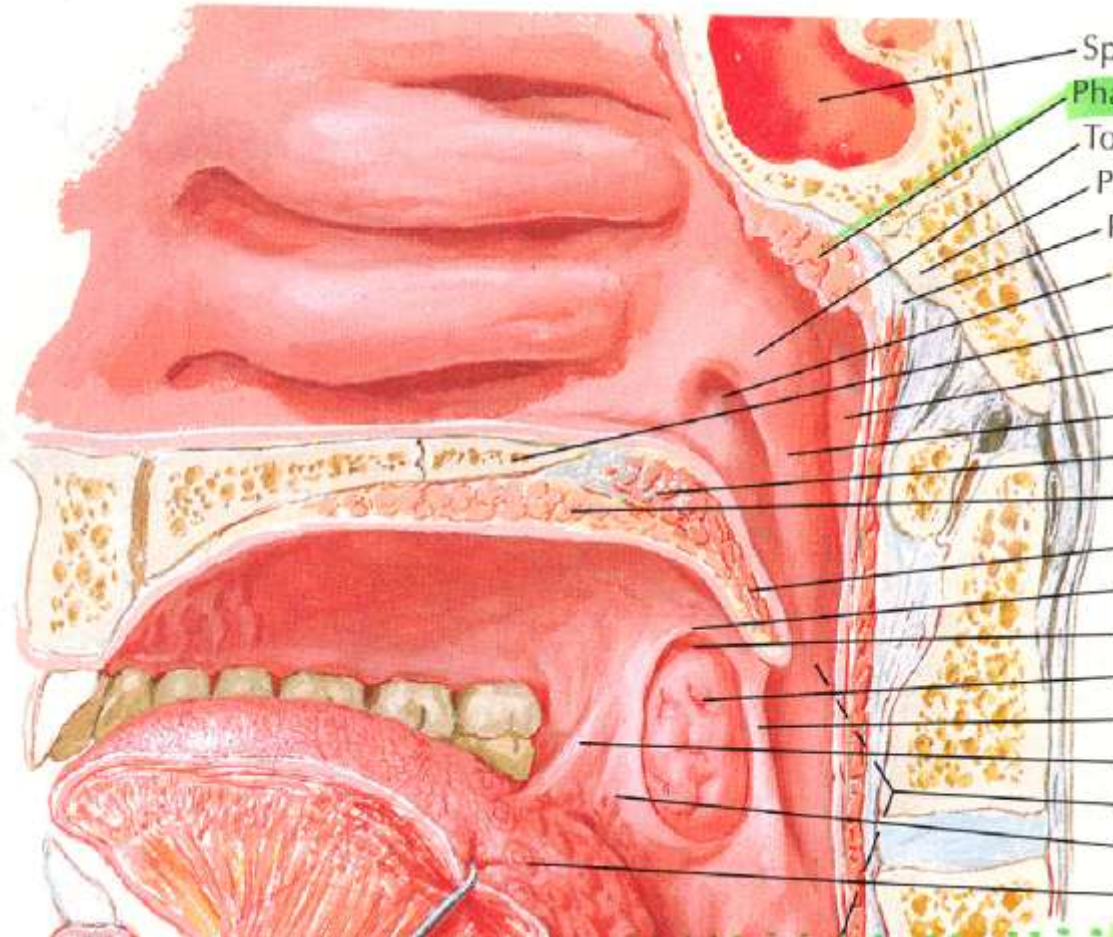
# ANATOMY OF THE PHARYNX



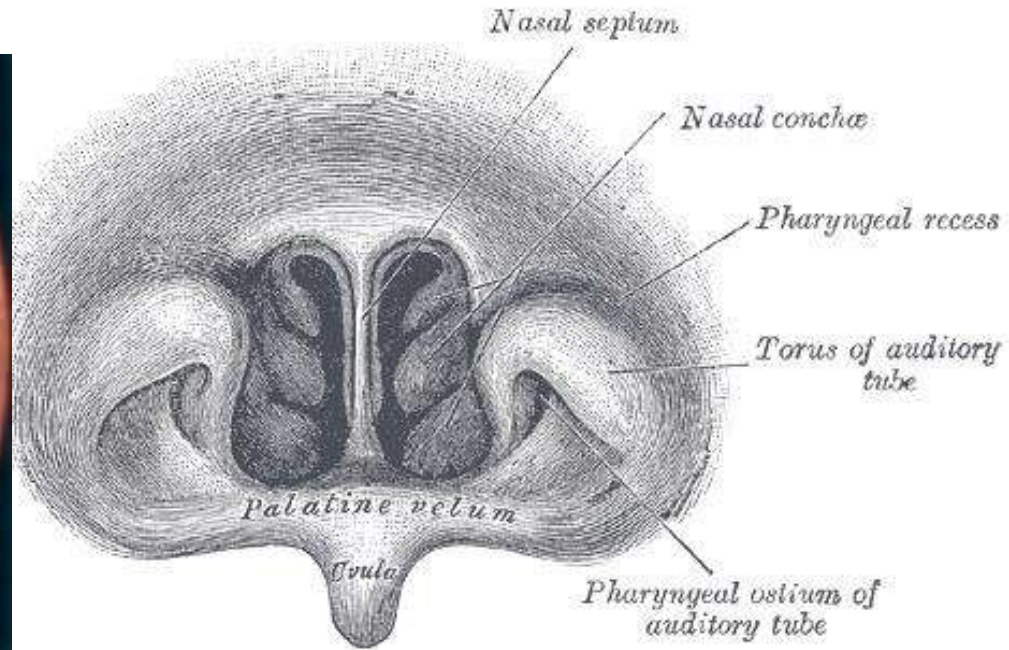
# Cavity of the pharynx



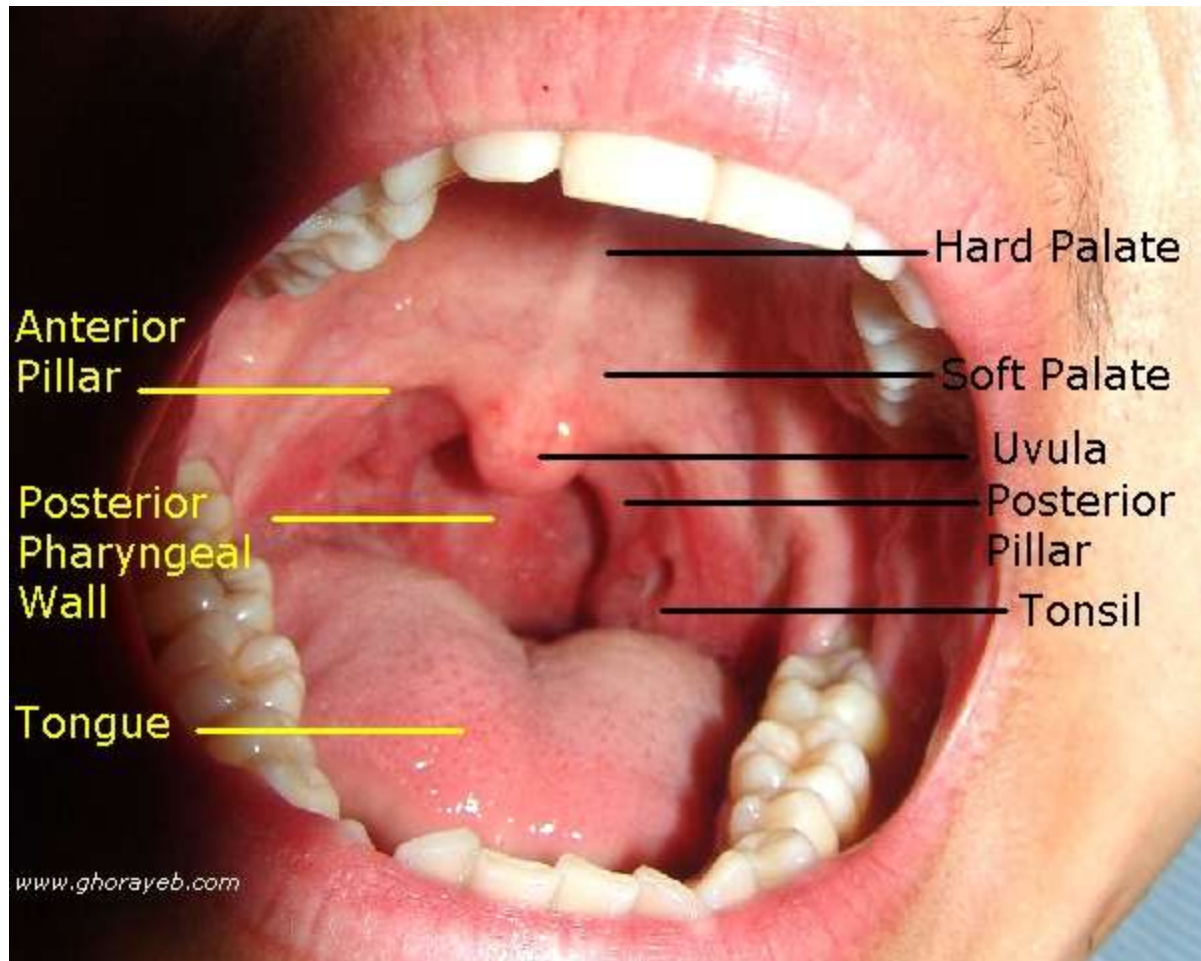
# The Nasopharynx



# The Choana

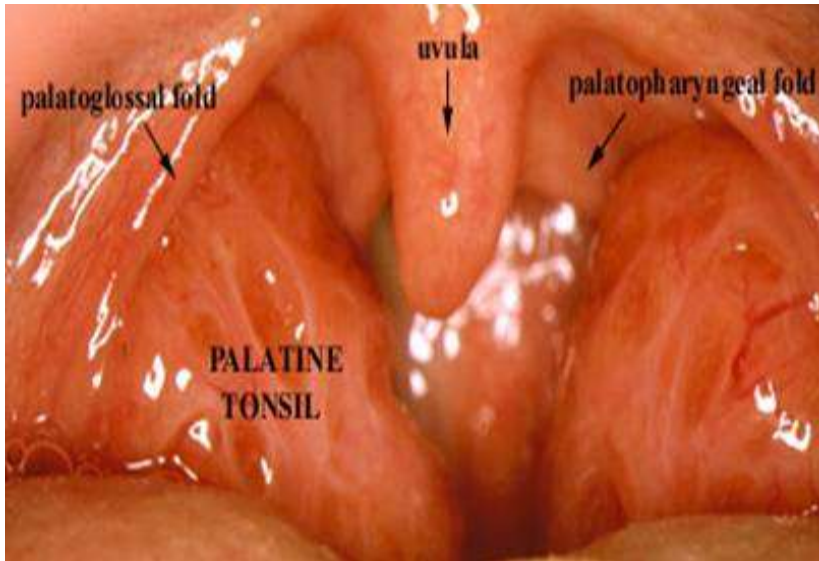


# The Oropharynx

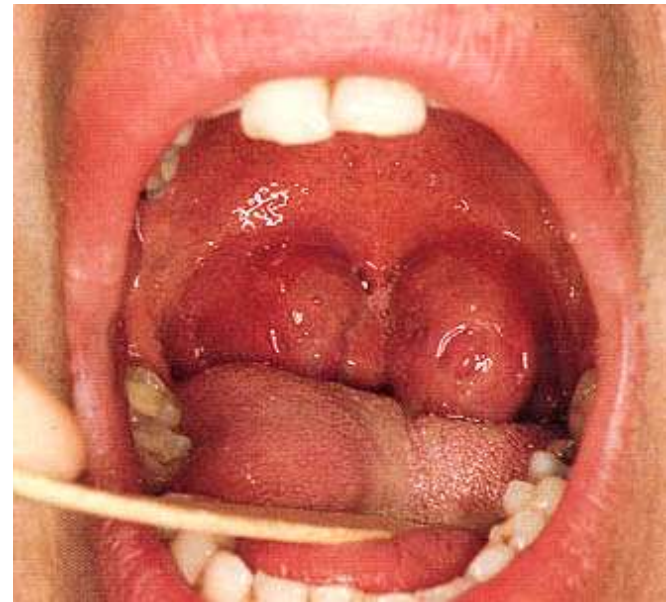
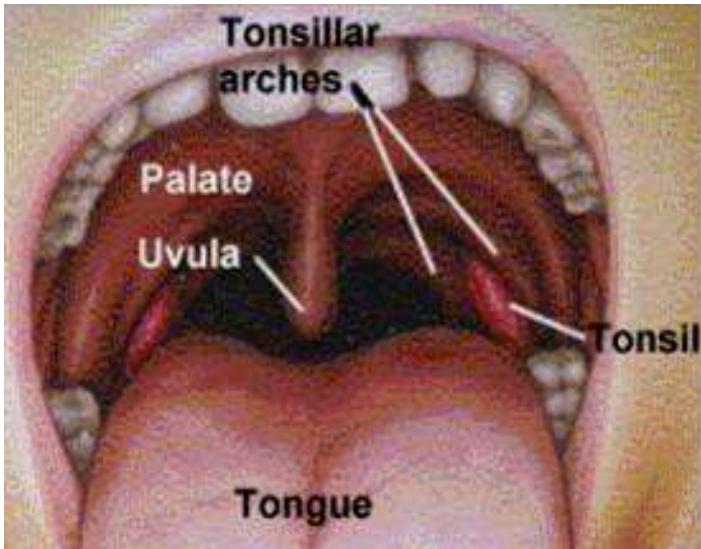




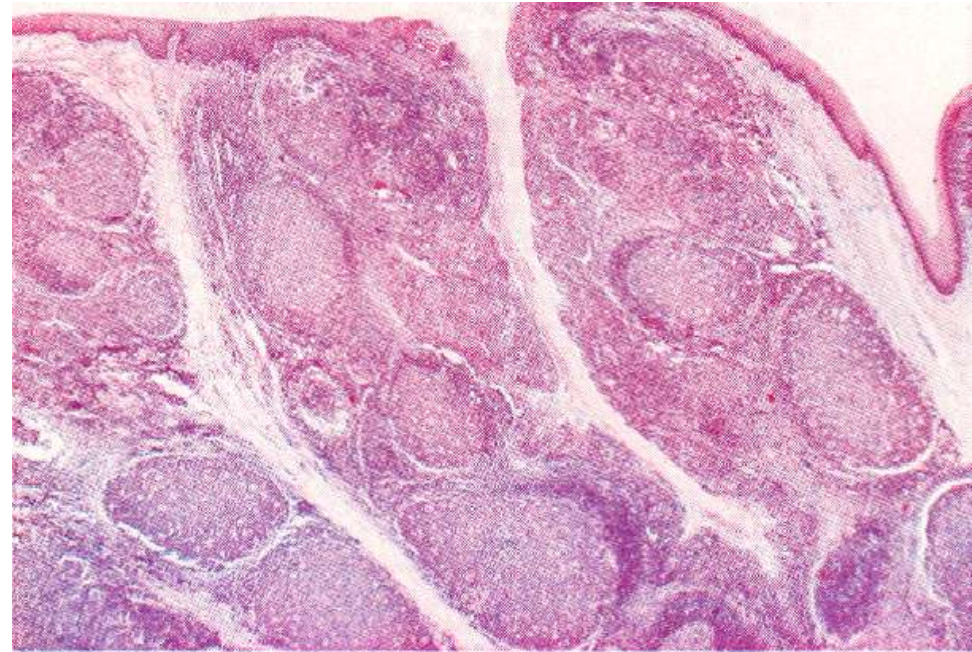
# The oropharynx



# Tonsils Size

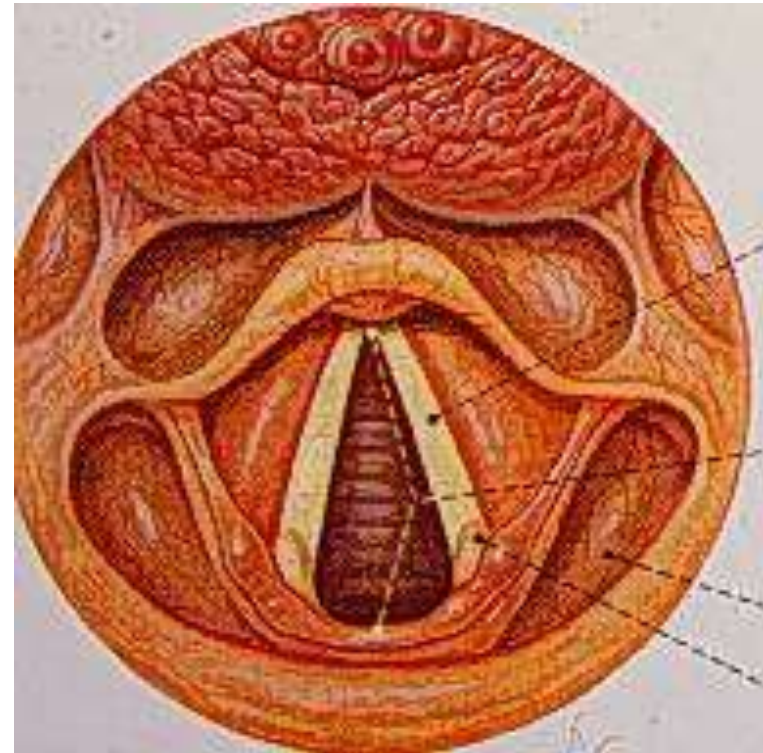
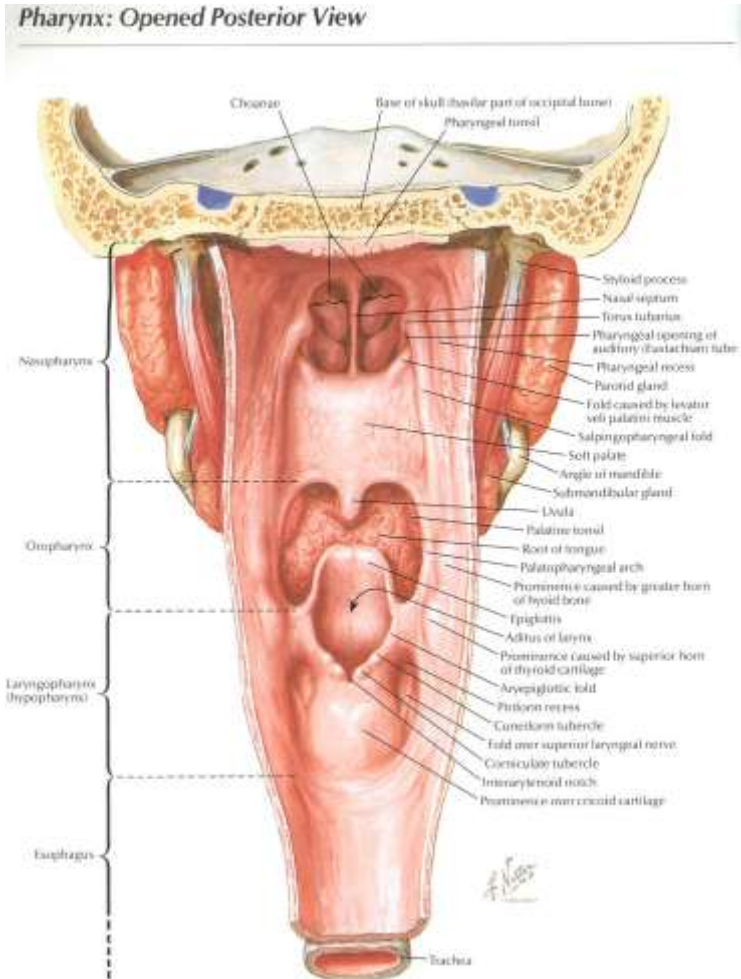


# The Palatine Tonsils



# The Laryngopharynx (Hypopharynx)

Pharynx: Opened Posterior View





# Pharyngeal Wall

Mucous membrane

Submucosa

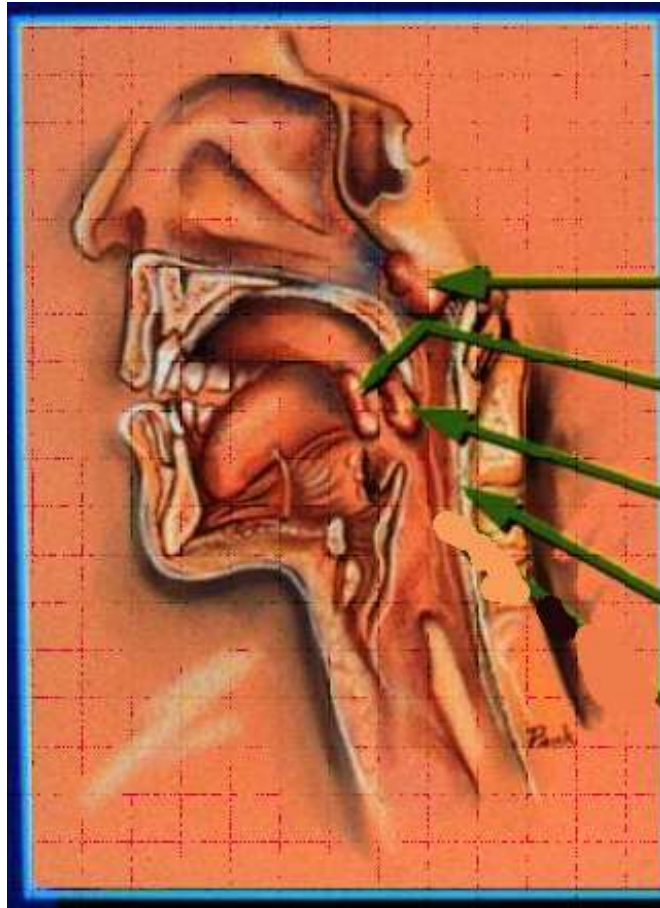
Muscular layer

Fibrous layer (Buccopharyngeal fascia)

# Submucosa

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

# Subepithelial lymphoid tissue



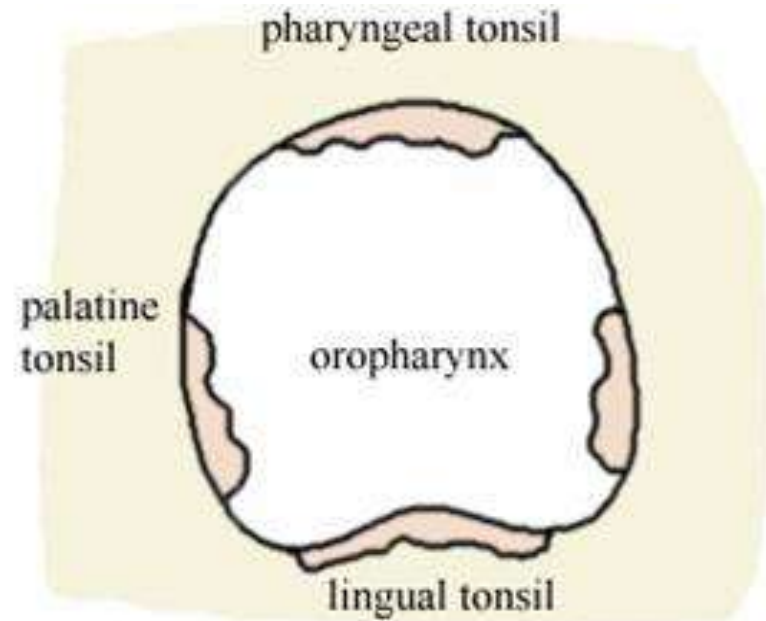
## WALDEYER'S RING

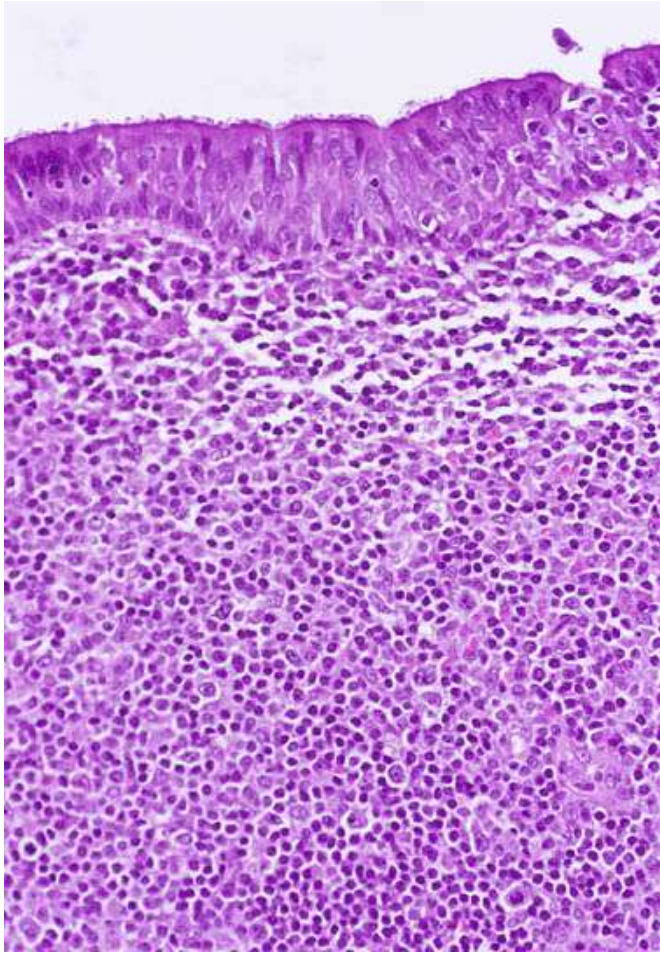
- Adenoids (Pharyngeal tonsils)
- Lingual tonsils
- Palatine tonsils
- Pharyngeal lymphoid islands



# Characteristics of Waldeyer's Ring

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





Adenoid



Palatine tonsil

# Pharyngeal Wall

Mucous membrane

Submucosa

Muscular layer

Fibrous layer

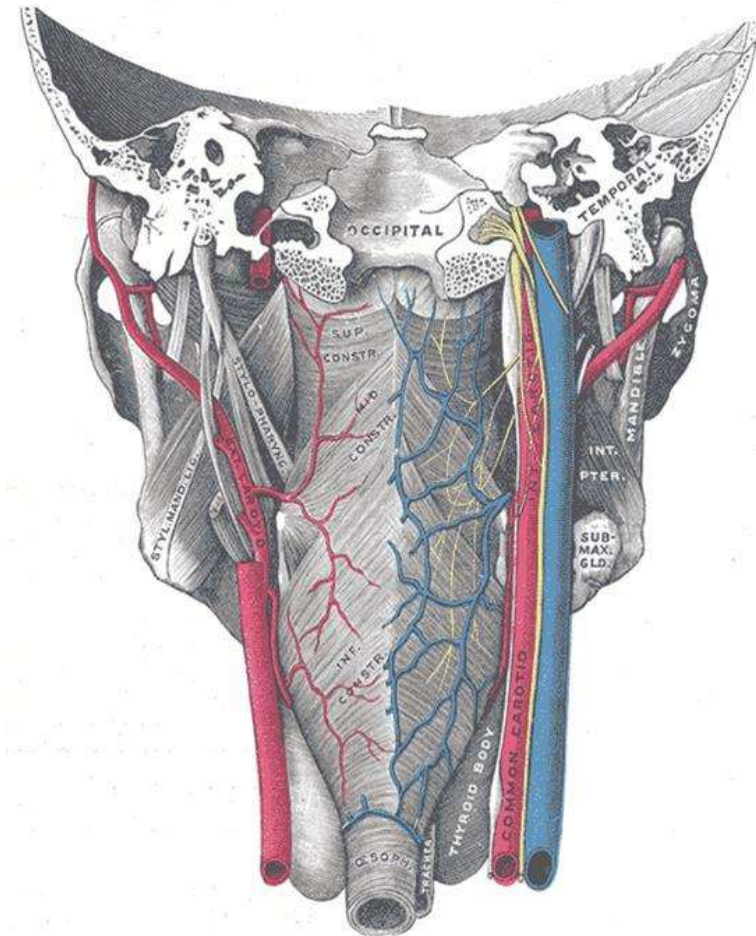
Buccopharyngeal fascia

# Nerve Supply

- Trigeminal
- Glossopharyngeal
- Vagus
- Sympathetic: cervical ganglia

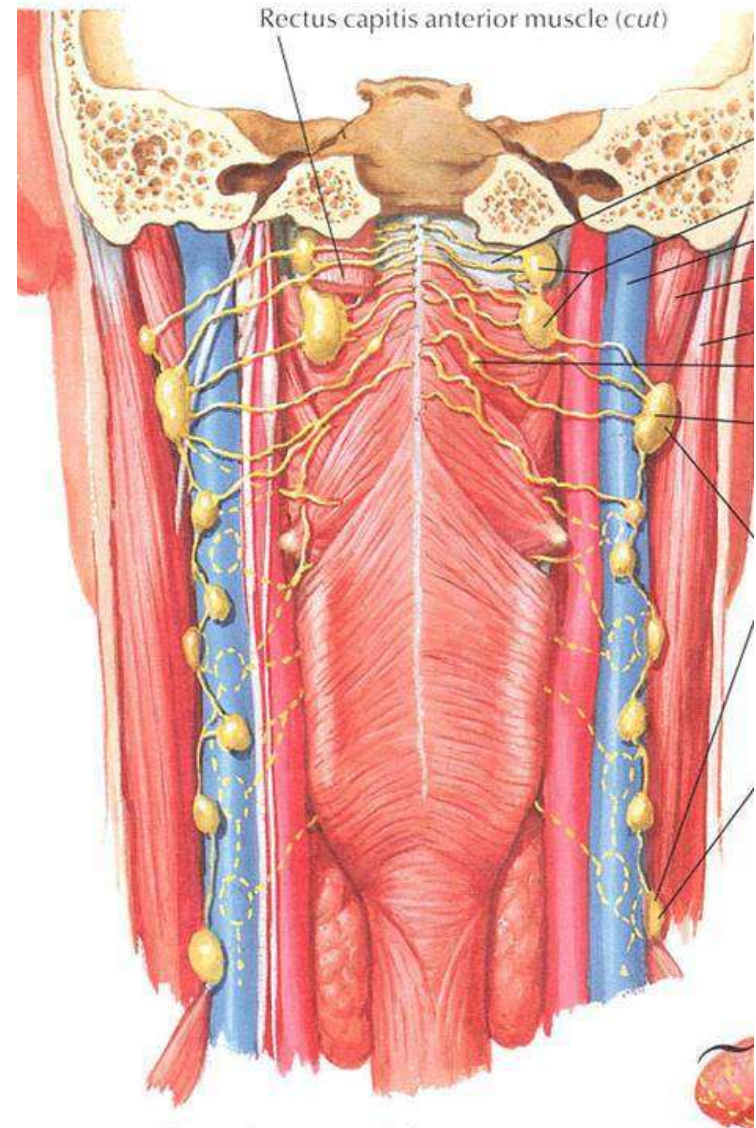
# Blood supply

- 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



# Physiology of the Pharynx

# 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

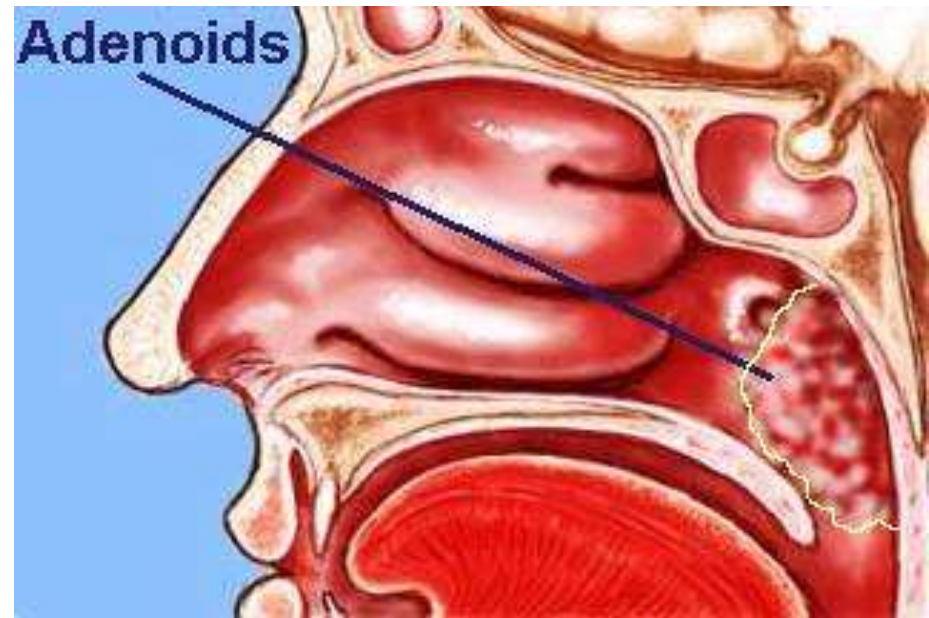
# ACUTE INFECTION OF NASOPHARYNX

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

# ADENOIDS

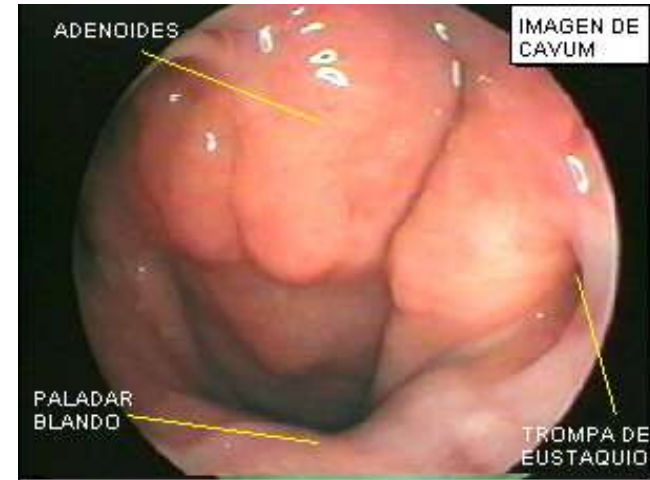
# DEFINITION

- Hypertrophy of the nasopharyngeal tonsils sufficient to produce symptoms



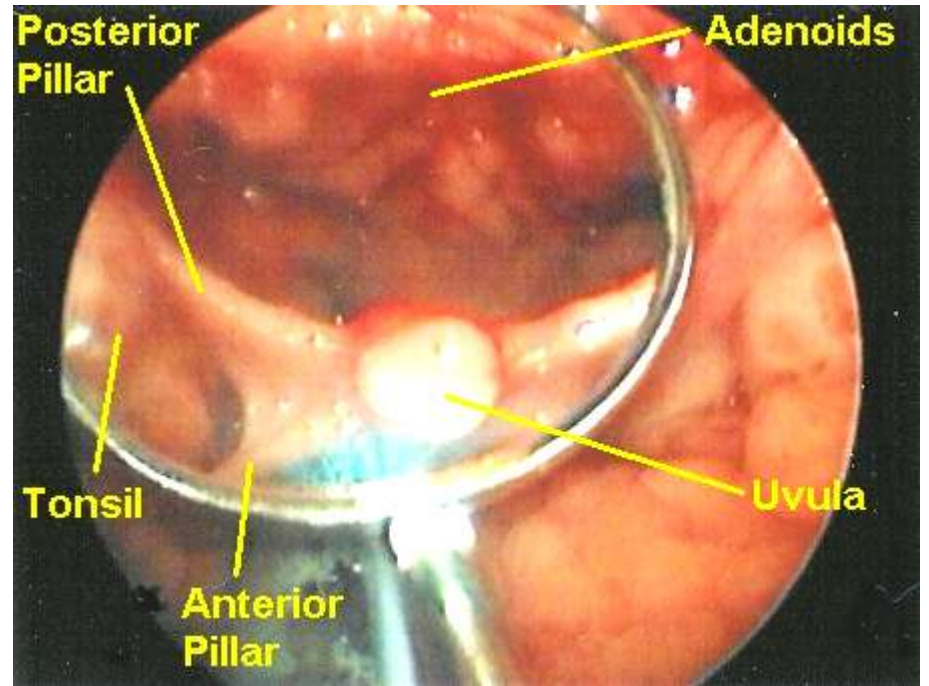
# CLINICAL FEATURES

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



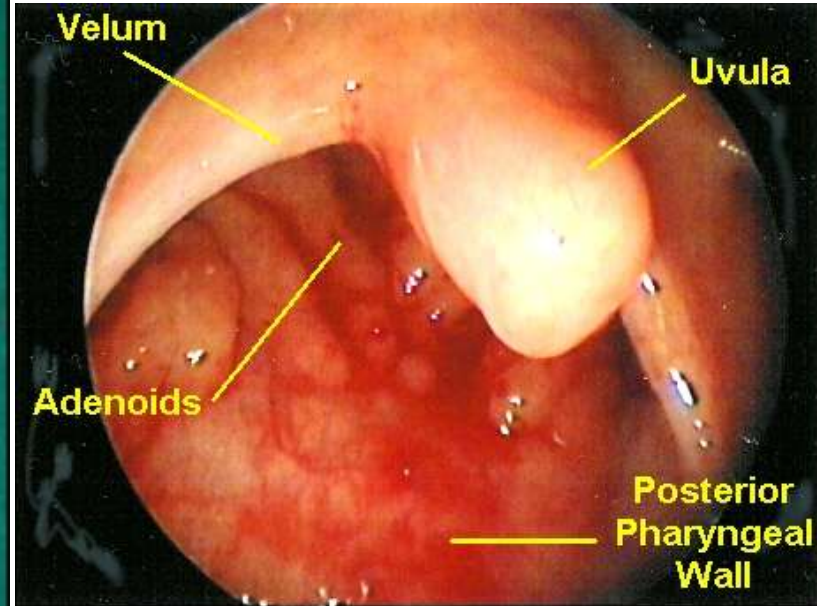
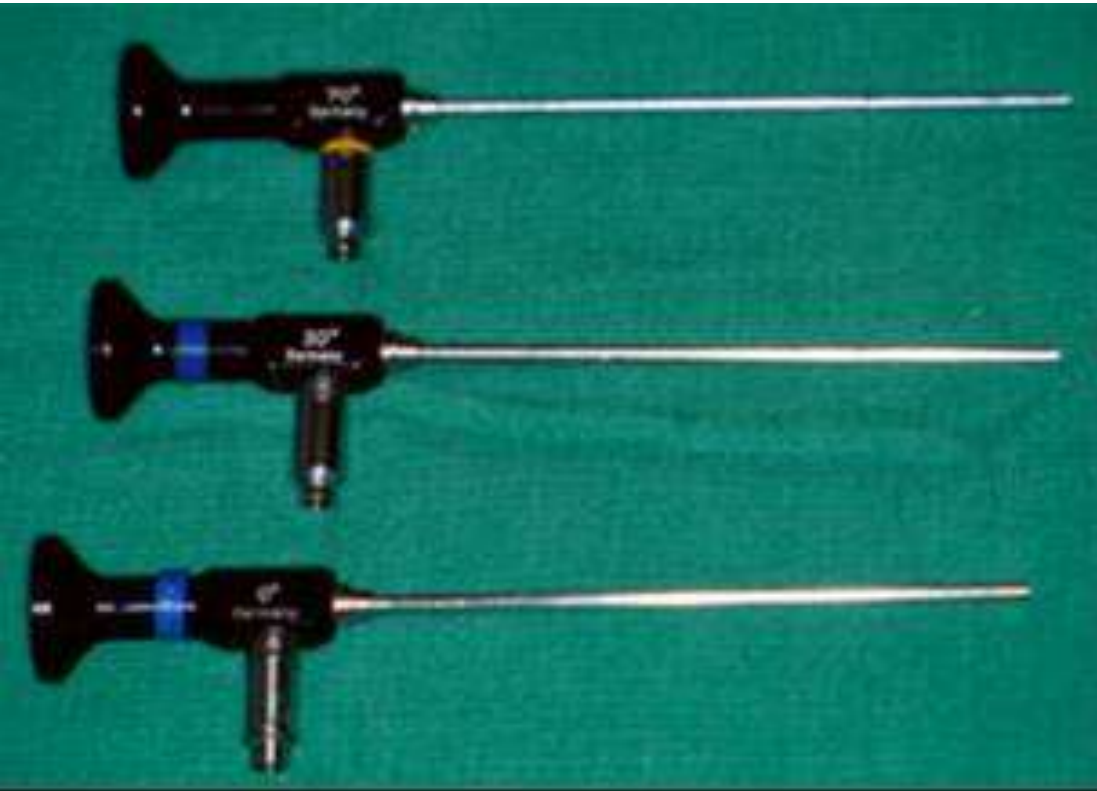


# EXAMINATION

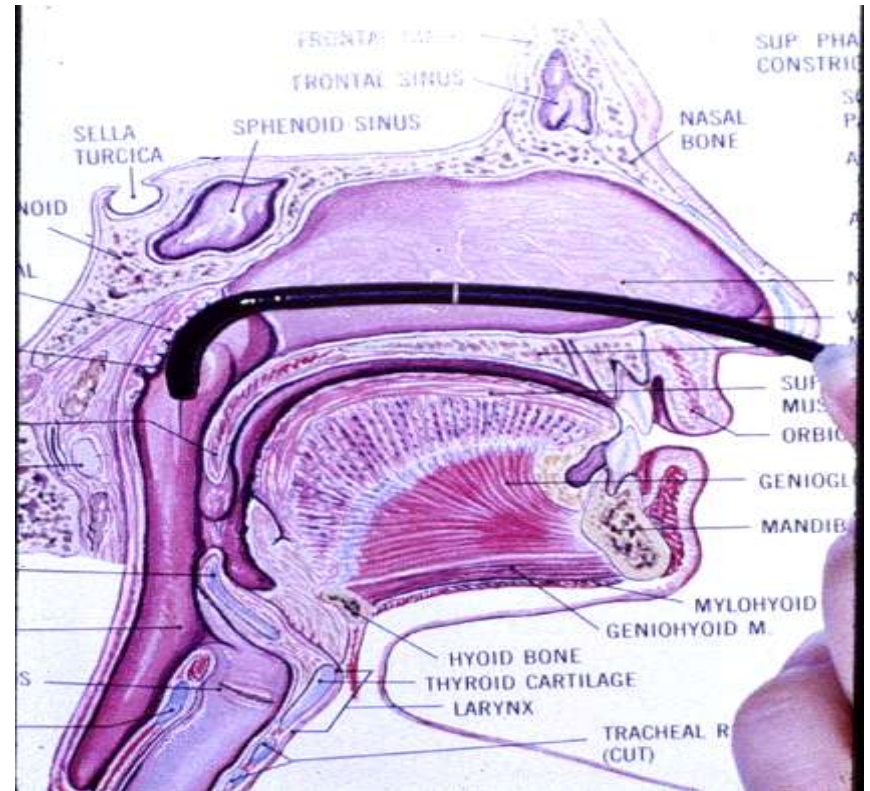
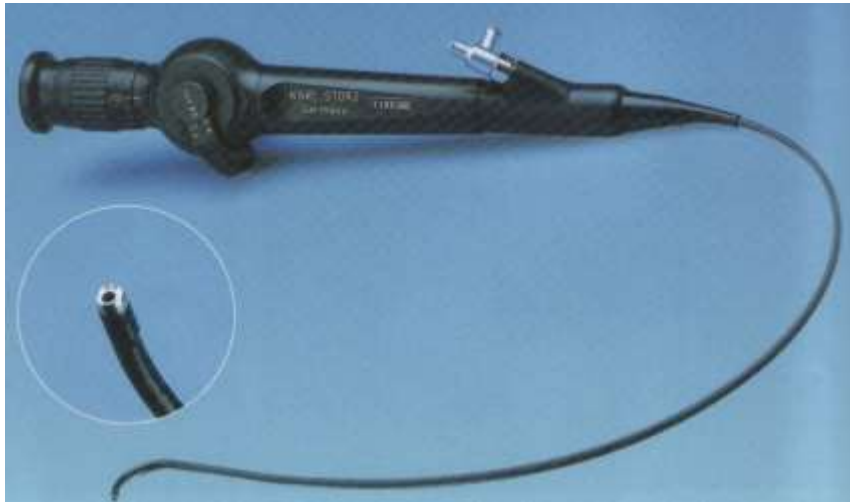


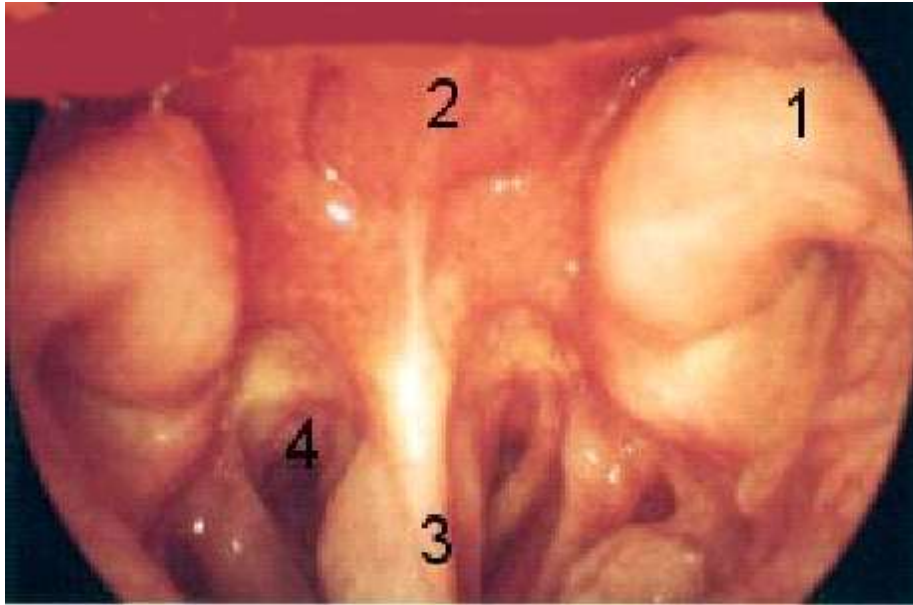


# EXAMINATION

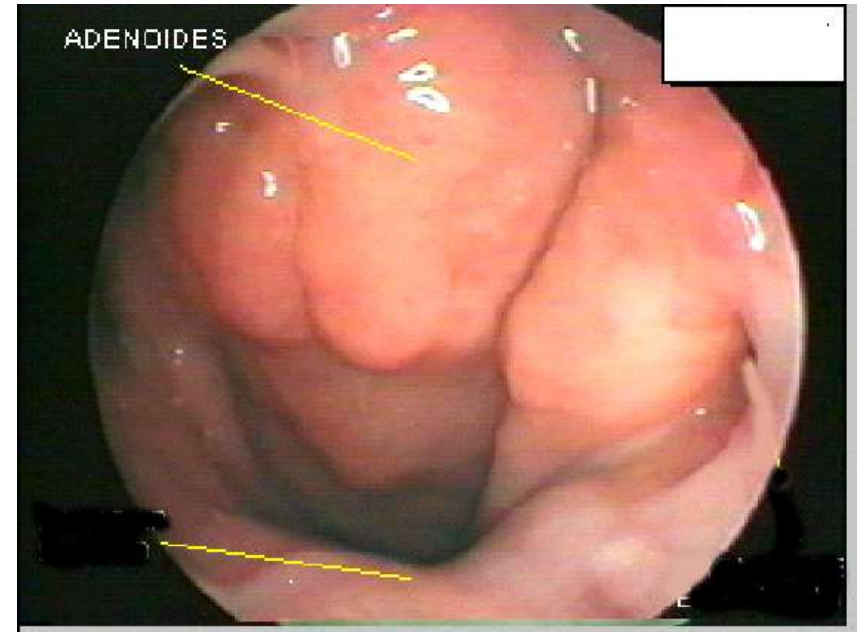


# EXAMINATION





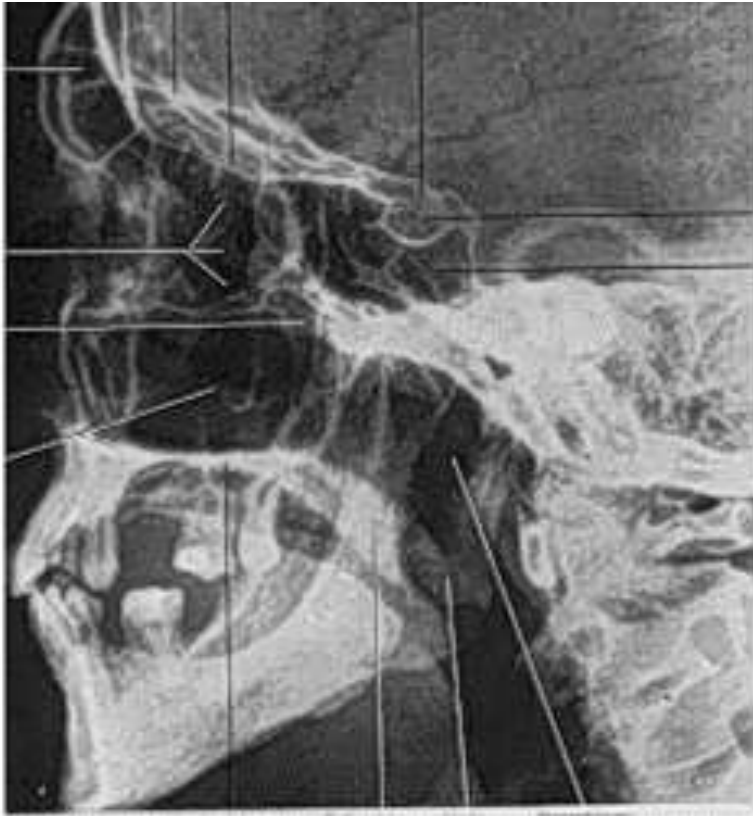
**Normal nasopharynx**



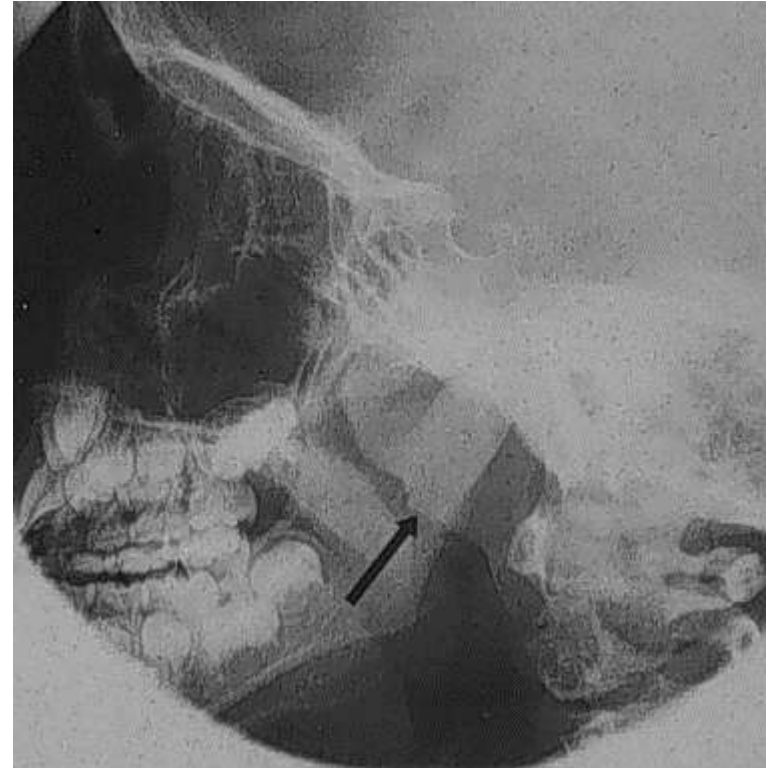
**Adenoid**



# PLAIN X- RAY



Normal



Adenoid





# TREATMENT

## Adenoidectomy

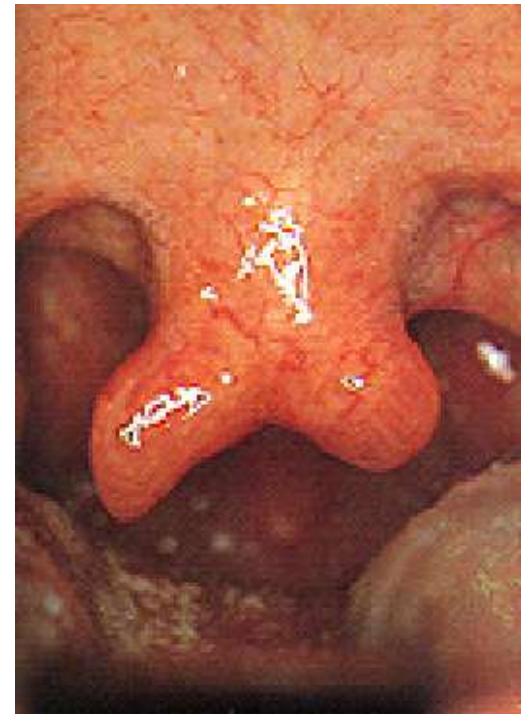
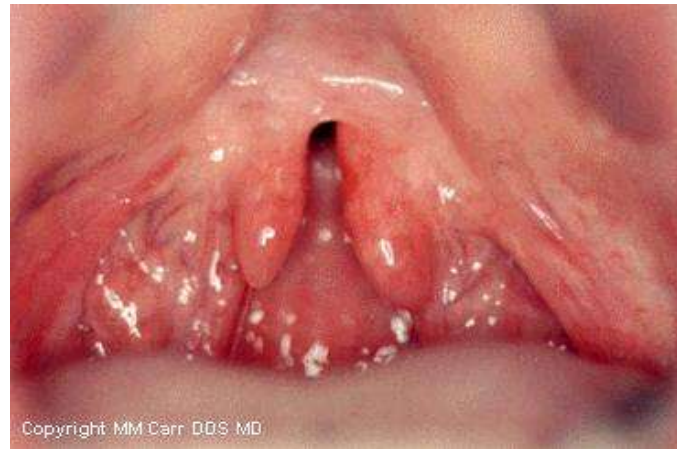
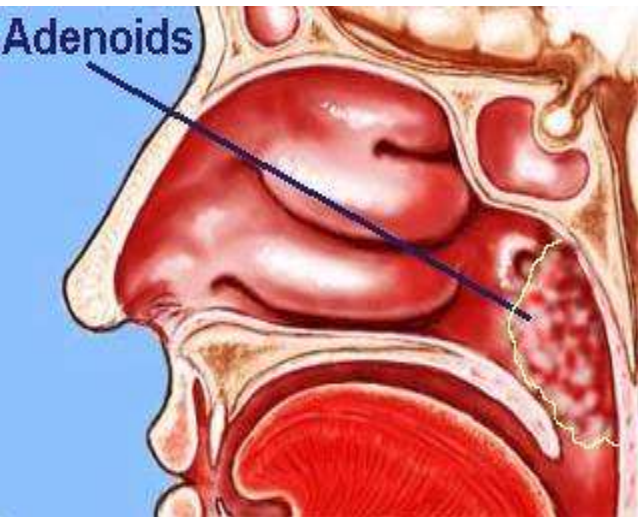






# Local Contraindication of Adenoidectomy

## 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

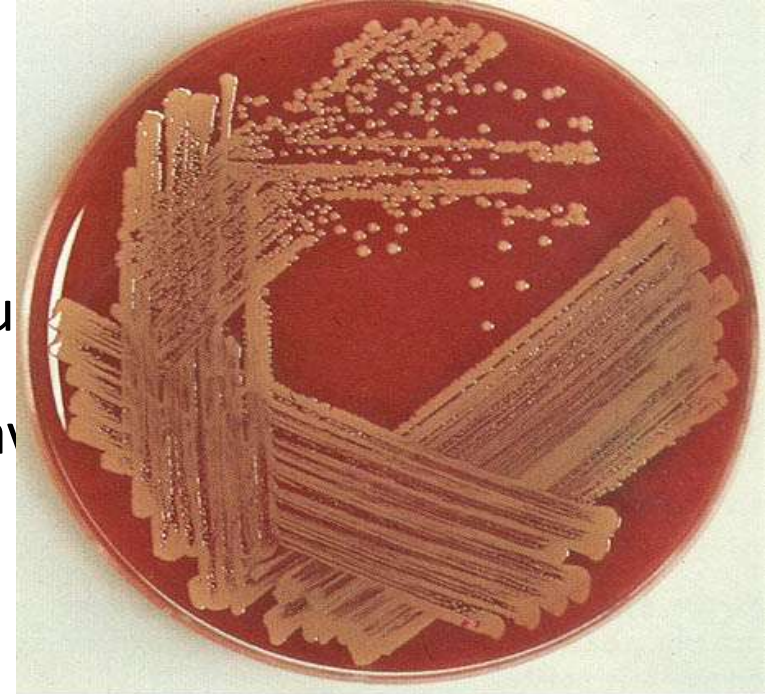
# CAUSATIVE ORGANISMS

- Viral:

- Influenza, Parainfluenza, Rhinovirus
- Respiratory syncytial virus, Coronavirus

- Bacterial:

- Beta Hemolytic Streptococcus (Group A)
- Others: Strept pneumonia, H. influenzae, Staph. aureus etc

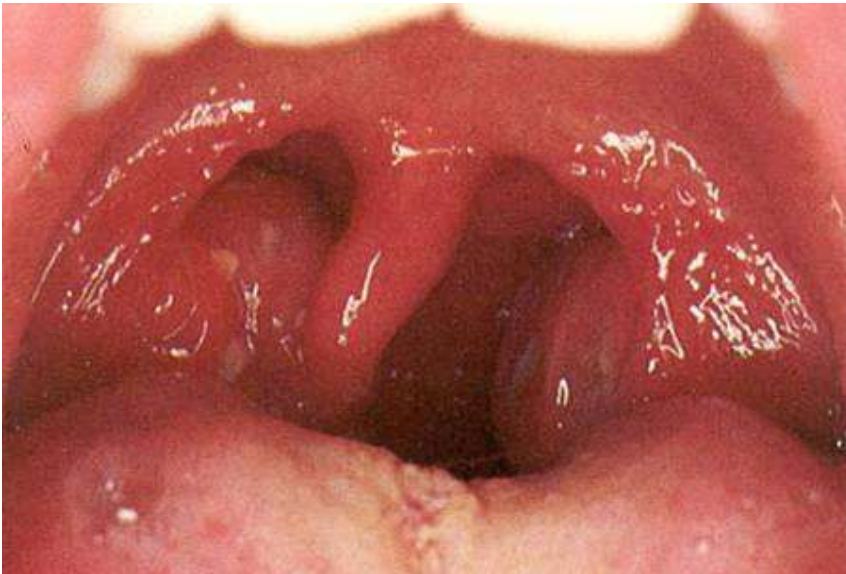


# Clinical features

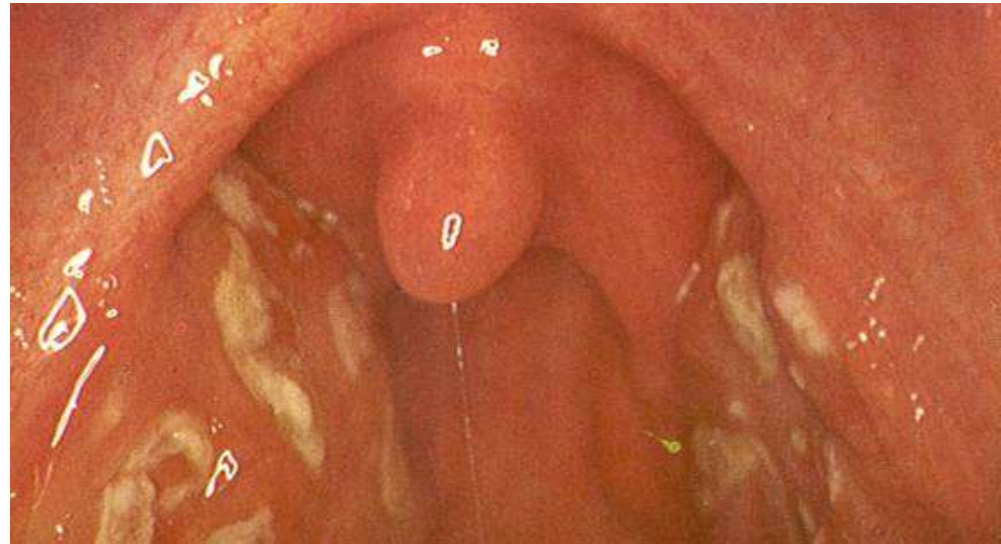
- Malaise, fever, headache, limb and back pain
- Sore throat, odynophagia, dysphagia
- Otalgia



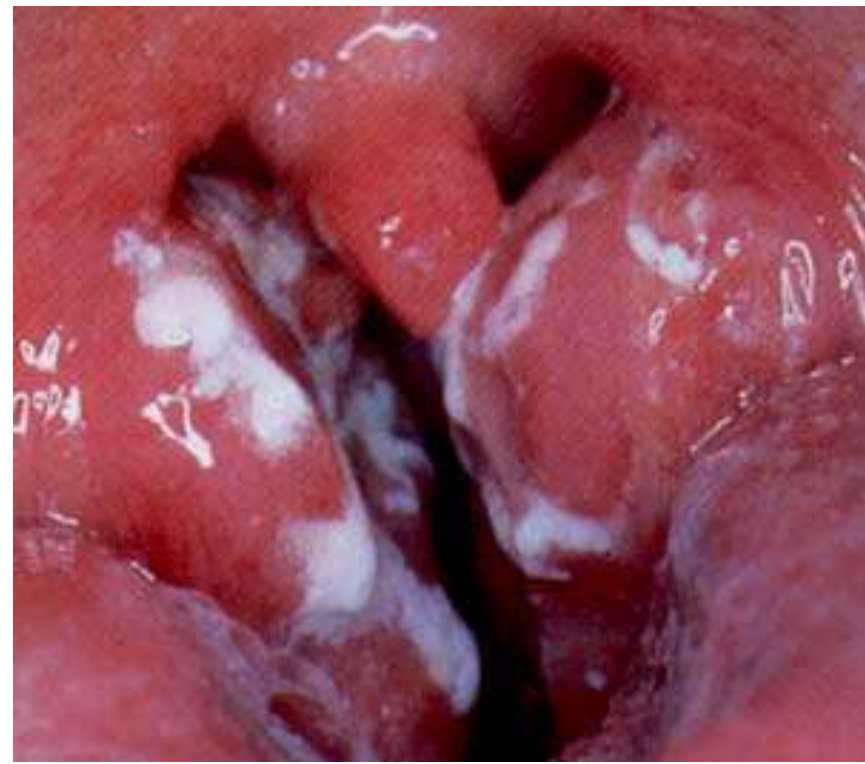
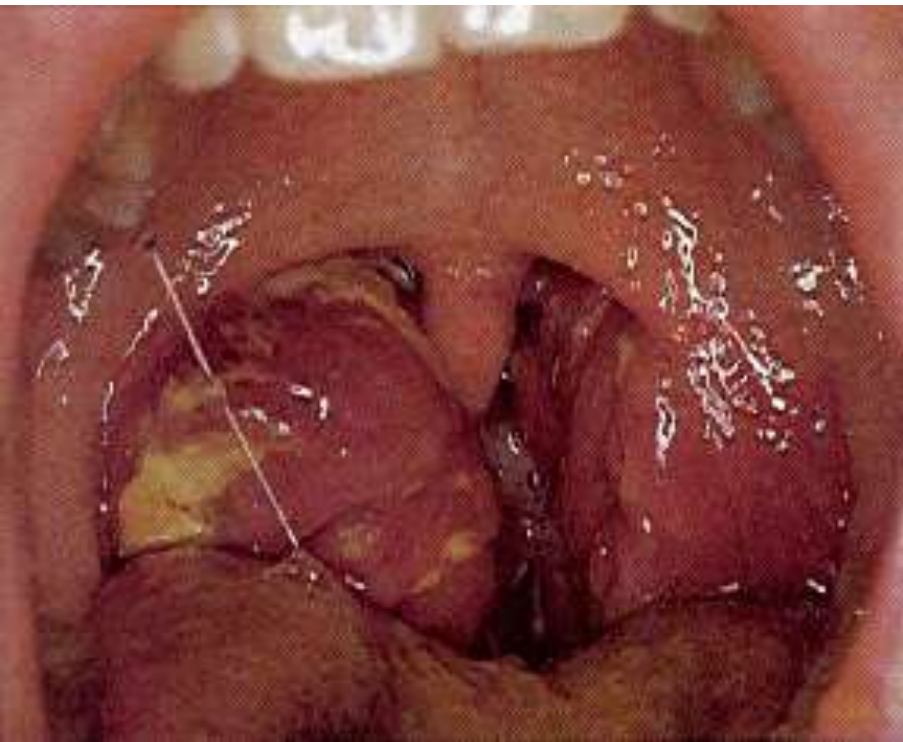
# THROAT EXAMINATION



A. Parenchymatous tonsillitis



B Follicular tonsillitis

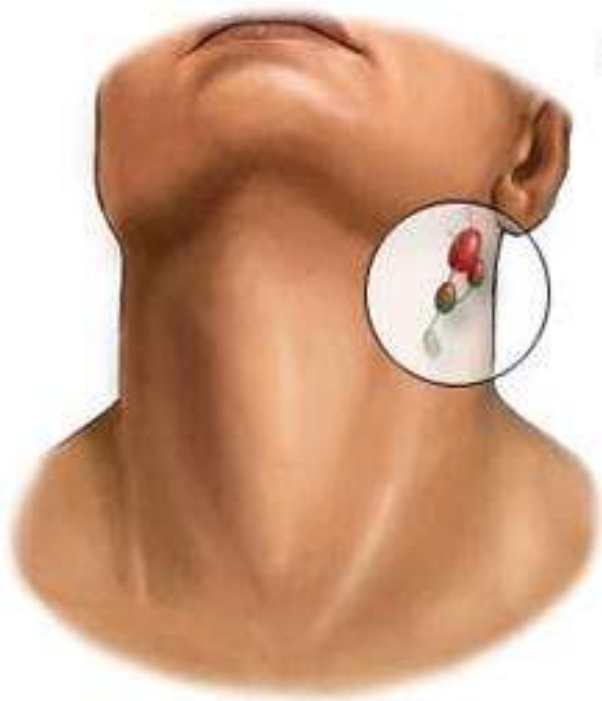




C. Membranous tonsillitis

# NECK EXAMINATION

Enlargement and tenderness of the jugulo-digastric lymph nodes



# INVESTIGATIONS

- Throat swab
- CBC



# TREATMENT

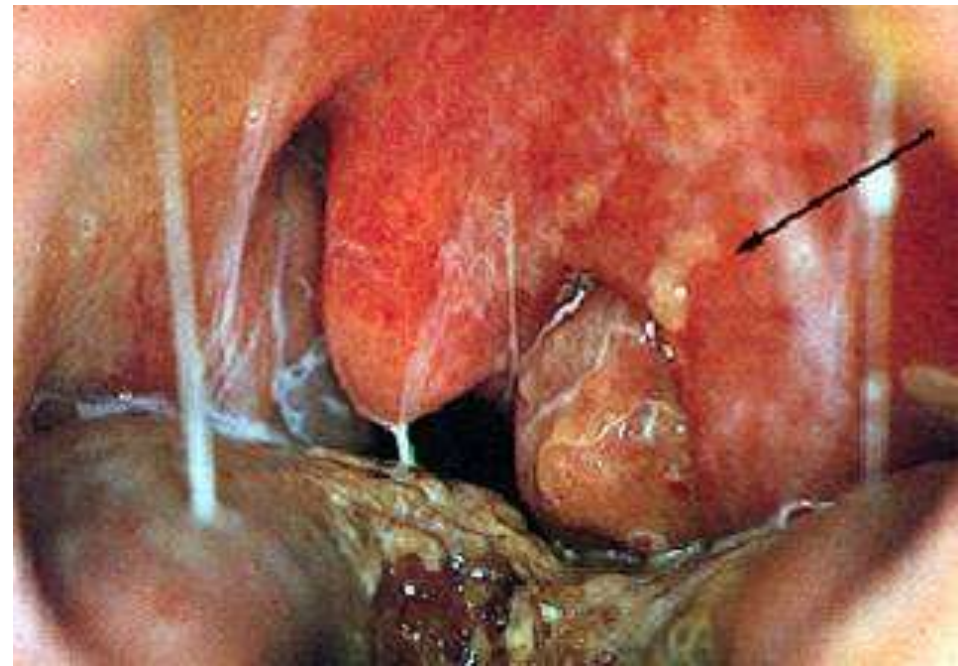
- Symptomatic & supportive treatment
- Antibiotics
  - Penicillin V for 5-7days – drug of choice
  - Erythromycin – second line
  - Amoxicillin and Ampicillin – better absorption

# 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

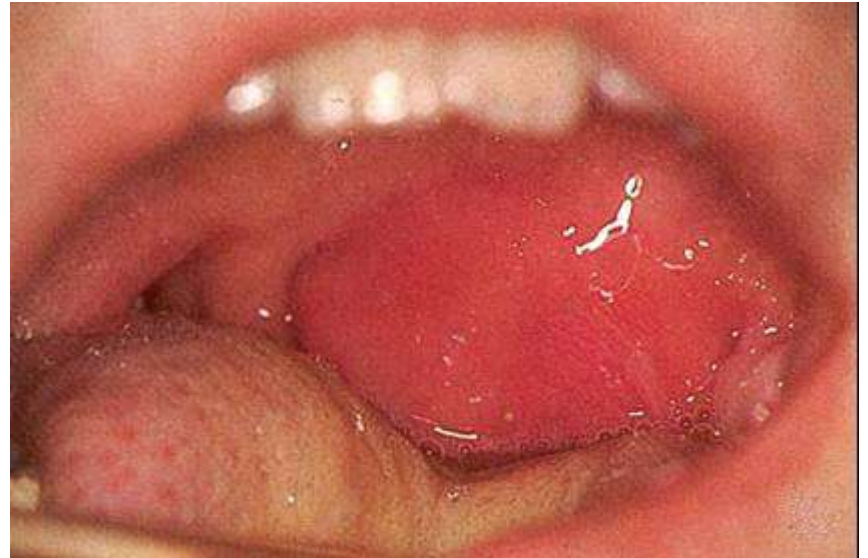




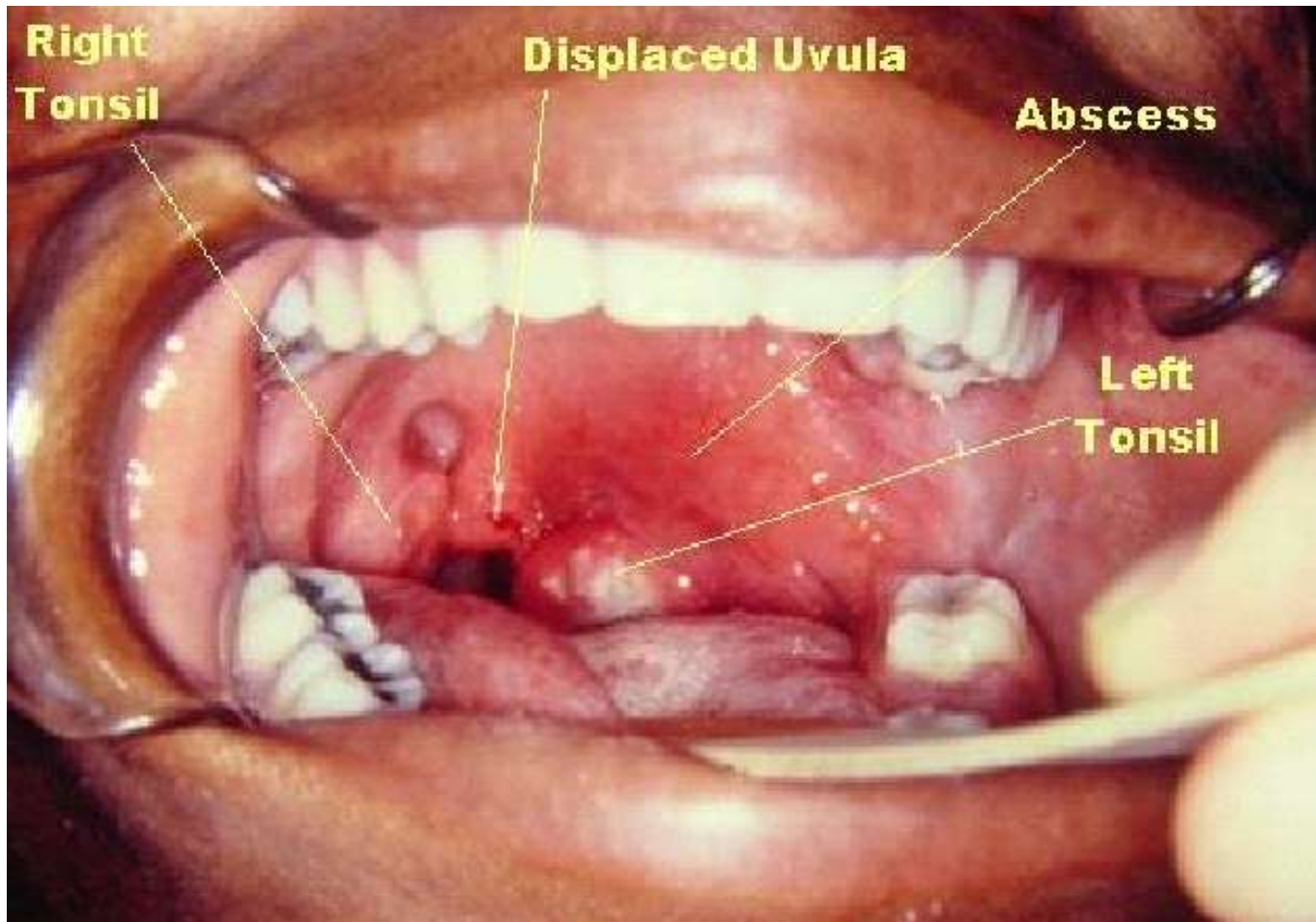
# CLINICAL FEATURES

- 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

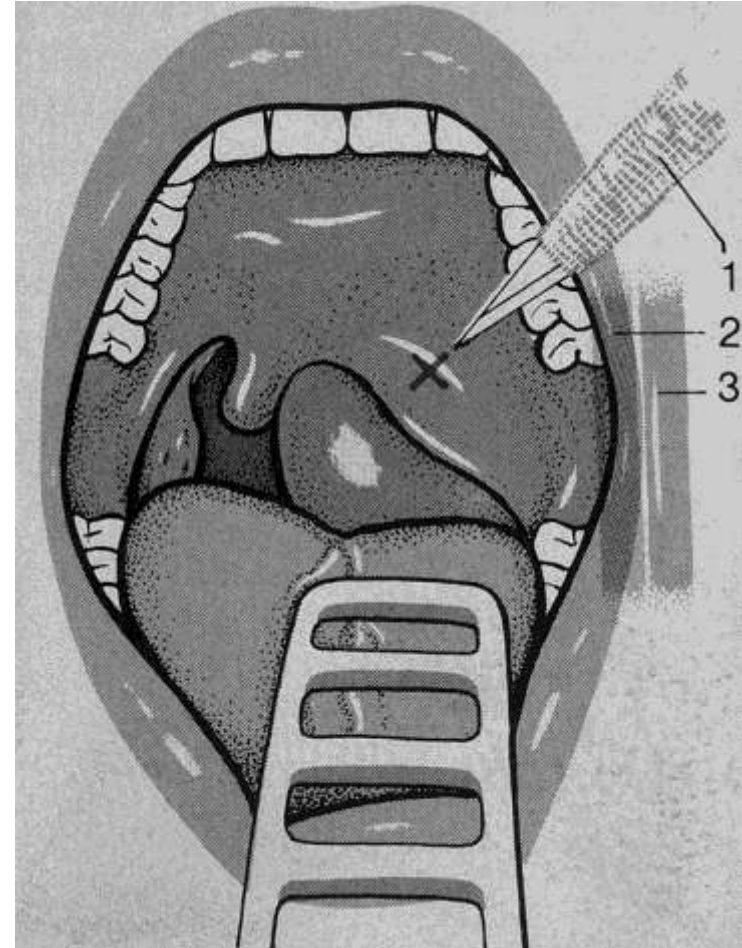


# EXAMINATION



# TREATMENT

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



# COMPLICATIONS OF ACUTE TONSILLITIS

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

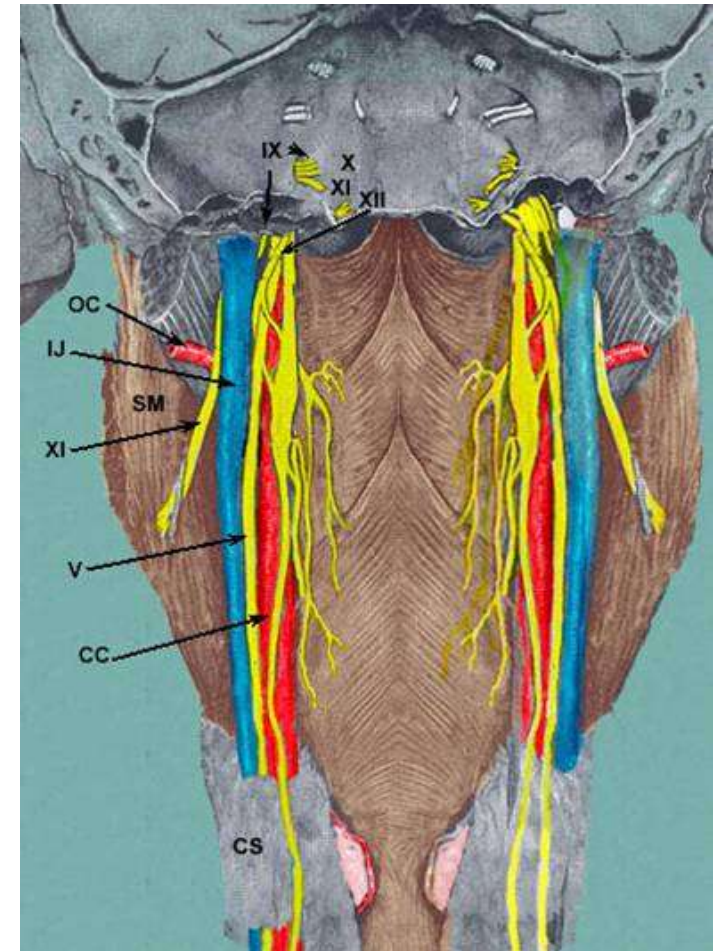
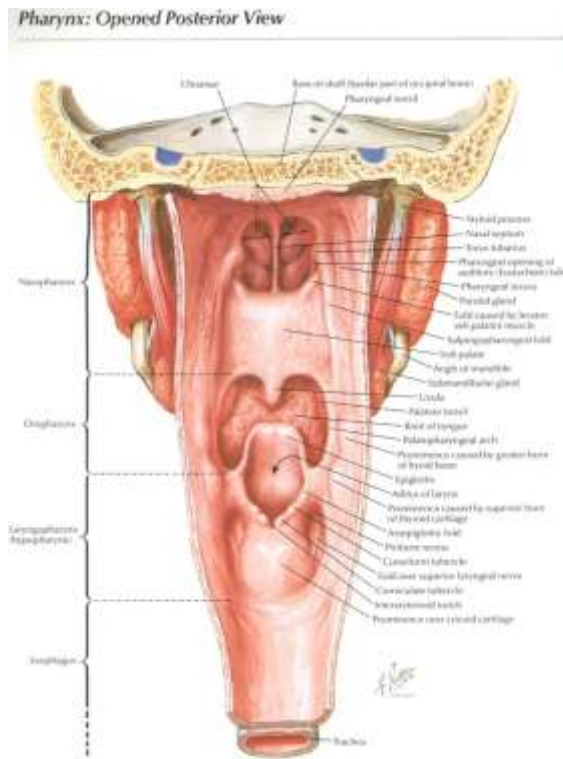
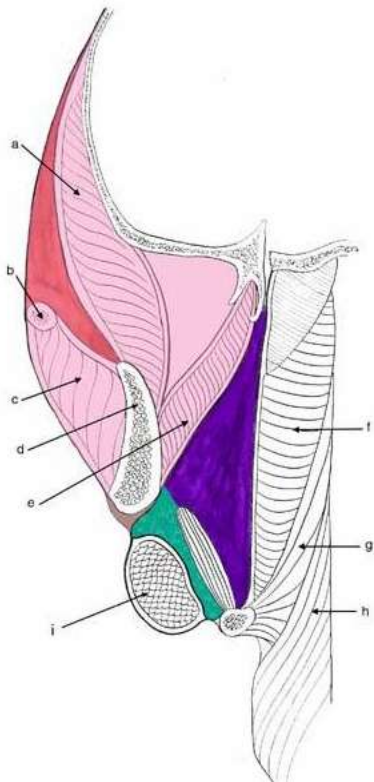
# Neck abscess



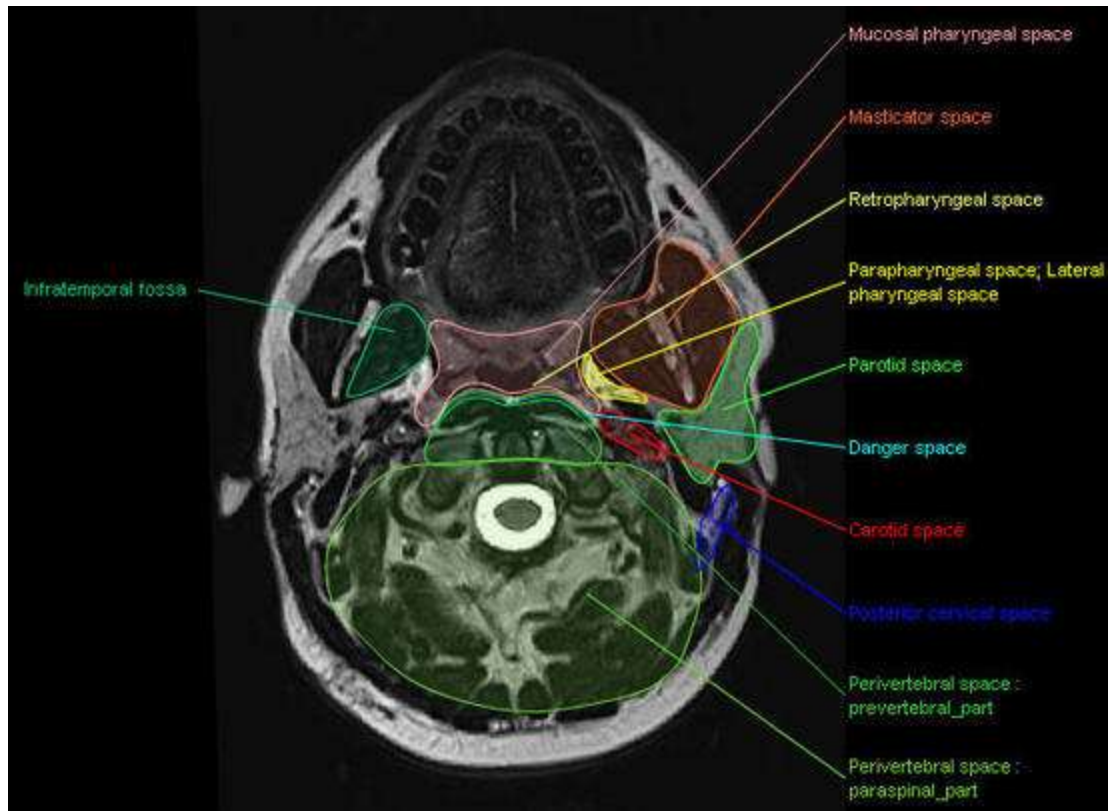
# COMPLICATIONS OF ACUTE TONSILLITIS

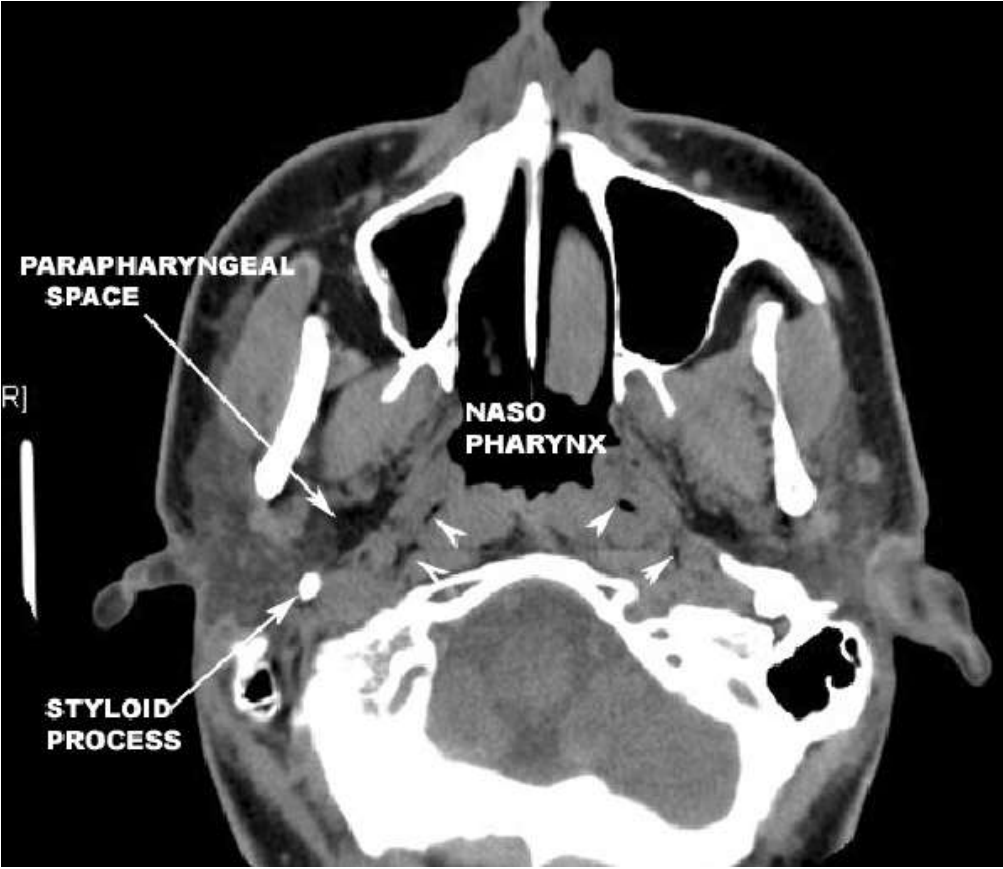
- General:
  - Acute rheumatism
  - Acute glomerulonephritis
  - Septicaemia
- Local:
  - Peritonsillitis & peritonsillar abscess ( Quinsy)
  - Neck Abscess
  - **Parapharyngeal abscess**

# Anatomy of the parapharyngeal space



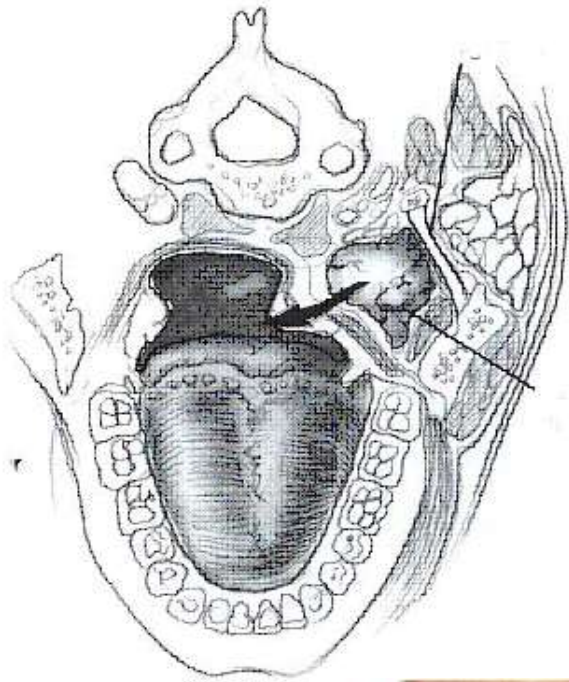






# Clinical features of parapharyngeal abscess

- Systemic manifestations
- Pain, trismus, swelling



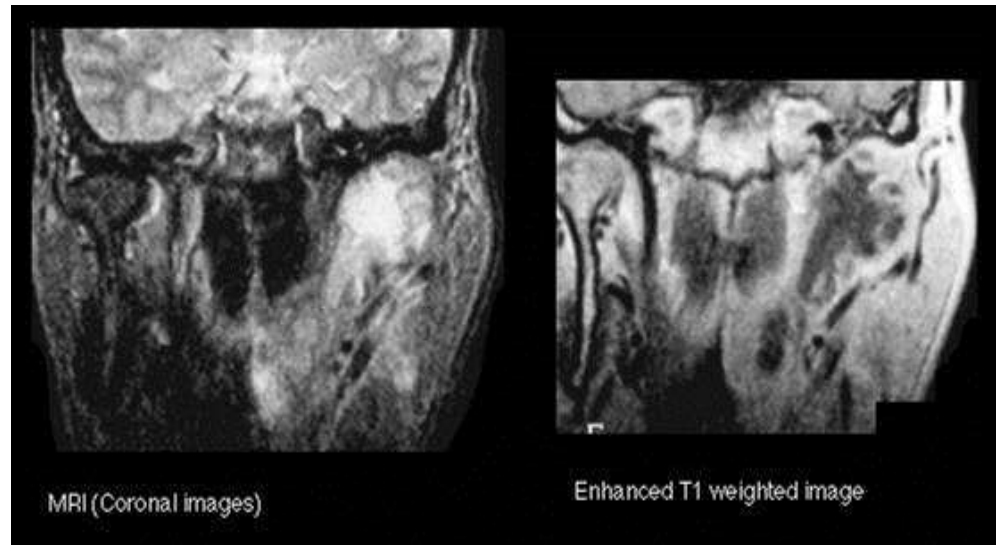


# CLINICAL FEATURES

- Systemic manifestations
- Pain, trismus, swelling
- Neurological manifestations

# INVESTIGATION

- Laboratory and bacteriology
- CT
- MRI



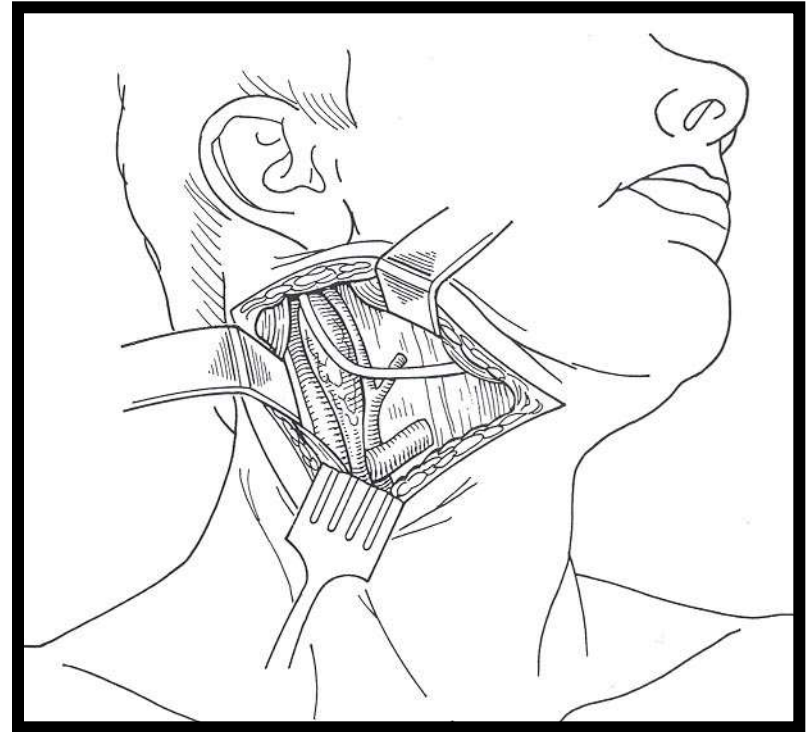
# PRINCIPLES OF TREATMENT

- Secure the airway
- Antimicrobial therapy
- Surgical drainage



# DRAINAGE OF PARAPHARYNGEAL ABSCESS

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



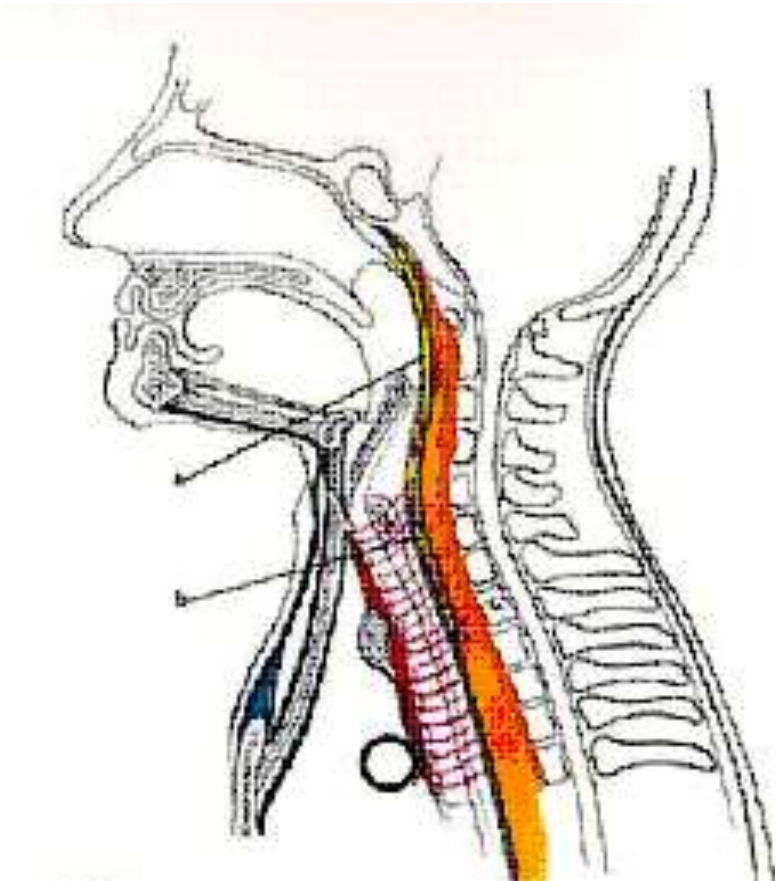
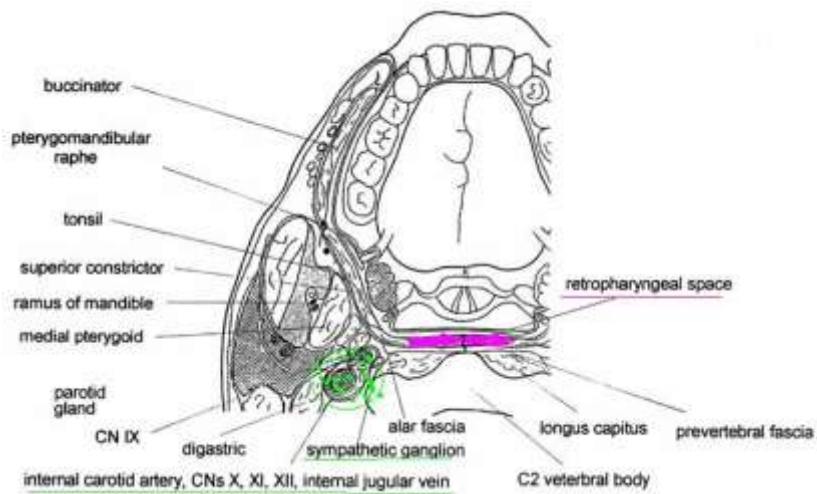
# COMPLICATIONS OF ACUTE TONSILLITIS

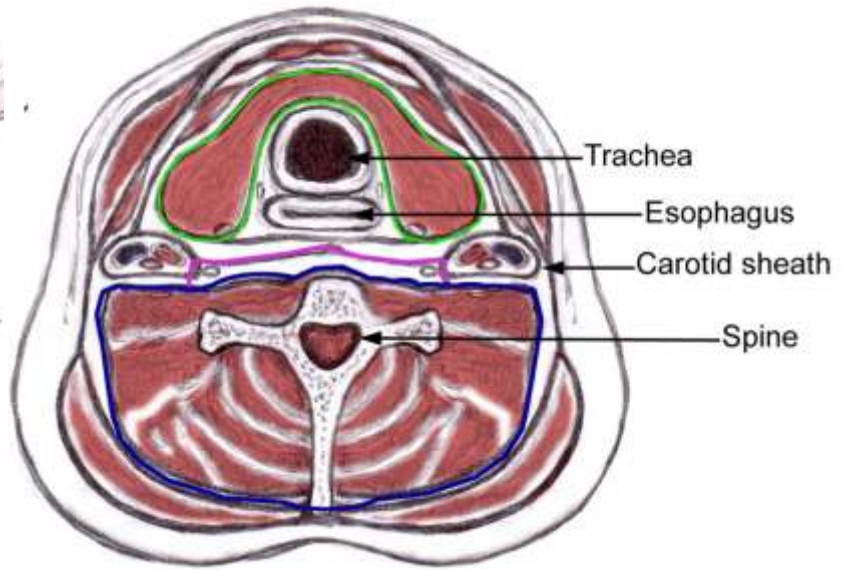
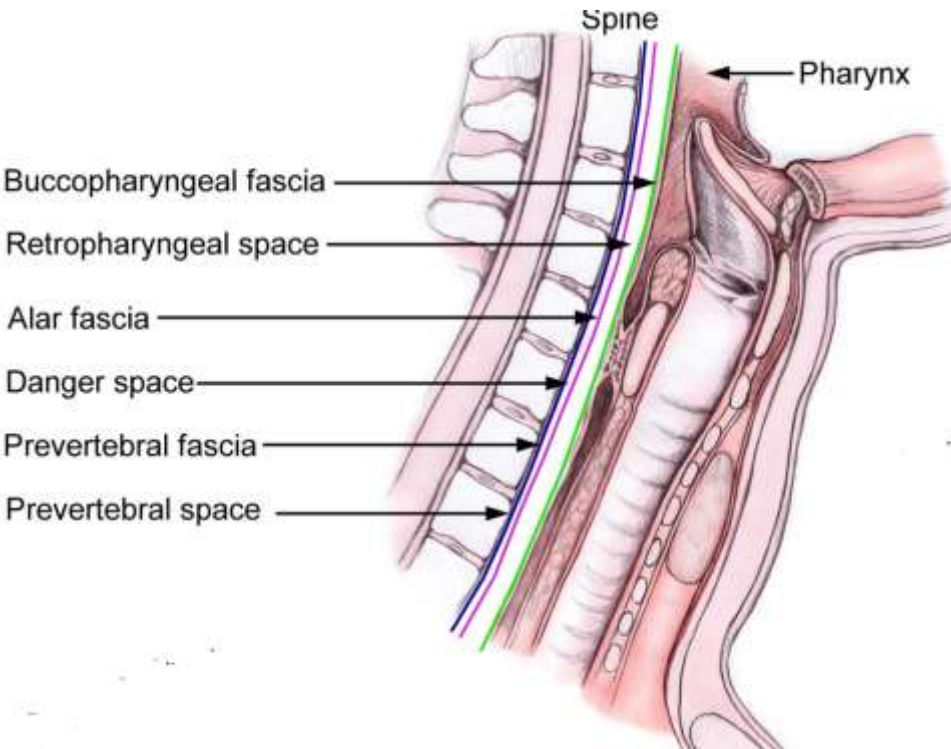
- General:
  - Acute rheumatism
  - Acute glomerulonephritis
  - Septicaemia
- Local:
  - Peritonsillitis & peritonsillar abscess ( Quinsy)
  - Neck Abscess
  - Parapharyngeal abscess
  - **Retropharyngeal abscess**

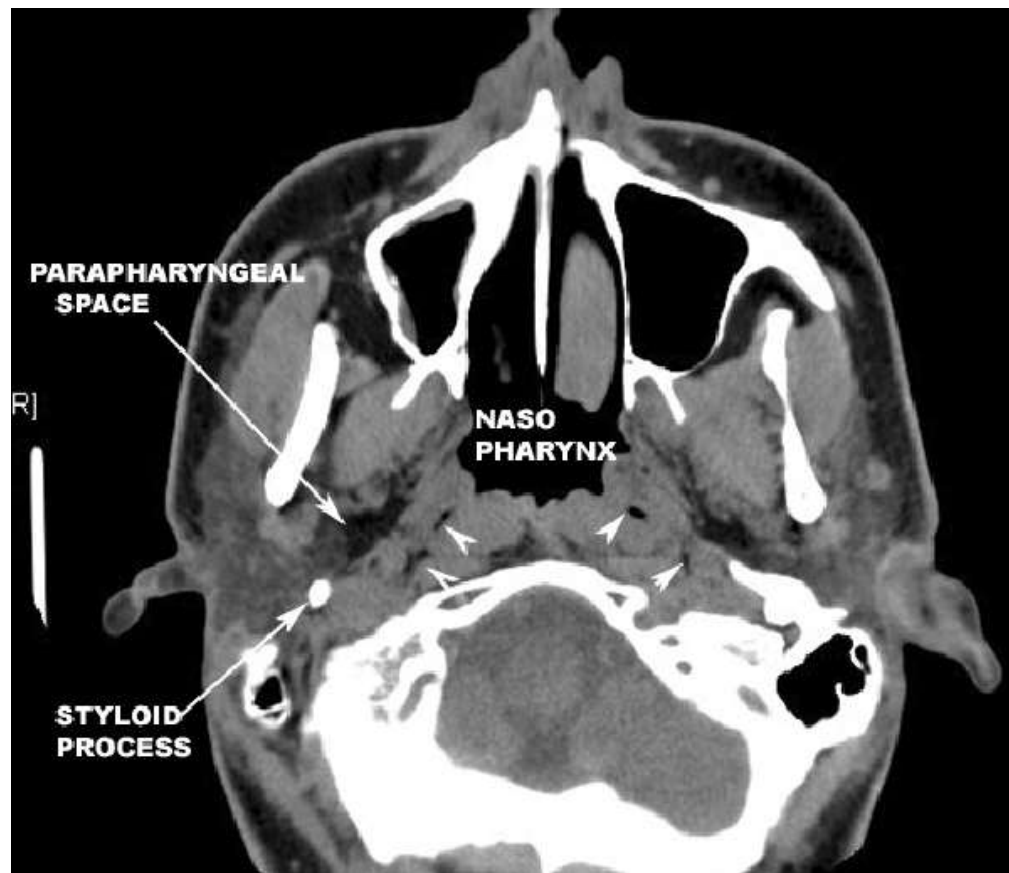
# ACUTE RETROPHARYNGEAL ABSCESS

- Due to suppuration of the retropharyngeal lymph nodes

# Anatomy of retropharyngeal space







# CLINICAL FEATURES

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



# INVESTIGATION

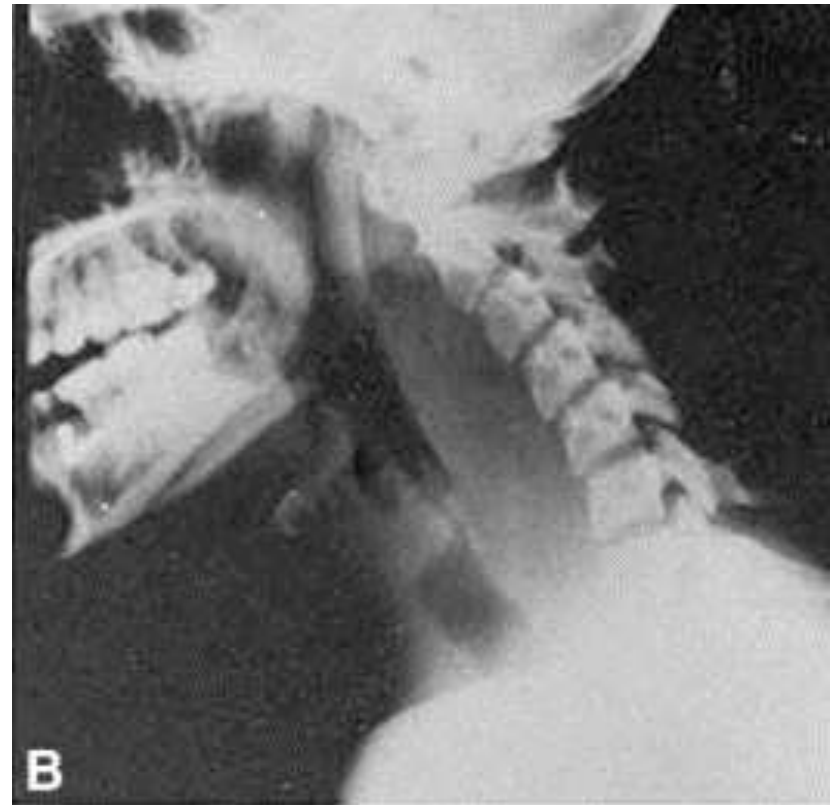
- Laboratory and bacteriology
- Plain X-rays



# PLAIN X-RAYS



Normal



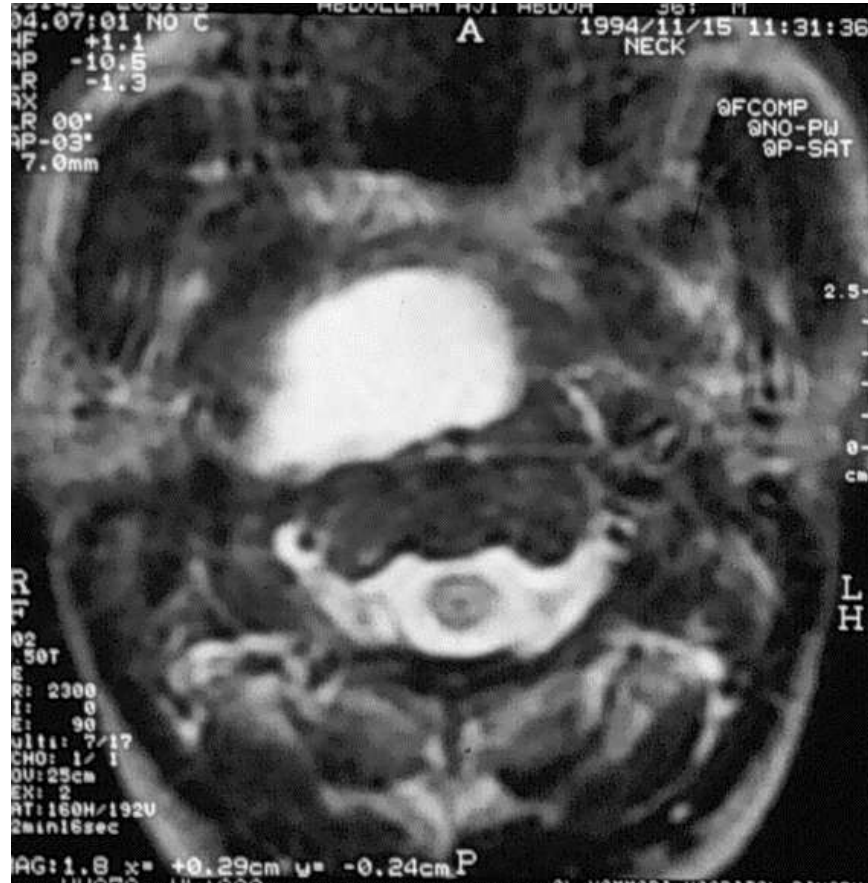
Retropharyngeal abscess



CT

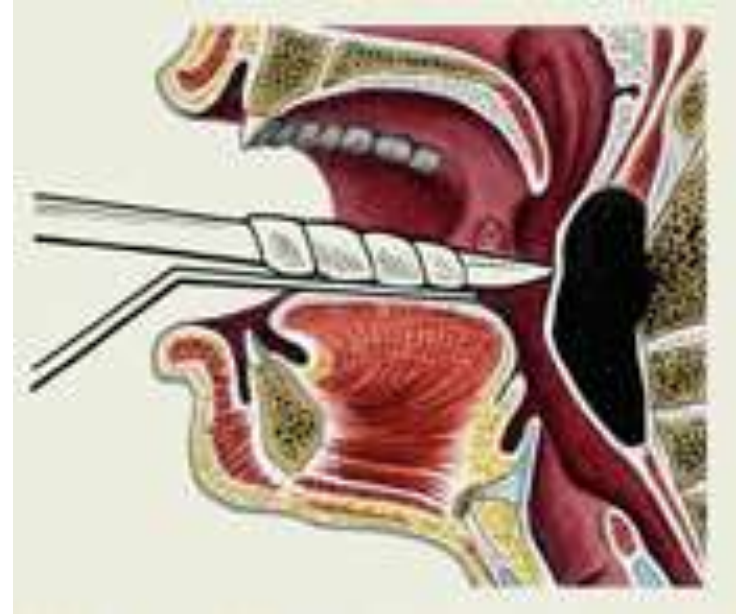


# MRI



# TREATMENT OF ACUTE RETROPHARYNGEAL ABSCESS

- Secure airway
- Antimicrobial
- Surgical drainage
  - Trans oral



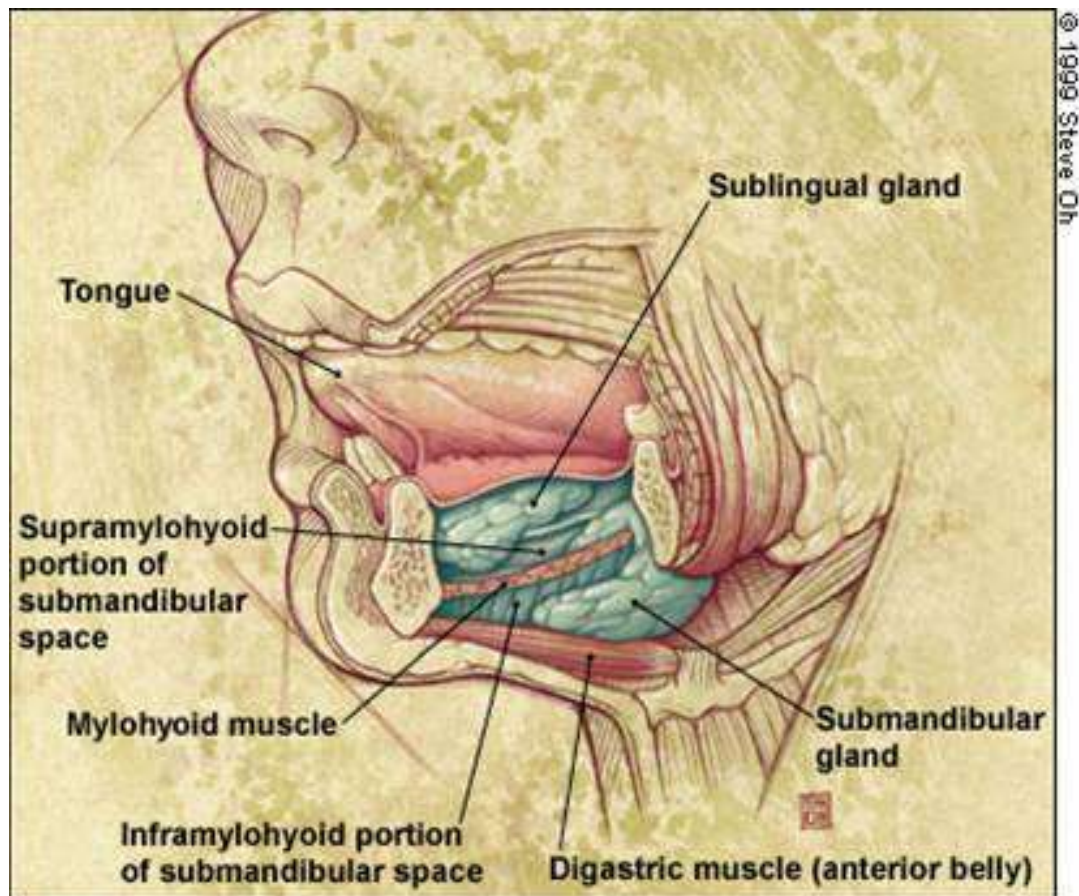
# CHRONIC RETROPHARYNGEAL ABSCESS

- Tuberculous (cold abscess)
- Usually due to T.B spines but may be secondary to T.B 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

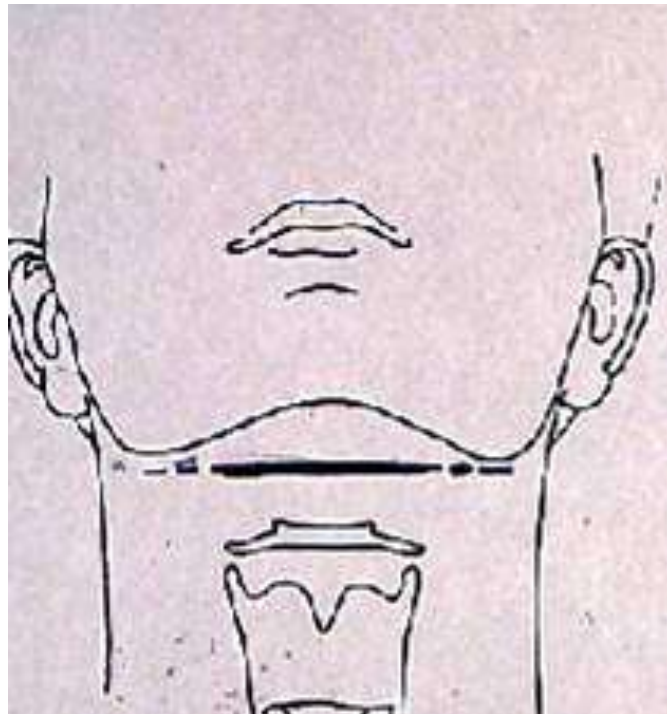


# Presentation of Ludwig's Angina



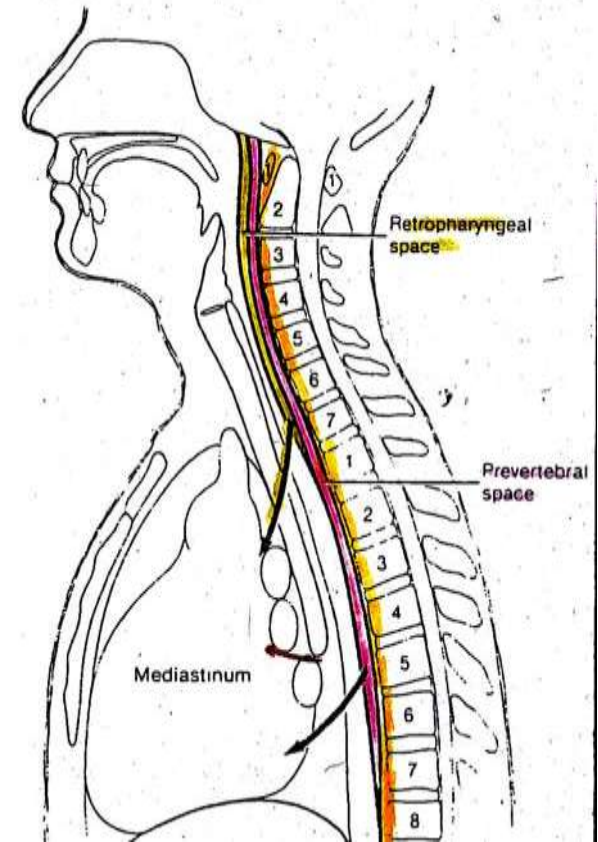
# TREATMENT

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

# 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

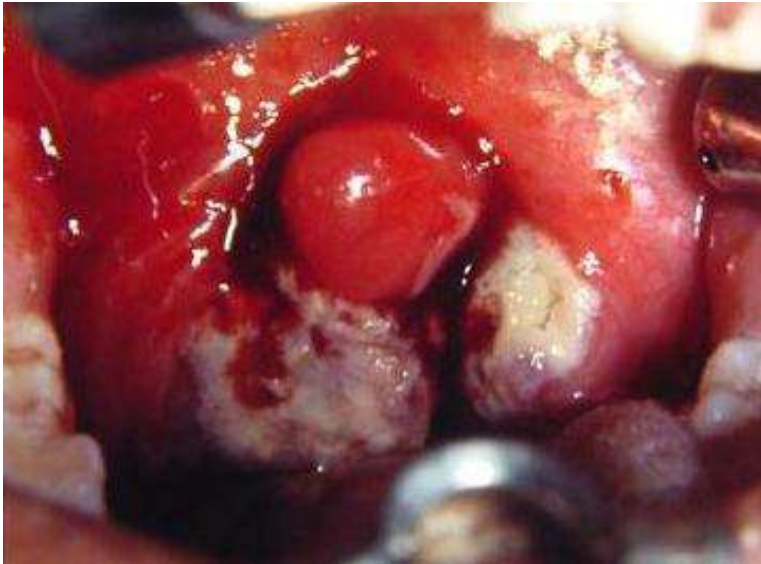
- Systemic infection caused by Epstein-Barr Virus (EBV)
- Selectively infects B-lymphocytes
- Clinical disease is usually seen in young adults



# 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



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- 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

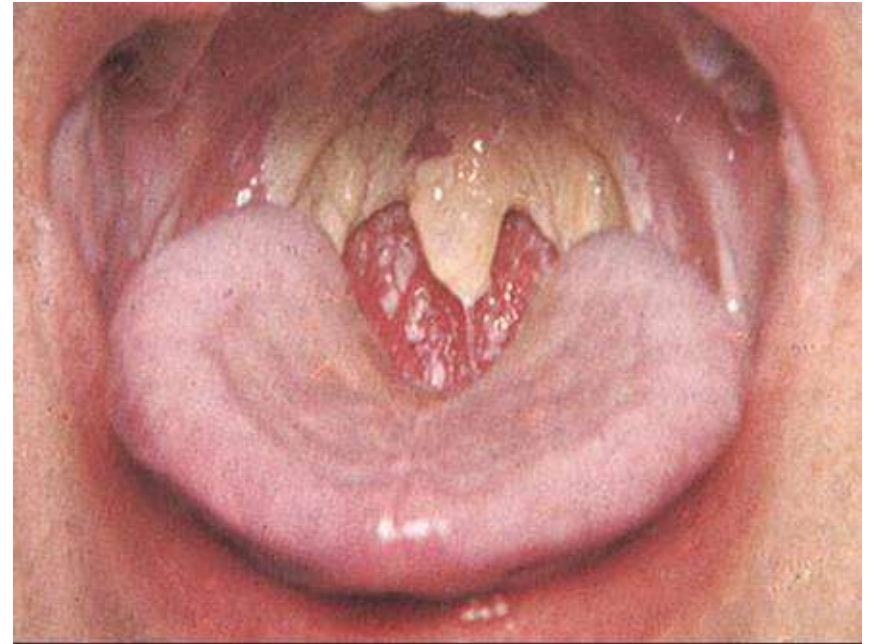
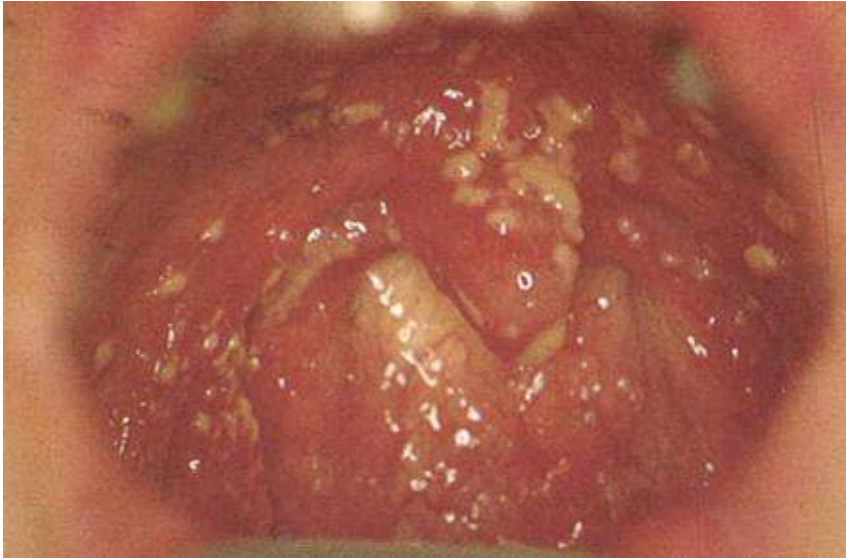
- Long term antibiotics (increase relative proportion)
- Immunosuppression (Leukopenia, Corticosteroid therapy)

# CANDIDIASIS (MONILIASIS, THRUSH)





# CANDIDIASIS (MONILIASIS, THRUSH)



# Treatment

- Nystatin
- Fluconazole

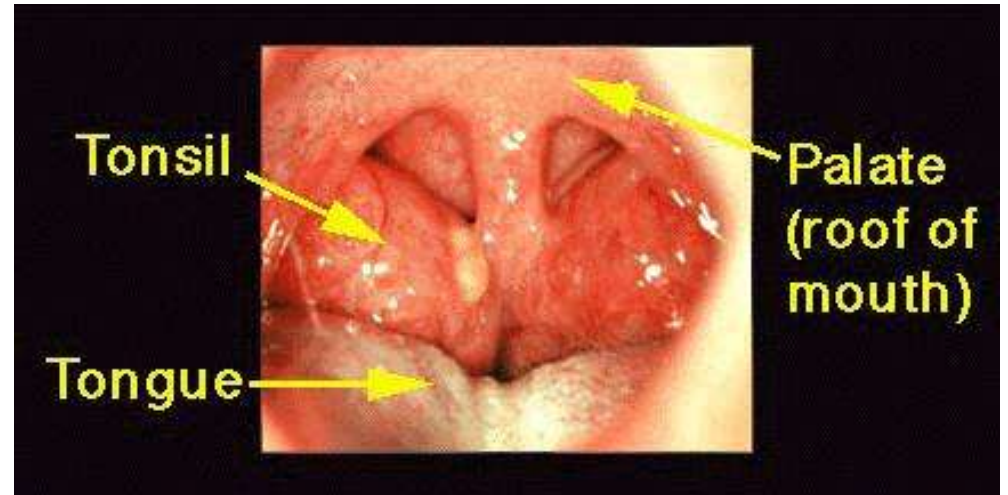
# CHRONIC TONSILLAR HYPERTOPHY

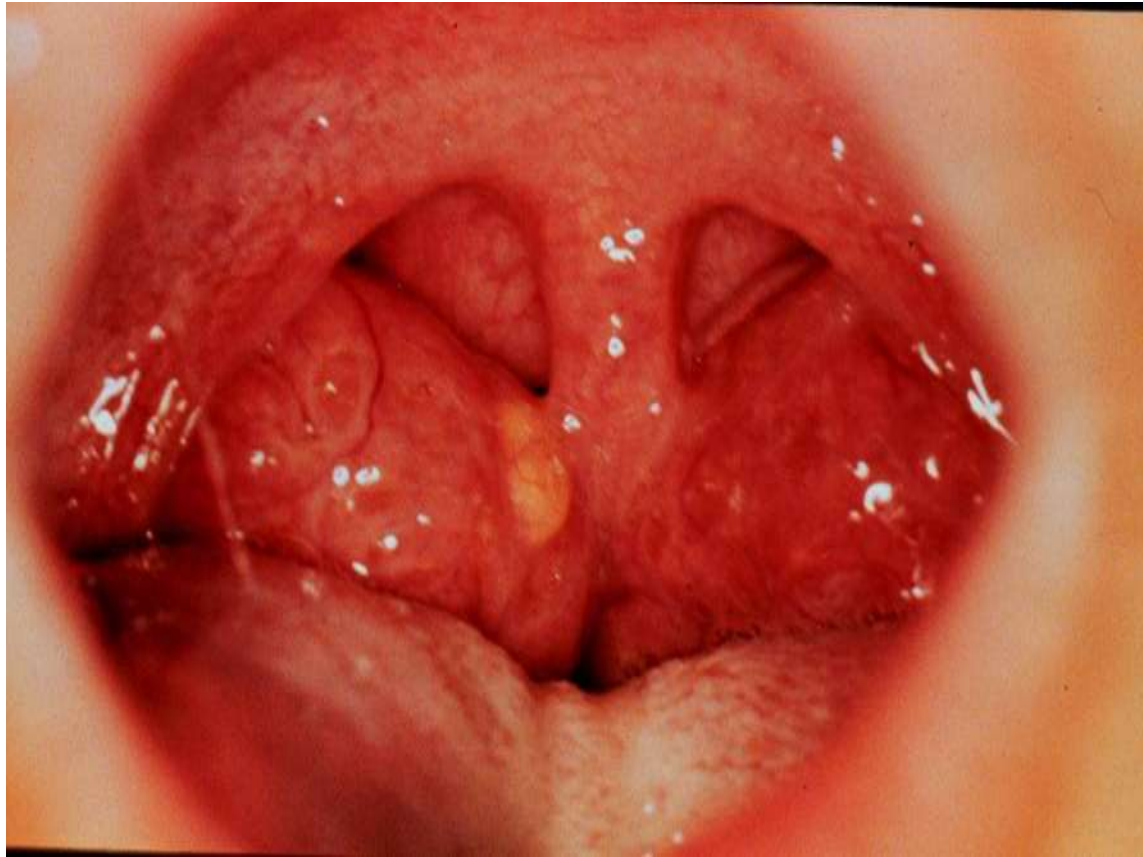
# CAUSES

- 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



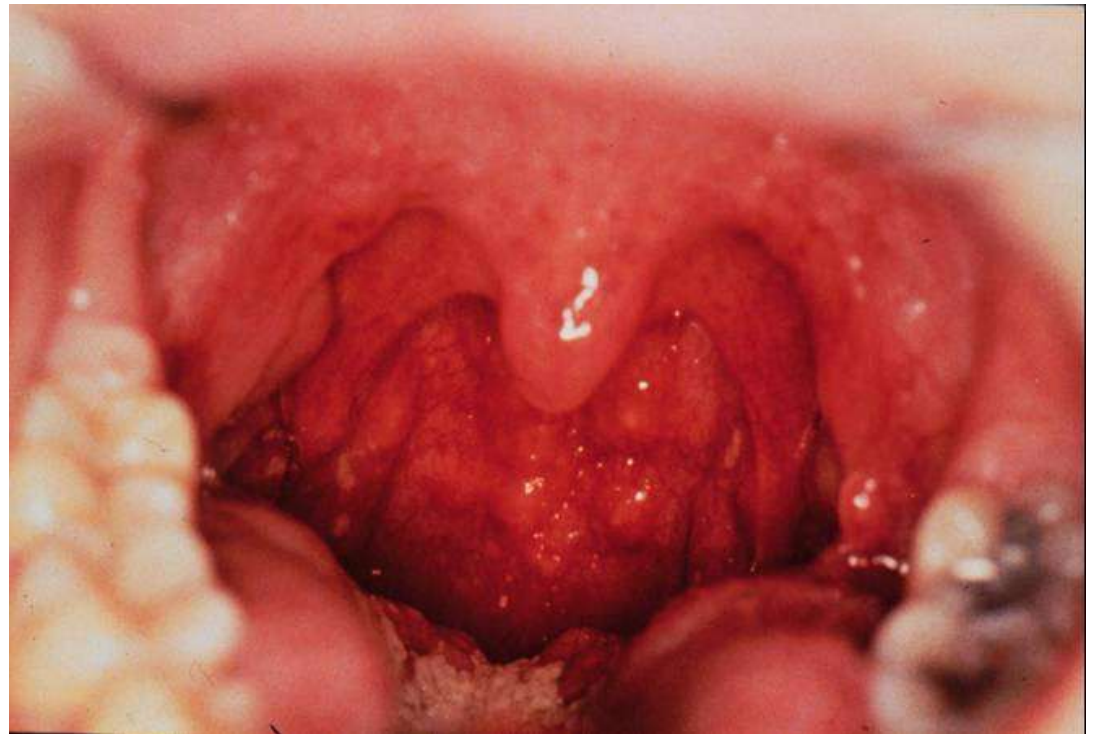
# CHRONIC INFECTIONS OF THE PHARYNX

# 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





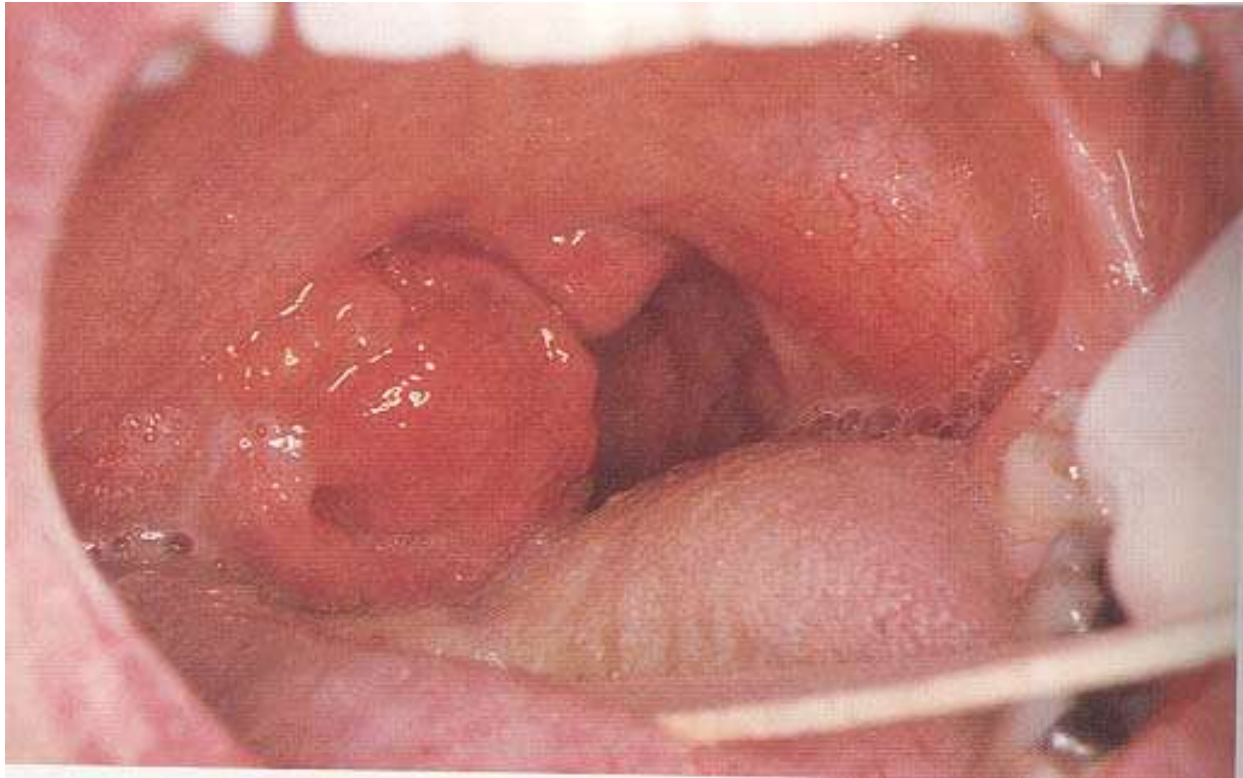
# TREATMENT

Tonsillectomy

# TONSILLECTOMY

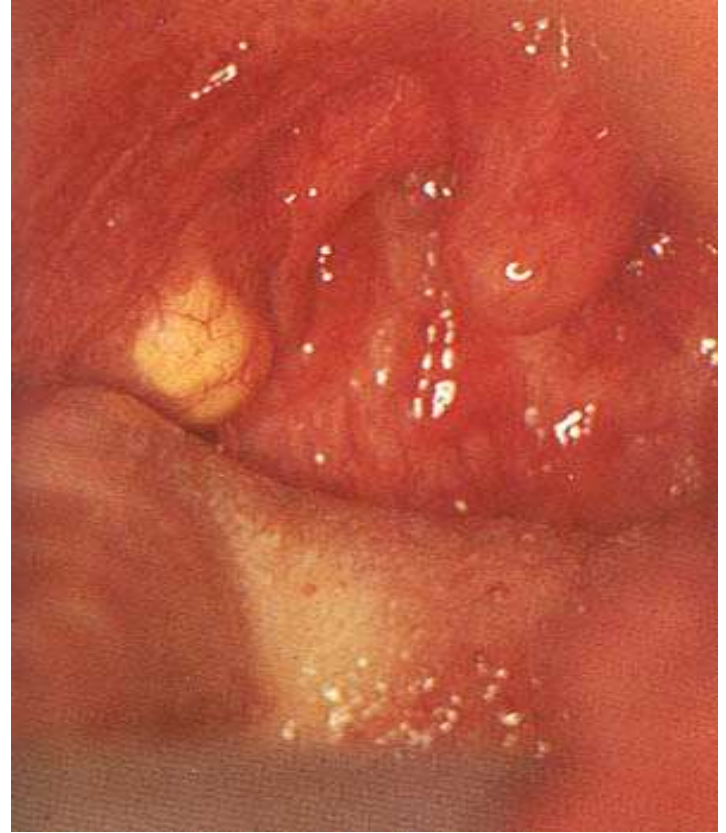
# INDICATIONS

- 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
- During epidemics of poliomyelitis

# 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

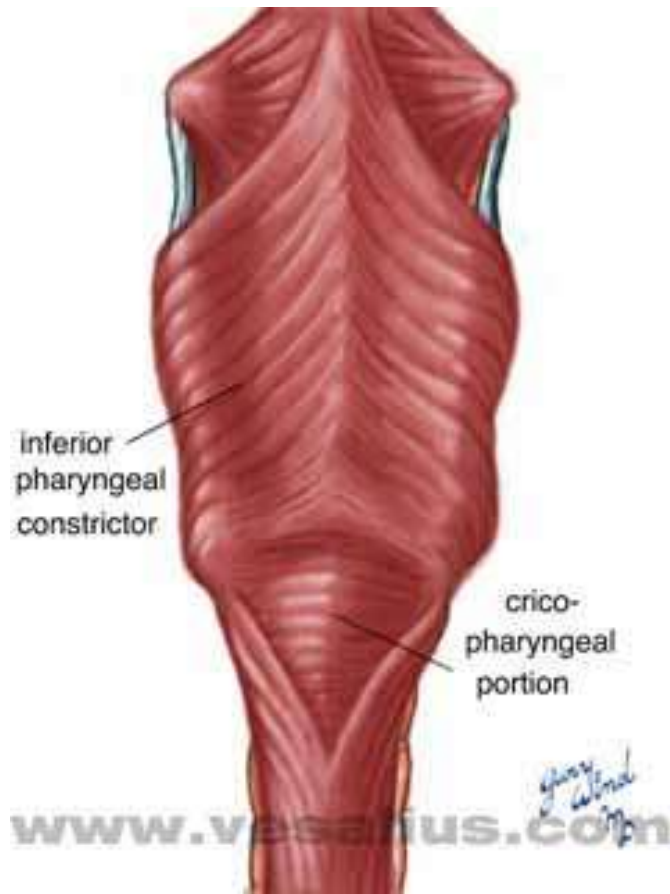
- Treatment
  - General supportive measures
  - Take patient back to OR
  - Control like reactionary hemorrhage

# 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

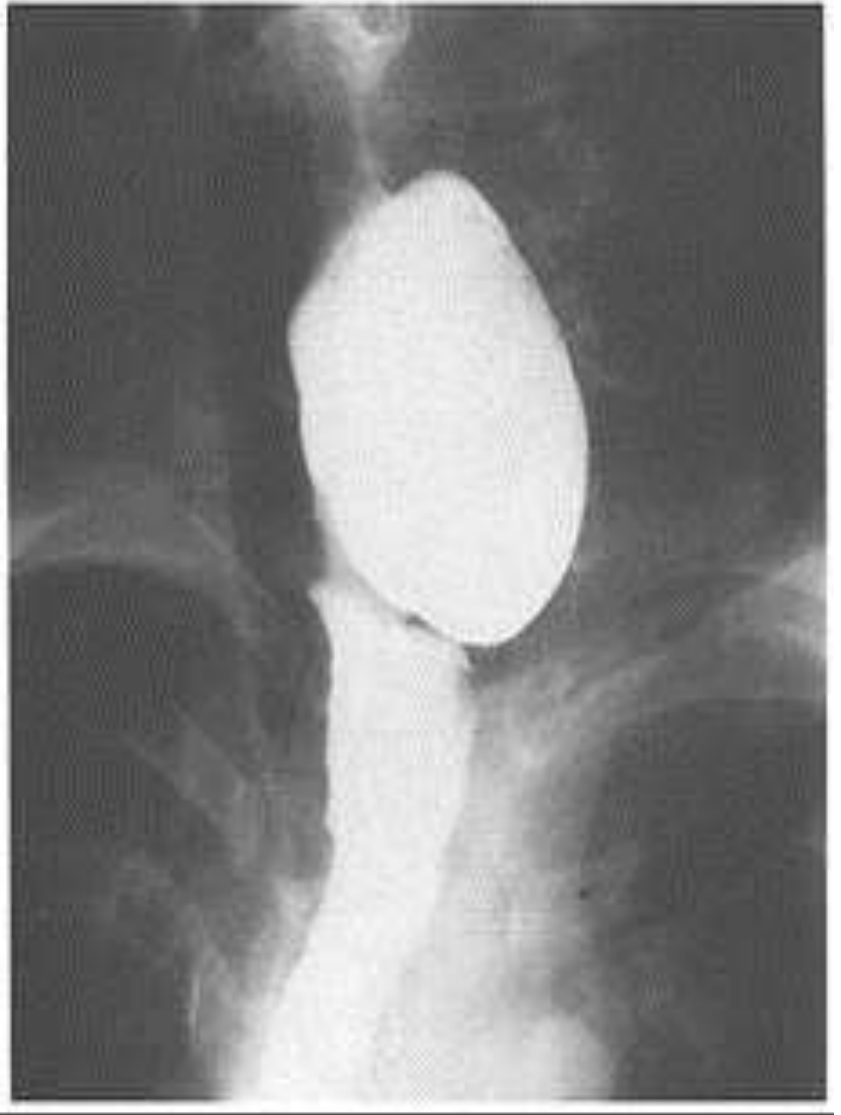
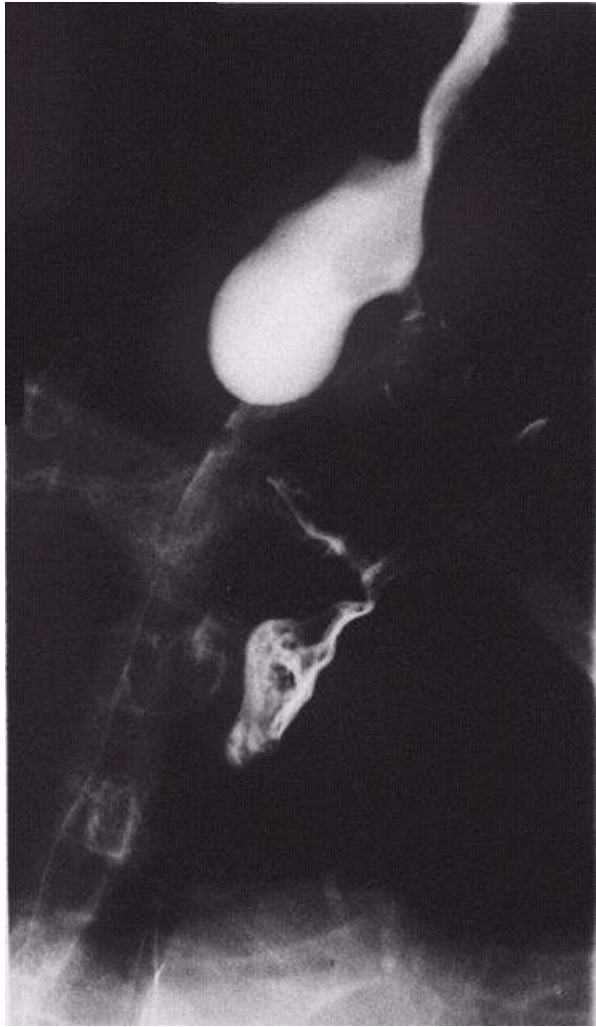
- Dysphagia
- Regurgitation
- Aspiration

# Diagnosis

- Clinical examination
- Plain X-rays
- Barium swallow

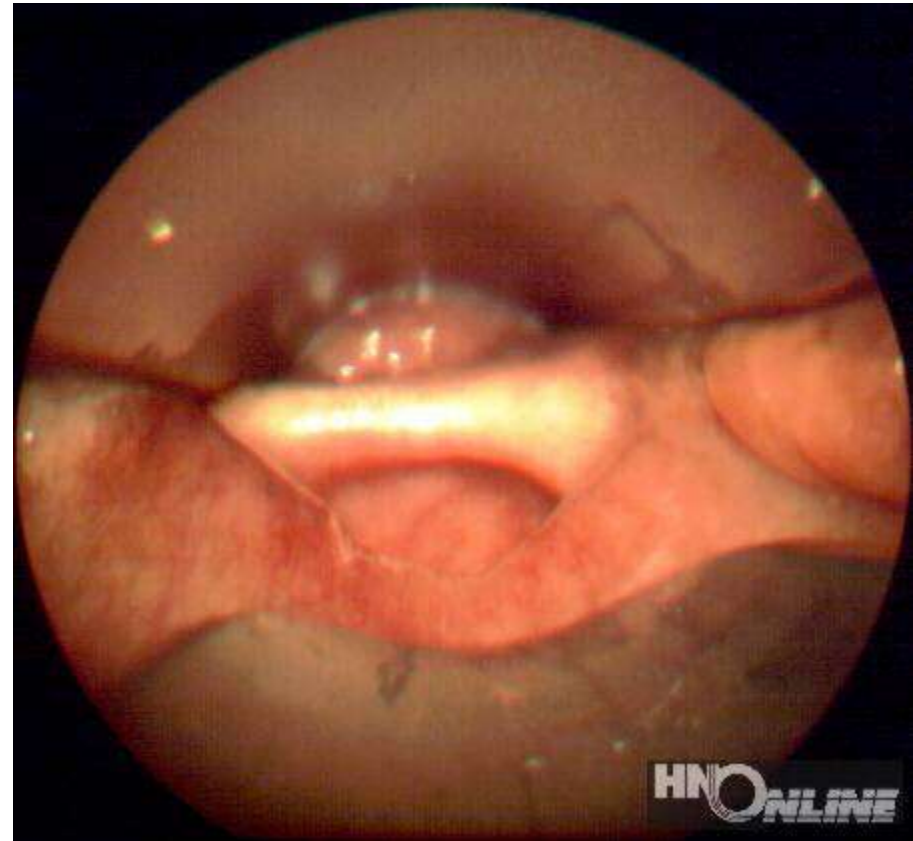






# Diagnosis

- Clinical examination
- Plain X-rays
- Barium swallow
- Endoscopy



# Treatment

- Excision
- Other surgical procedures:
  - Diverticulopexy
  - Inversion
  - Cricopharyngeus myotomy
  - Dohlman's diathermy procedure

THANK YOU