

Diseases of The Upper Respiratory Tract

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ILOs

- Define **rhinitis** and sinusitis and list its types.
- Describe pathology of **rhinoscleroma**.
- List the common tumors of nose & nasopharynx.
- Outline **nasopharyngeal carcinoma**
- Discuss **laryngitis**.
- List the common **tumors of the larynx**
- Outline **laryngeal papilloma & carcinoma**

Rhinitis

- **Definition:**
- Rhinitis is an *inflammation of the nasal mucosa* usually accompanied by sinusitis.
 - **Types:**
- **Acute Rhinitis:**
 - Acute catarrhal rhinitis.
 - Acute allergic rhinitis.
- **Chronic Rhinitis:**
 - Chronic non-specific rhinitis.
- Chronic specific rhinitis (example: Rhinoscleroma).

Acute catarrhal rhinitis

Mild acute inflammation of the **mucous membranes**. It is characterized by excess **mucous secretion** from the inflamed mucous membrane, e.g., of nose (catarrhal rhinitis or common cold).

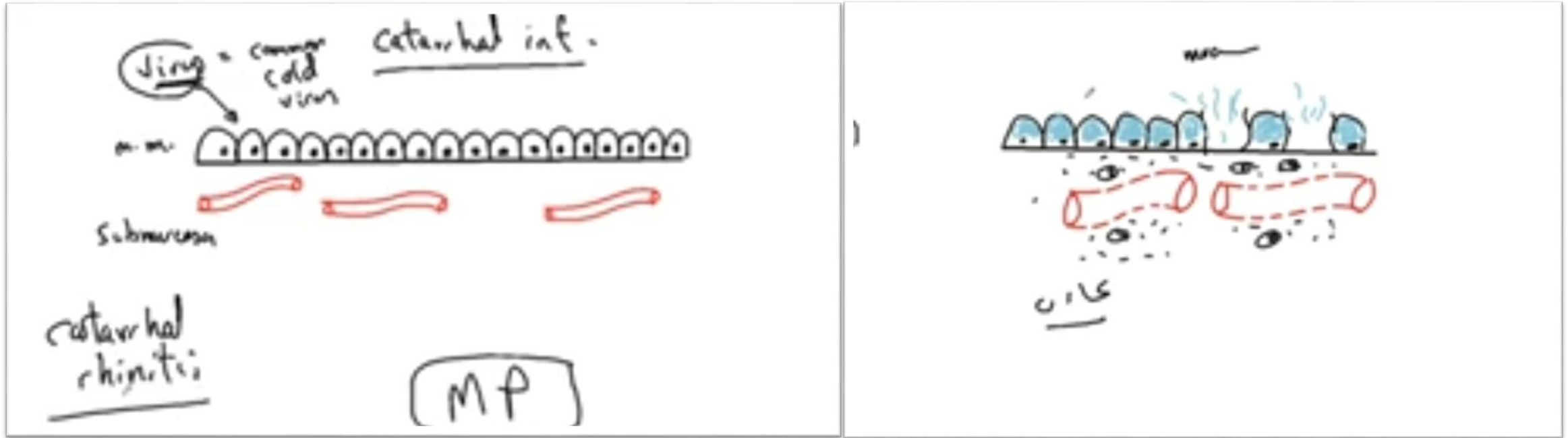
grossly: Early the mucous membrane appears red, hot and swollen.

- Then excess **watery mucoïd discharge** appears.

Microscopic picture:

Epithelial cells of the mucus membrane are **swollen** due to mucus accumulation (muroid change) and may rupture or desquamate.

The submucosa shows **dilated capillaries**, **inflammatory oedema** and mild **polymorphonuclear leucocytic infiltration**



Rhinoscleroma

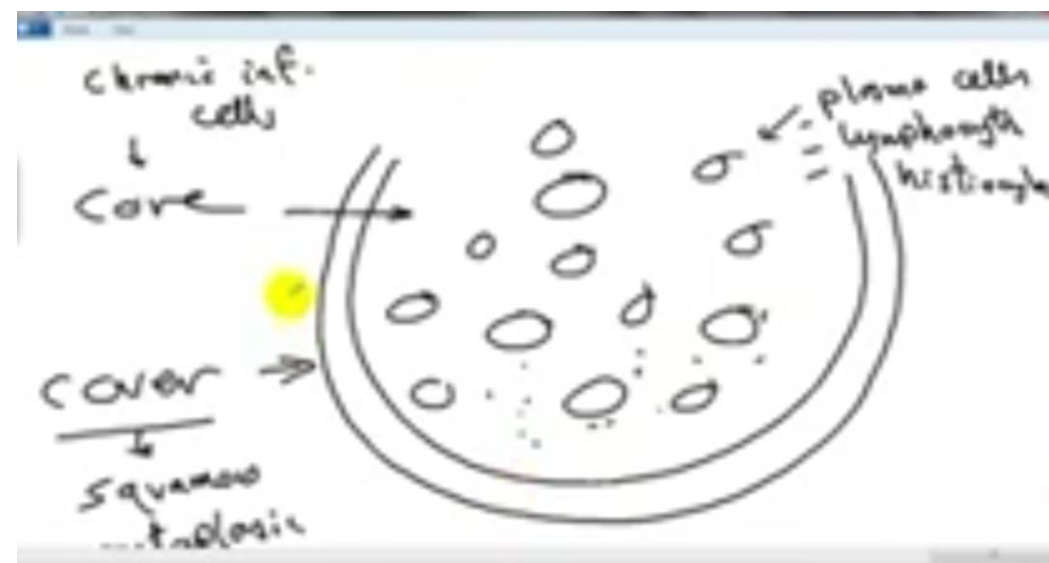
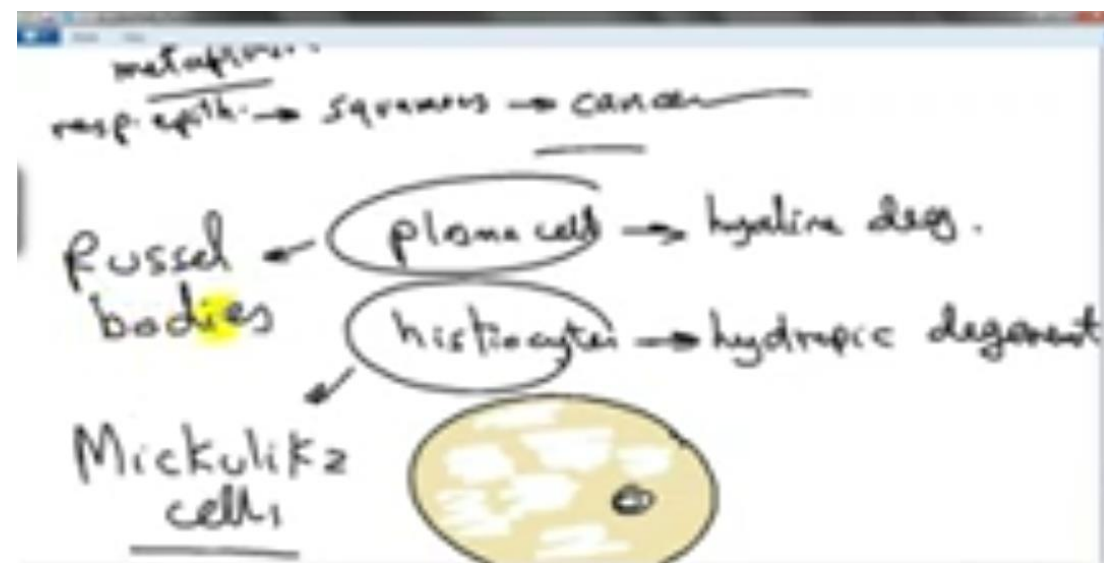
- **Definition &**
- This is a chronic specific (**granulomatous**) destructive inflammatory lesion of the nose and upper respiratory airways.
- **Etiology** It is caused by **Klebsiella Rhinoscleromatis**.
- Nose (Rhinoscleroma) is the most common site.
- The lesion may extend to the nasal sinuses, anteriorly to the upper lip or posteriorly to the pharynx (pharyngo-scleroma), larynx (laryngo- scleroma) and trachea.
- The disease is **endemic in Egypt**.

- **Grossly:**

- Multiple small hard nodular masses or single large nodular mass.
- The lesion is confined to soft tissue and does not involve the cartilage or bone.

- **Microscopically:**

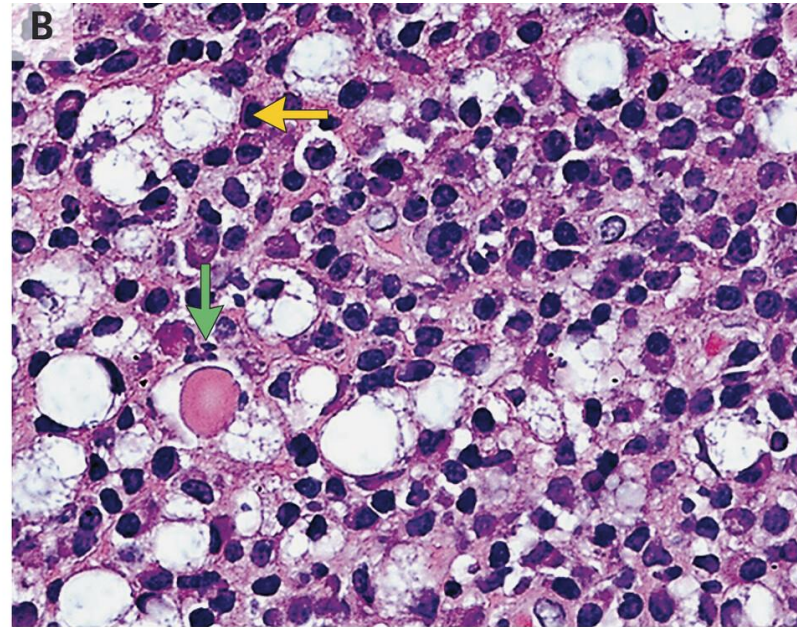
- The covering nasal mucosa (pseudostratified ciliated columnar epithelium) may show squamous metaplasia.
- The submucosa shows: may show
 - Cellular stage: Mickulicz cells*, Russel bodies*, plasma cells, lymphocytes and progressive fibrosis.
 - Fibrotic stage: Dense fibrosis with less cellular chronic inflammatory cellular infiltrate (lymphocytes, plasma cells and macrophages).



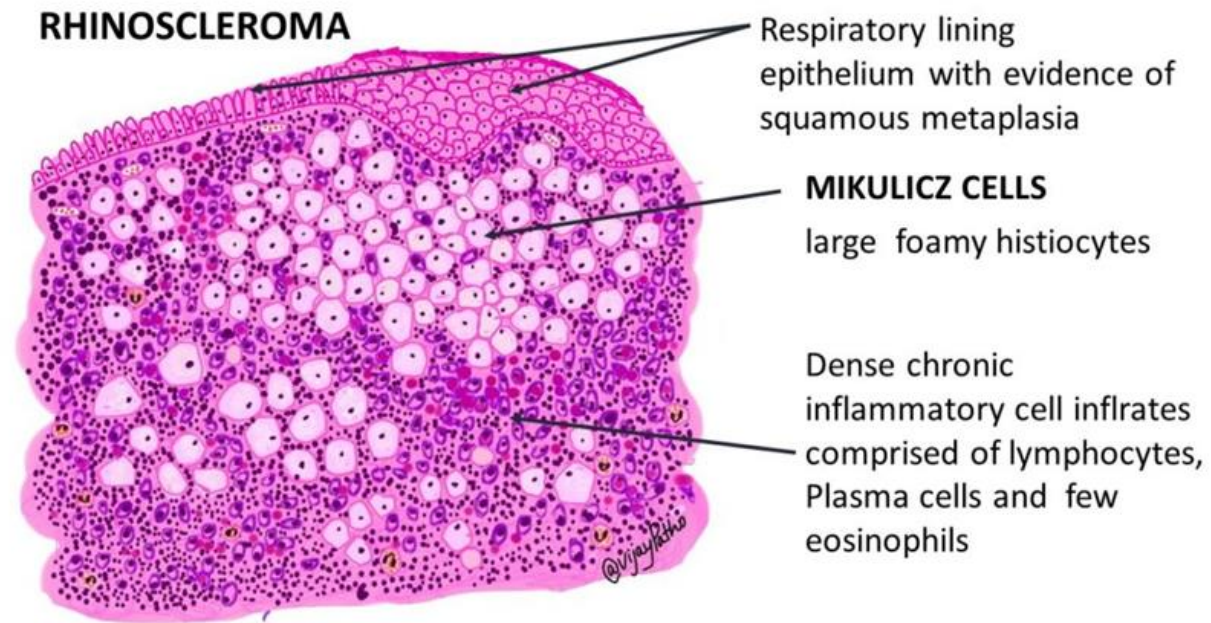
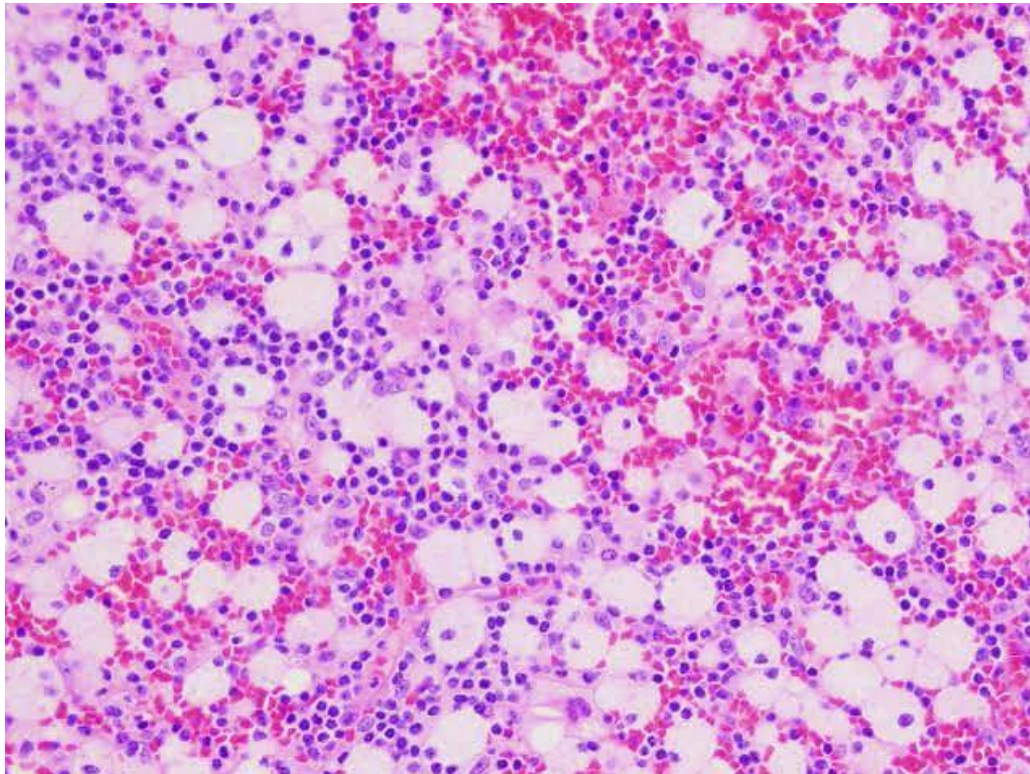
The Characteristic Cells in Rhinoscleroma

- **Mickulicz cells**: Predominant cells. They are macrophages with hydropic degeneration.
- The cells are large, sharply outlined with foamy cytoplasm and small pyknotic central or eccentric nuclei
- **Russell bodies**: They are plasma cells with hyaline degeneration.
- They appear round or oval with bright red cytoplasm. Some cells show a pyknotic eccentric nucleus.

Rhinoscleroma



Rhinoscleroma



Complications:

- 1. Nasal obstruction.
- 2. Deformity.
- 3. Ulceration.
- 4. Bleeding.
- 5. Secondary bacterial infection.

Sinusitis

Definition:

It is inflammation of the mucosal lining of the sinuses

Types:

I. Acute Sinusitis: occurs with catarrhal and allergic rhinitis.

II. Chronic Sinusitis: occurs as:

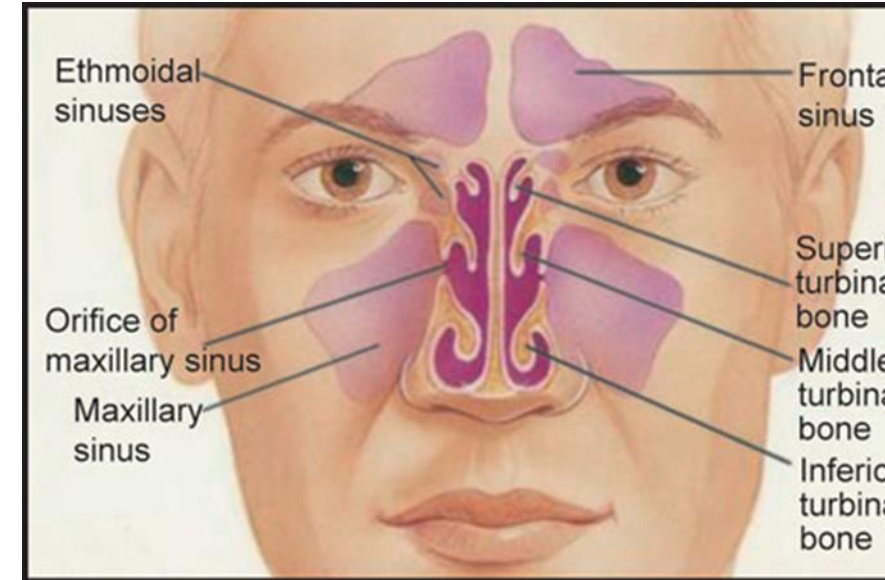
- a. Complication of repeated attacks of acute sinusitis.
- b. Infection of the maxillary sinus from the root of bad tooth.

Pathological features:

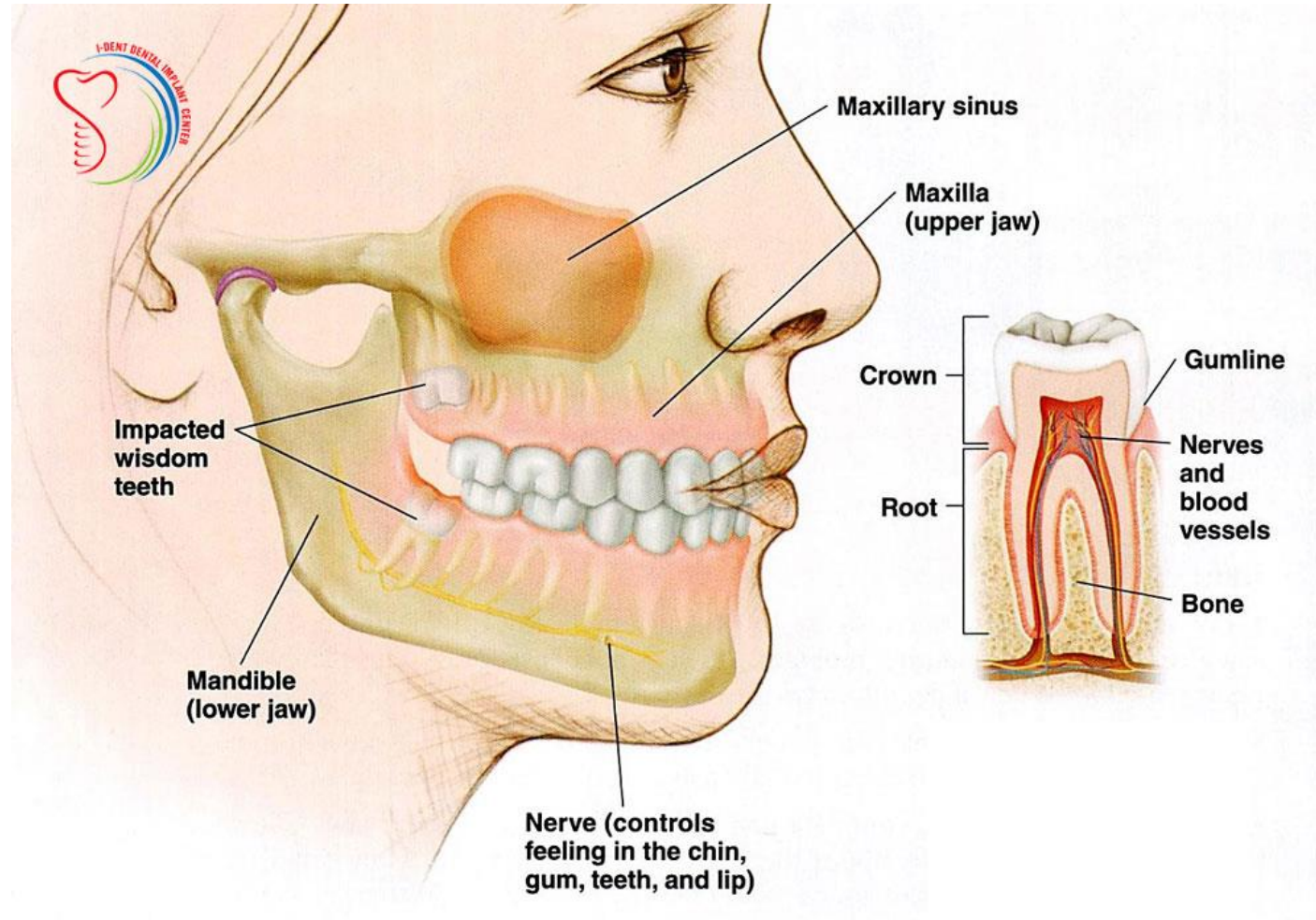
Chronic non-specific sinusitis.

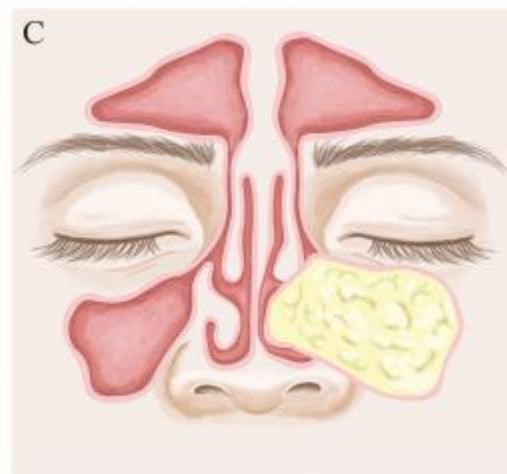
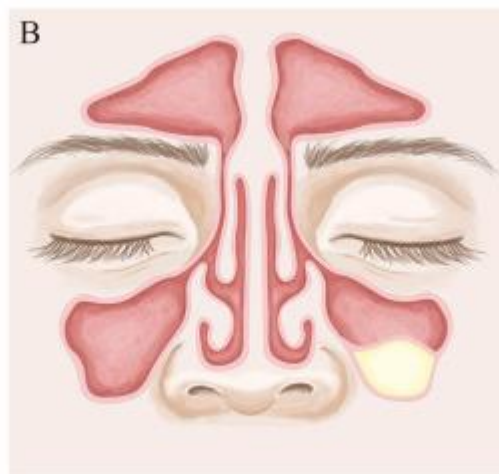
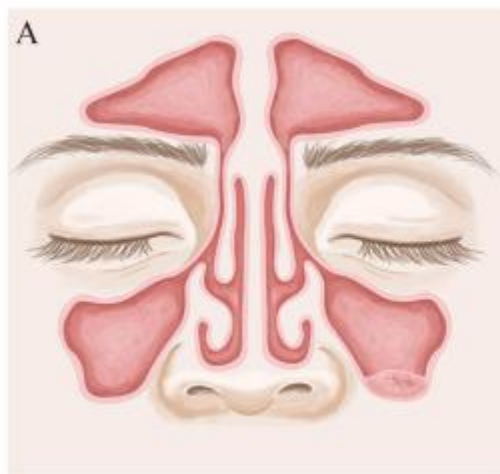
Nasal sinus polyps.

Mucocele and empyema of the maxillary sinus: **Mucocele** is filling up of the sinus with mucus while, **Empyema** of the sinus occurs due to collection of pus.



Infection of the maxillary sinus from the root of bad tooth.





Tumors of the Nose and Nasopharynx

I. Benign Tumors:

a. Epithelial:

- Squamous cell papilloma, transitional cell papilloma, inverted papilloma and pleomorphic salivary adenoma.

a. Mesenchymal:

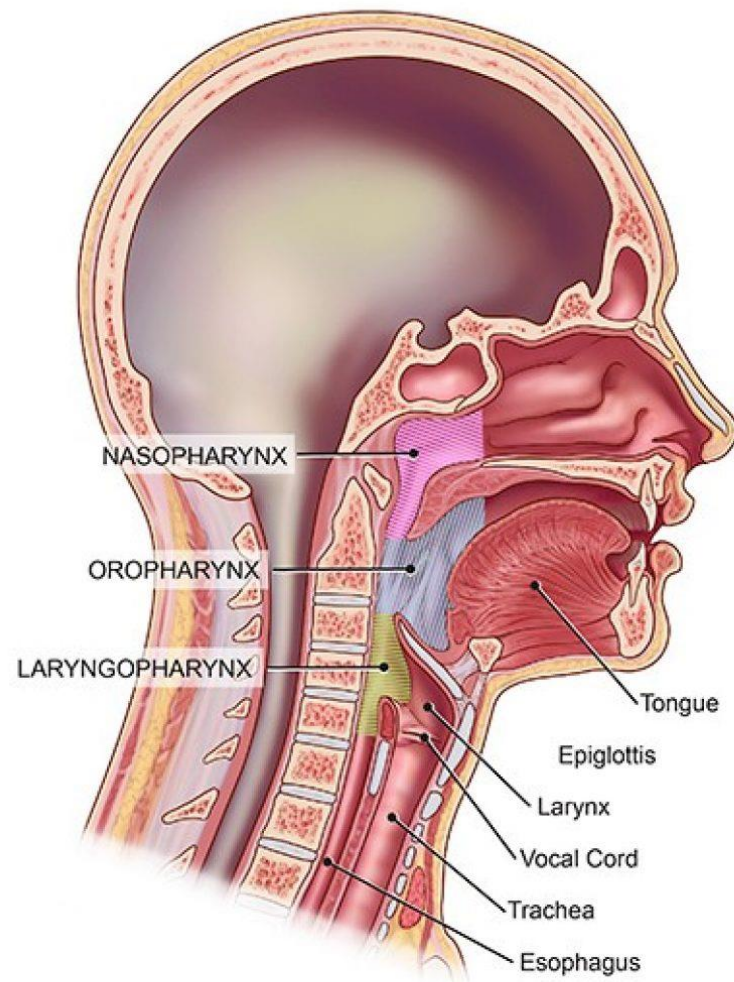
- Angioma and osteoma are the commonest, but fibroma, chondroma, myxoma, lipoma, neurofibroma and Osteoclastoma may occur.

II. malignant Tumors:

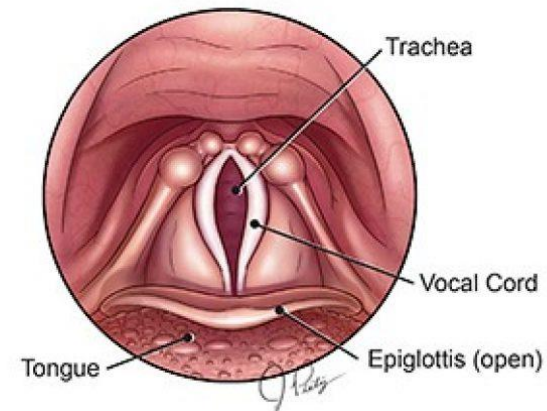
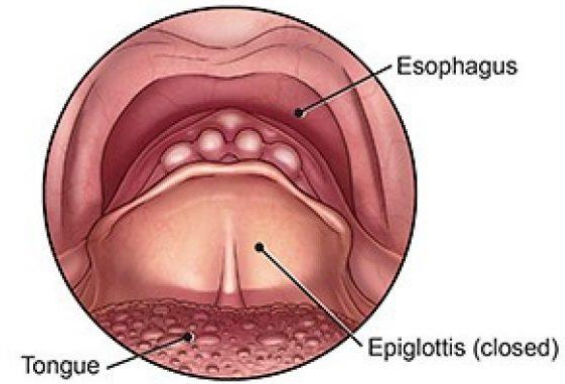
- **Epithelial:** Transitional cell carcinoma, squamous cell carcinoma, lymphoepithelioma and salivary gland carcinoma.
- **Mesenchymal:** Angiosarcoma, osteosarcoma, fibrosarcoma and chondrosarcoma.
- **Others:** Melanoma and lymphomas.

Nasopharyngeal Carcinomas

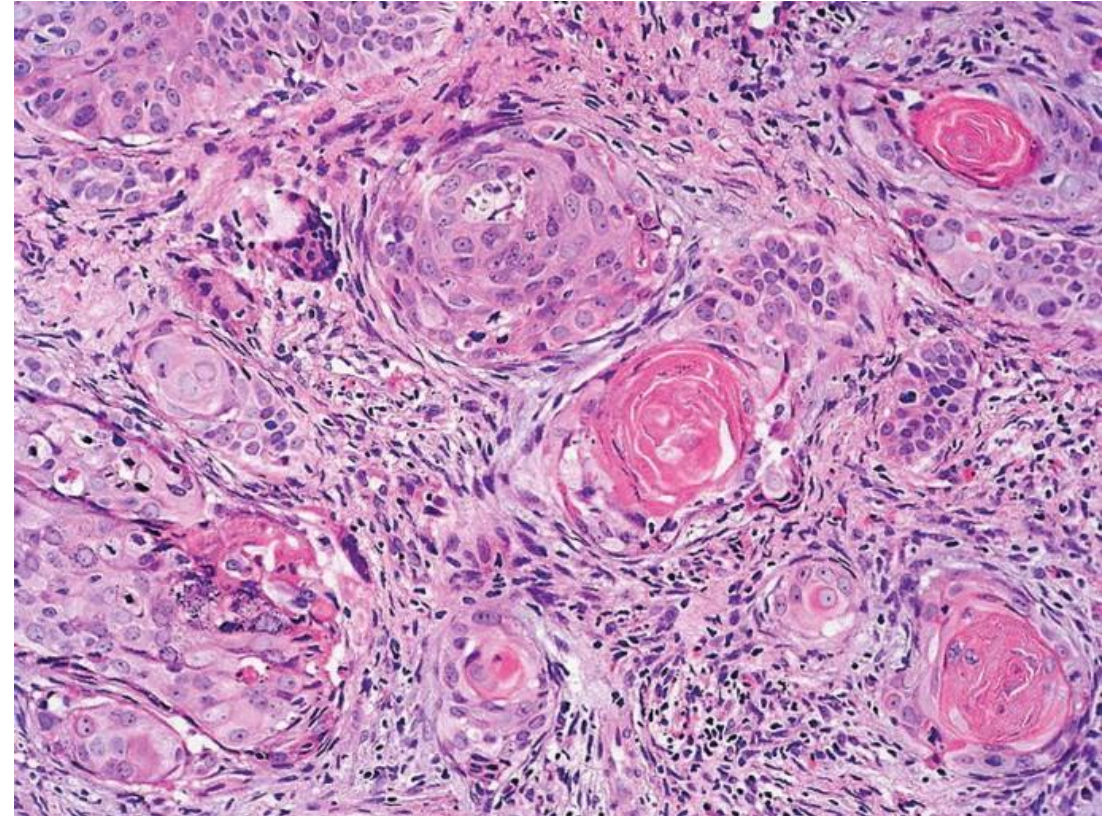
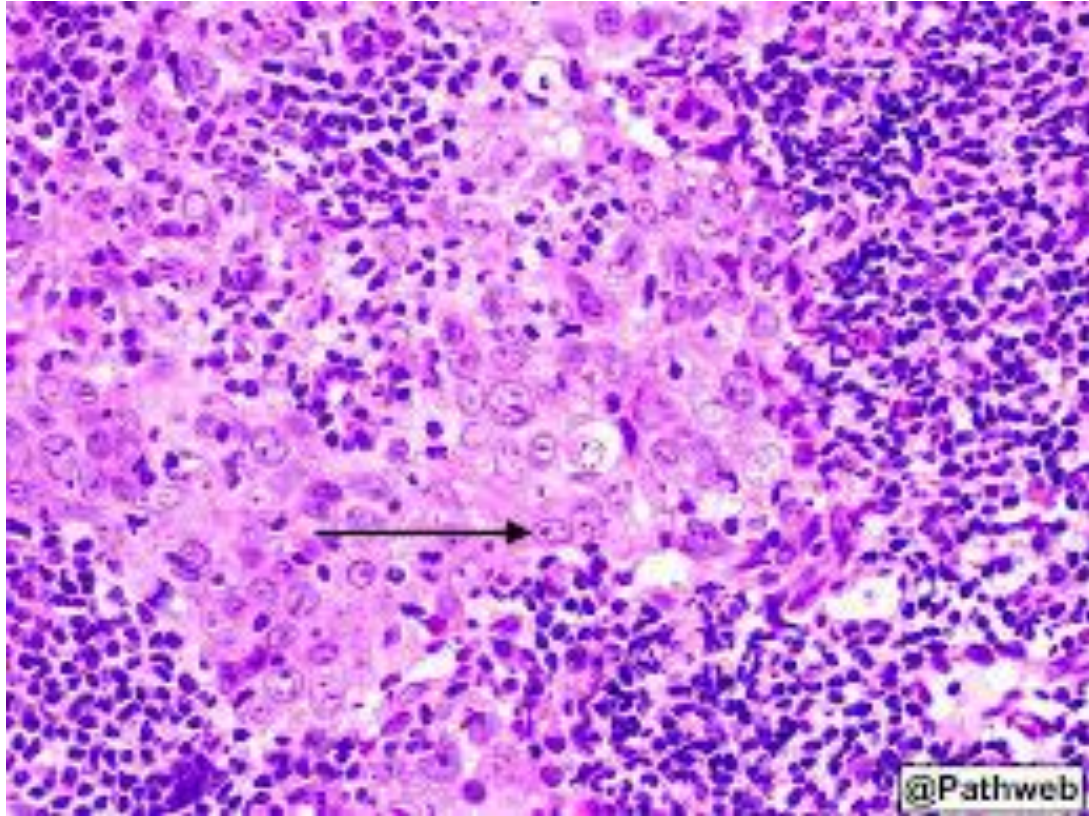
- • Common in 2 age groups: young individuals 15 - 25 years and old individuals at 60 -70 years.
- • **etiology**: unknown but there is **predisposing factor**
- **Smoking** and **radiation**
- **Genetic** susceptibility and **role of Epstein-Barr virus** are considered important factors in its **etiology**.
- **Normal Lining mucosa** :stratified squamous epithelium
- **Microscopically**: Nasopharyngeal carcinoma has 3 histological variants:
 - o Non-keratinizing squamous cell carcinoma
 - o Keratinizing squamous cell carcinoma
 - o Lymphoepithelioma, undifferentiated carcinoma



ANATOMY OF THE THROAT



Non keratinizing and keratinizing squamous cell carcinoma identical in morphology to typical tumors in other locations



Laryngitis

- **Acute Laryngitis**
- **Definition:** It is an acute inflammation of laryngeal mucosa.
- **Etiology:**
 - a. **Local spread** of infection from rhinitis, nasopharyngitis and bronchitis.
 - b. **Viral infection:** Measles, whooping cough and scarlet fever.
 - c. **Chemical** fumes and irritant gases as chlorine.
 - d. **Excessive** faulty use of the vocal cords.
- **Pathology:** Catarrhal inflammation.

- **Chronic Laryngitis**

- **A. Chronic Non-Specific Laryngitis:**

- **Etiology:** Repeated attacks of acute inflammation,
 - excessive use of voice,
 - excessive smoking,
 - chronic alcoholism.
- **Pathology:** The vocal cords are diffusely thickened and may show polypoid masses known as **laryngeal polyps** or **singer's nodes**.

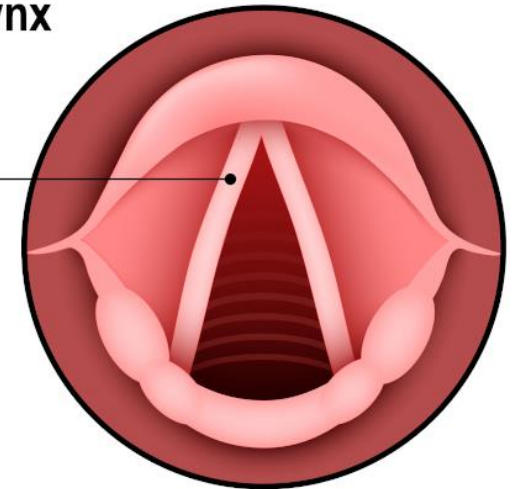


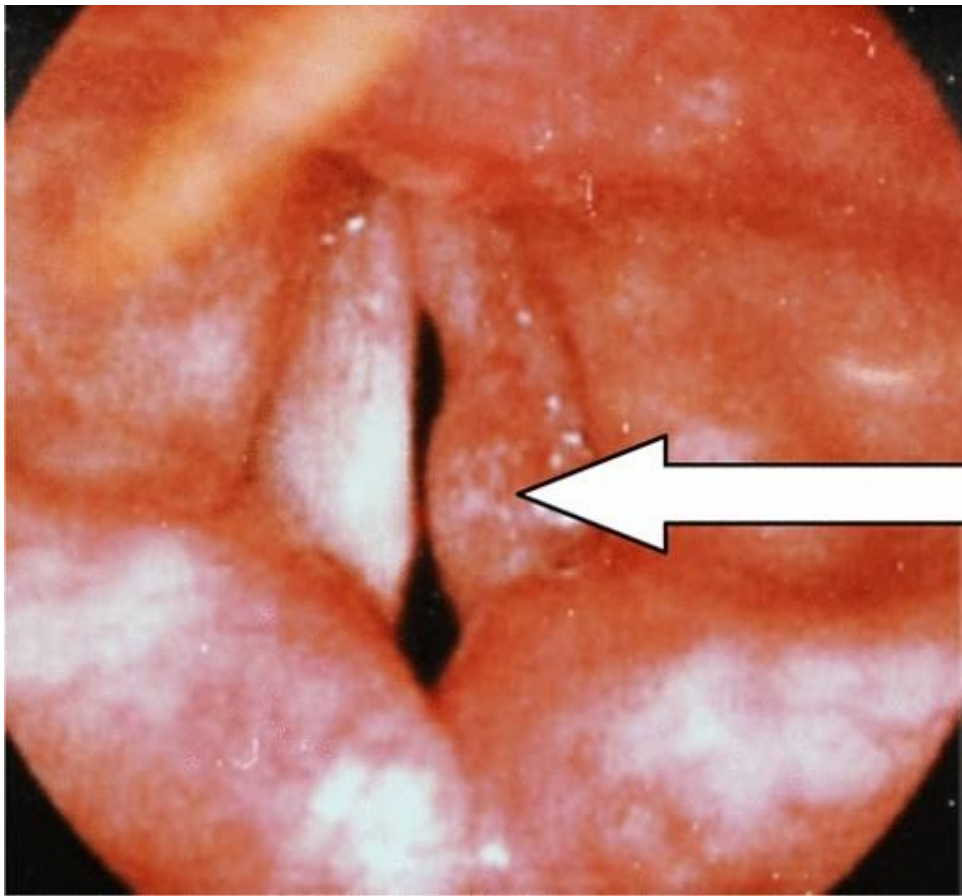
- **B. Chronic Specific Laryngitis:**

- 1. **Tuberculous laryngitis** secondary to pulmonary tuberculosis.
- 2. **Syphilitic laryngitis**.
- 3. **Laryngeoscleroma**.

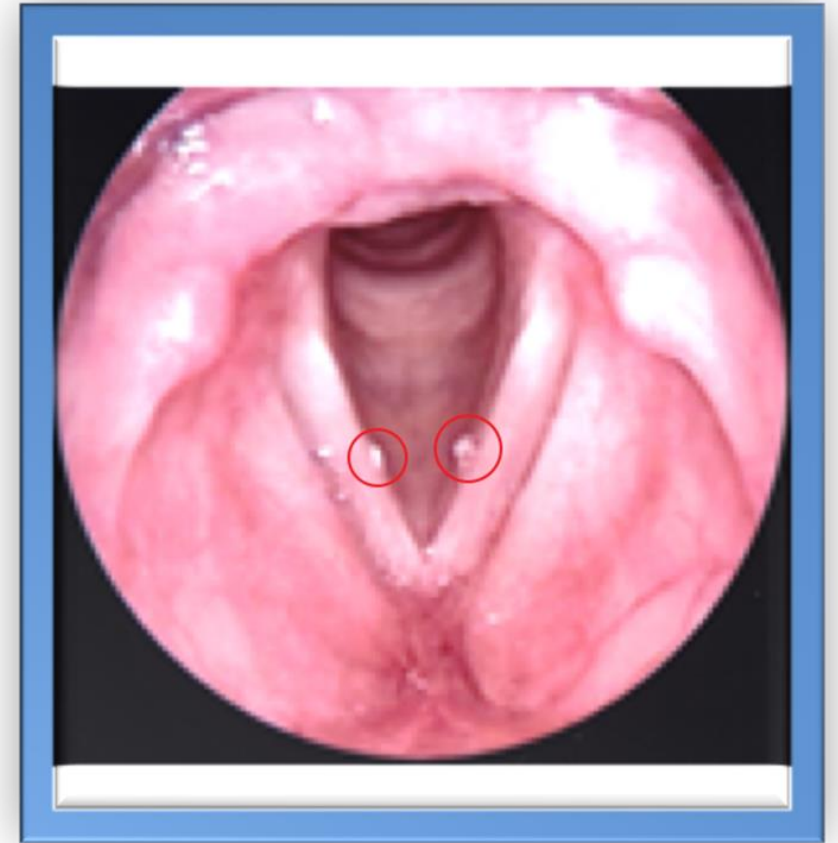
Normal larynx

Vocal cords





Tuberculous laryngitis



laryngeal polyps or singer's node



Syphilitic laryngitis

Tumors of the Larynx

Benign

- **Epithelial:** Squamous cell papilloma
- **Mesenchymal:** Fibroma, Haemangioma, Chondroma, Leiomyoma, Lipoma

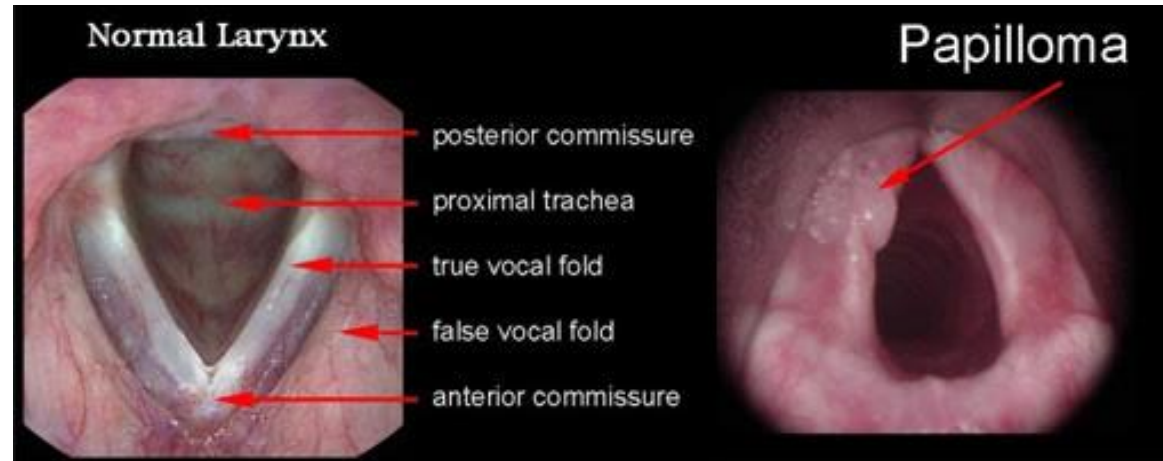
Malignant

- **Epithelial:** Squamous cell carcinoma, Adenoid cystic carcinoma, Mucoepidermoid carcinoma
- **Mesenchymal:** Angiosarcoma, Liposarcoma, Chondrosarcoma, Leiomyosarcoma

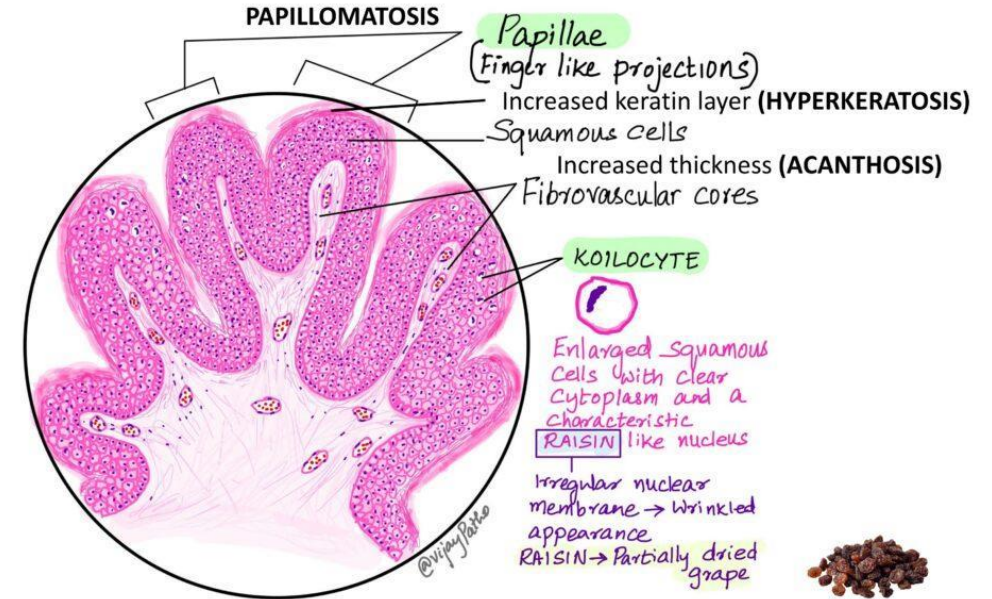
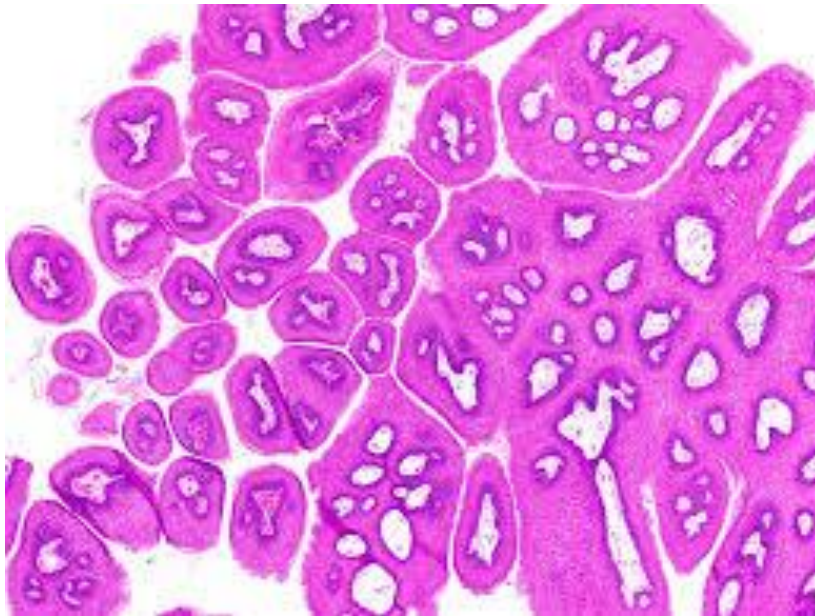
Squamous Cell Papilloma

- May be induced by **human papilloma virus type 6 & 11**.
- **In children:** Multiple papillomas. They affect **any part of the larynx**, have a tendency to recur after surgical removal, **but do not turn malignant**.
- **In adults:** The tumor appears as a single small **sessile papilloma** on the vocal cords which appear finely mamillated. The tumor lacks the tendency to recurrence but **sometimes it becomes malignant**. Multiple papillomas are rare.
- Both produce **hoarseness of voice** & may become ulcerated due to trauma leading to **haemoptysis**.
- **Grossly:** Non capsulated, small sessile or pedunculated mass.
- **Microscopically:** Connective tissue core covered by thick proliferated stratified squamous epithelium exhibiting **acanthosis** and **hyperkeratosis**.

Grossly: Non capsulated, small sessile or pedunculated mass



Microscopically: Connective tissue core covered by thick proliferated stratified squamous epithelium exhibiting **acanthosis** and **hyperkeratosis**.

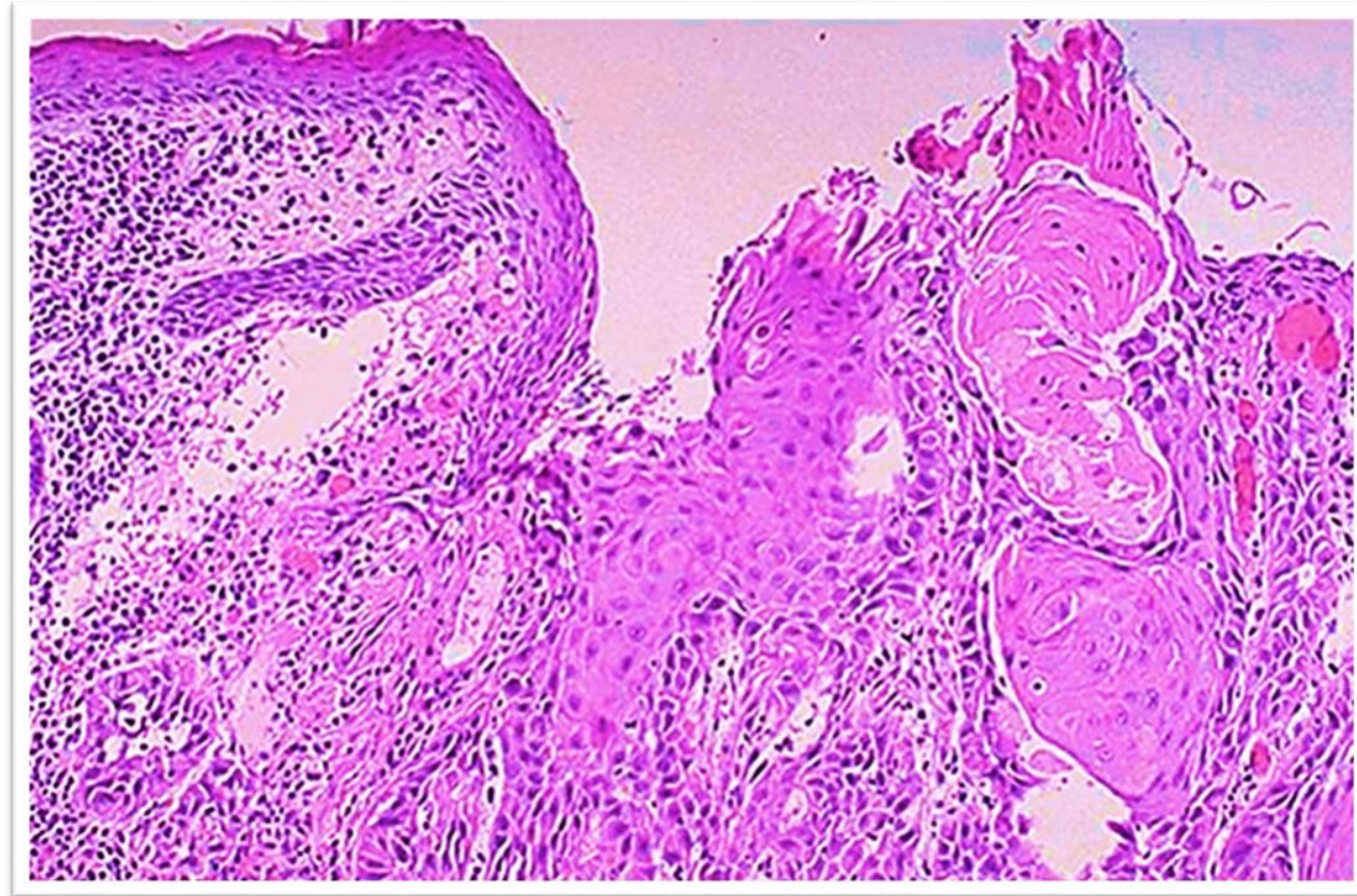


Laryngeal Carcinoma (Squamous Cell Carcinoma)

- **Squamous Cell Carcinoma** is the **most common neoplasm of the larynx**.
- Mainly affects males in the **fifth decade of life or beyond**.
- **Precancerous factors for laryngeal carcinoma are:**
 - **Smoking**
 - **Alcohol**
 - **GERD** (Gastro-esophageal Reflux Disease)
 - **Asbestos exposure**
 - **Irradiation**
- **Grossly:** The tumor appears as a pink to gray mass 1- 4 cm in diameter often ulcerated.

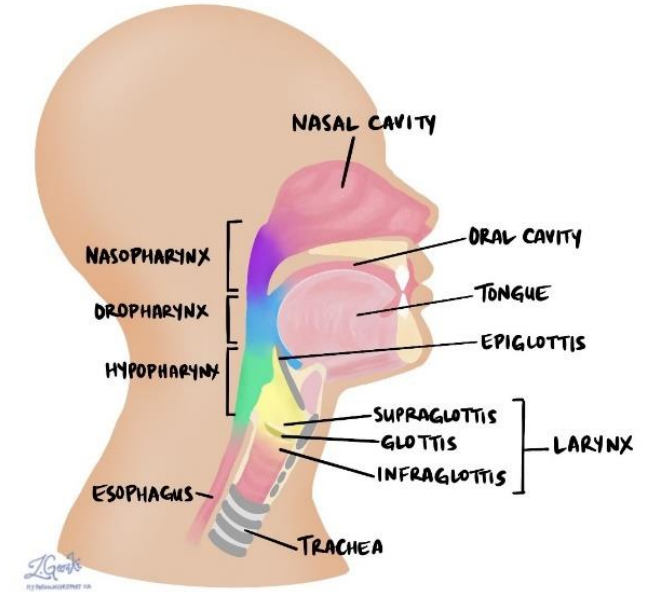


Microscopically: Squamous cell carcinoma graded into well, moderately and poorly differentiated types.



Site of Carcinoma:

- **Glottic carcinoma (Intrinsic): 60-65%**
- **Supraglottic carcinoma (Extrinsic): 30-35%**
- Subglottic carcinoma (rare): 1-2%
- **Spread:**
 - **Local spread:** to adjacent structures e.g. trachea, carotid arteries, laryngeal nerves, etc.
 - **Lymphatic spread:** to cervical lymph nodes (may be present at time of diagnosis).
 - **Blood Spread:** very late and rare.



- Enumerate complication of Rhinoscleroma
- Define Rhinoscleroma
- Enumerate microscopic picture of **Squamous Cell Papilloma larynx**
- Enumerate types of **Chronic Specific Laryngitis?**
- Enumerate causes of **Chronic Non-Specific Laryngitis?**