Diseases of the Upper Respiratory Tract

Intended Learning Objectives (ILOs)

- Define rhinitis and sinusitis and list their types.
- Describe the pathology of rhinoscleroma.
- Enumerate causes of epistaxis.
- List the common tumor of the nose and nasopharynx.
- Discuss laryngitis.
- List the common tumors of the larynx.

Inflammatory conditions of the Upper Respiratory Tract

A- Acute rhinitis

1. Common cold:

- This is the most common of all illnesses
- caused by viruses
- It is manifest by coryza ("runny nose"), sneezing, nasal congestion, and mild sore throat.

2. Allergic rhinitis:

- This is mediated by an IgE **type I immune reaction** involving mucosal/submucosal mast cells.
- It is characterized by increased **eosinophils** in peripheral blood and nasal discharge.

3. Bacterial infection:

This infection may be superimposed on acute viral or allergic rhinitis. by injury to mucosal cilia, which may also occur from other environmental factors.

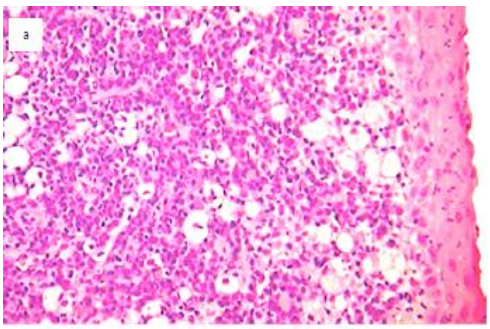
a. Most commonly, the cause is streptococci, staphylococci, or *Haemophilus influenzae.*

b. Fibrous scarring, decreased vascularity, and atrophy of the epithelium and mucous glands may result.

B- Rhinoscleroma:

- Granulomatous inflammation of upper respiratory tract; primarily affects the nose, but the nasopharynx, larynx and trachea can also be affected.
- Caused by *klebsiella rhinoscleromatis*.

- Commonly affects the nose; hence called rhinoscleroma.
- Endemic in Egypt.
- **Microscopically**: chronic inflammatory cell infiltrate.
- **Mikulicz cells** (macrophage with hydropic degeneration, contain the causative organism) and **Russell bodies** (plasma cells with hyaline degeneration) characterize the infiltrate.



- Nasal obstruction, ulceration and deformity are common complications.

C. Sinusitis:

- Often caused by extension of nasal cavity or dental infection.
- It results in obstructed drainage outlets from the sinuses, leading to an accumulation of mucoid secretions or exudate.

D. Laryngitis:

Acute inflammation of the larynx
- produced by viruses or bacteria, irritants, or overuse of the voice.
- It is characterized by inflammation and edema of the vocal cords, with resultant hoarseness.

E. Acute epiglottitis

Inflammation of the epiglottis
- May be life-threatening in young children.
- It is usually caused by *H. influenzae.*

F. Acute laryngotracheobronchitis (croup)

- **A**cute **inflammation of the larynx, trachea, and epiglottis**
- It is potentially life-threatening in infants.
- It is most often caused by **viral infection.**

Tumors of the Upper Respiratory Tract

A. Tumors of the nose and nasal sinuses

1. Angiofibroma is a rare vascular neoplasm most common in the posterior-lateral nasal wall
of adolescent males. It is histologically benign but locally aggressive.

2. Nasopharyngeal carcinoma (previously known as “lymphoepithelioma”)
- Most common
- Southeast Asia and East Africa.
- caused by **Epstein-Barr virus.**

3. Squamous cell carcinoma is the most frequently occurring malignant nasal tumor.

4. Adenocarcinoma accounts for 5% of malignant tumors of the nose and throat, includes
intestinal-type and non-intestinal-type cases.

5. Olfactory neuroblastomas
- They arise from the olfactory mucosa.
- usually in older male patients (unlike pediatric neuroblastoma, which most often occurs in the adrenals/abdomen of infants and young children).
- They are comprised of small round blue cells set in a neurofibrillary matrix.

6. Plasmacytoma is a plasma cell neoplasm that, in its extraosseous form, produces tumors
in the upper respiratory tract.

7. Embryonal rhabdomyosarcoma is an aggressive mesenchymal malignancy most common in young children.

B. Tumors of the oropharynx

Squamous cell carcinomas
- account for the vast majority of malignancies in this location.
- associated with **high-risk human papillomavirus (HPV)** (most commonly type 16) in ˜80% of cases.
- Originate mainly in the palatine and lingual **tonsils** and
- are **nonkeratinizing squamous cell carcinomas** with basaloid morphology.
- HPV-positive cancers more often present in young, nonsmoking patients and are more likely to have cervical lymph nodal metastases. Despite higher stage at presentation, their overall prognosis is better.
- HPV-negative cases are usually associated with tobacco and/or alcohol abuse, bad prognosis

C. Tumors of the larynx

1. Singer's nodule.
- This small, **benign laryngeal polyp,** usually induced by chronic irritation, such as excessive use of voice
- associated most commonly with **heavy cigarette smoking.**
- It is usually localized to the **true vocal cords.**

2. Squamous papilloma
- These are **benign neoplasms** that are usually centered around the true vocal cords and may rarely undergo malignant change.

- They are usually attributable to low-risk HPV infections (principally types 6 and 11, the same types responsible for most genital condylomas).
- In children and adolescents multiple lesions can be seen, sometimes with airway threatening extension into the trachea and bronchi (**juvenile laryngeal papillomatosis**).
- Recurrence after resection is common.

3. Squamous cell carcinoma

- ❖ This neoplasm is the **most common malignant tumor of the larynx** and is **usually** seen in **men older than 40** years of age; it is often associated with the combination of **cigarette smoking and alcoholism**. It is **usually *not* associated with HPV infection** in this location.
- ❖ **Initially**, it most often presents with **persistent hoarseness**.
- ❖ **Glottic carcinoma** arises from the **true vocal cords**. It is the **most common laryngeal carcinoma** and has **the best prognosis**.
- ❖ **Supraglottic and subglottic carcinomas** are **less common** and typically have a **poor prognosis**.

Epistaxis

A. Definition:

Bleeding from the nose

B. Causes:

Local Causes:

1- Trauma
2- Foreign bodies
3- Rhinitis
4- Nasal polyps
5- Benign and malignant tumors

Systemic Causes:

1- Hypertension
2- Leukemia
3- Hemorrhagic blood diseases as purpura
4- Acute infections as Typhoid fever
5- Deficiency of vitamin C and K