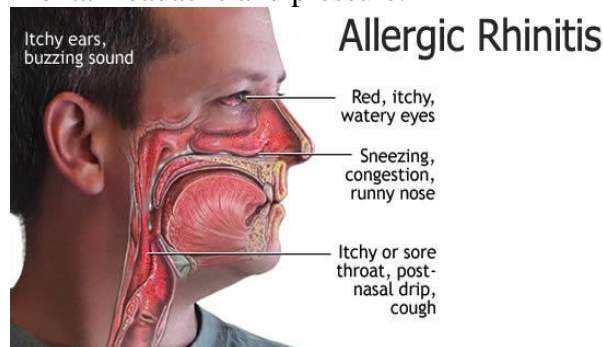




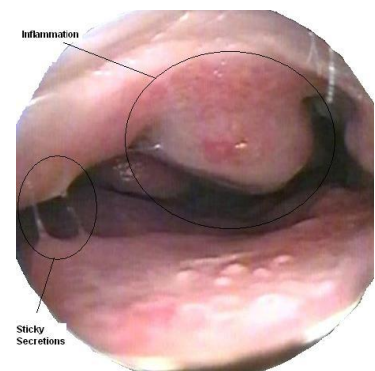
- **Allergic rhinitis:**

- It is rhinitis which is related to type-I hypersensitivity reaction. In this type of reaction, the allergen binds to IgE antibodies → this complex, in turn, will bind to mast cells enhancing the release of mediators (basophils and eosinophils are also involved in this reaction to a lesser extent).
- **Types:**
  - ✓ Primary allergic rhinitis: starts within 5-10 minutes after exposure to the allergen.
  - ✓ Secondary allergic rhinitis: starts 4-6 hours after exposure to the allergen. In this type, mast cells are **INACTIVE** and it is mediated mainly by the function of basophils and neutrophils.
- **Epidemiology:**
  - ✓ Age at onset: < 20 years.
  - ✓ More common among those with personal or family history of allergies.
- **Diagnosis:**
  - ✓ History (clinical features):
    - ❖ Nasal obstruction with pruritis.
    - ❖ Sneezing.
    - ❖ Clear discharge (containing high levels of eosinophils).
    - ❖ Itching of eyes with tearing.
    - ❖ Frontal headache and pressure.



✓ **Physical examination:**

- ❖ **Nose:** edematous turbinates with watery discharge.
- ❖ **Eyes:** periorbital puffiness.
- ❖ **This condition is associated with:** nasal polyps, chronic otitis media with effusion and chronic sinusitis.



✓ **Allergic testing:**

- ❖ **Nasal smear:** > 25% eosinophils.
- ❖ **Total serum IgE** → NOT ACCURATE.
- ❖ **Skin allergy testing** (but it is avoided due to the high risk of anaphylaxis reaction. If it does occur, manage it with 0.3 ml epinephrine IM injection):
  - Scratch.
  - Prick.
  - Intradermal.
- ❖ Instead of skin allergy testing, **RAST allergy blood test** is performed nowadays (especially in children because there is no risk of anaphylaxis).



- **Treatment:**
  - ✓ Advise patient to avoid allergens if known/possible.
  - ✓ Normal saline irrigation.
  - ✓ 2<sup>nd</sup> generation anti-histamines (less sedative effect).
  - ✓ Topical steroids: decreasing inflammation, capillary permeability and edema.
  - ✓ Cromolyn sodium (mast cell stabilizer).
  - ✓ Immunotherapy:
    - ❖ Done after failure of medical therapy.
    - ❖ Needs 2-3 years for the effect to be obvious.

- **Anatomy of the larynx and vocal cords:**

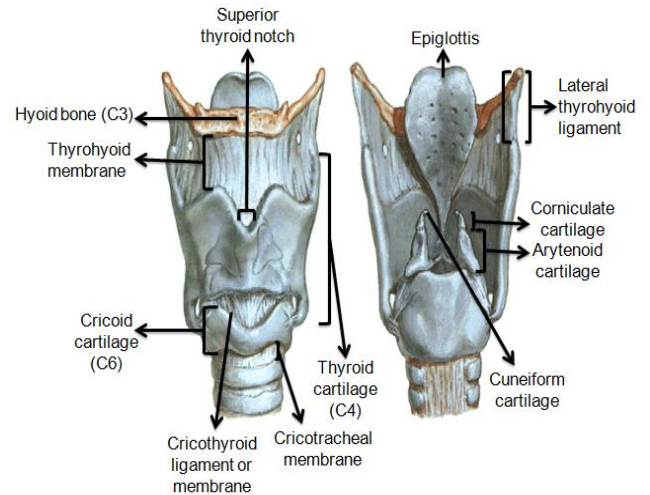
- The larynx is a tubular organ for air passage and voice production (by the vocal cords).
- Above it opens into the pharynx at the level of C<sub>3</sub> (hyoid) and continuous below with trachea at C<sub>6</sub> (cricoid).

- **The wall of larynx is made up of:**

- ✓ Nine Cartilages:
  - ❖ 3 *single cartilages*: Thyroid, Cricoid and Epiglottis.
  - ❖ 3 *paired cartilages*: 2 Arytenoids, 2 Corniculates and 2 Cuneiforms
- ✓ Membranes and ligaments.
- ✓ Muscles (Extrinsic & Intrinsic).

- **The Cavity (Lumen) of the larynx:**

- ✓ Lined by respiratory mucosa.
- ✓ 2 horizontal mucosal folds (cords): vestibular folds which are superior to vocal folds.
- ✓ 3 regions: vestibule, middle part of the cavity (glottis) and infraglottic space.



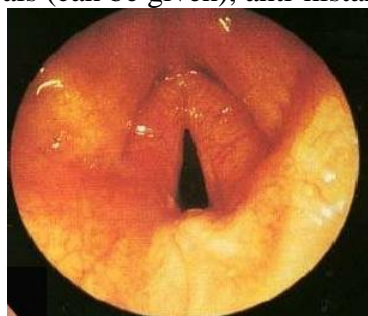
Endoscopic view of larynx



- 1=true vocal cord
- 2=vestibular fold/false vocal cord
- 3=epiglottis
- 4=aryepiglottic fold
- 5=arytenoid
- 6=piriform fossa
- 7= dorsum of tongue

- **Acute laryngitis:**

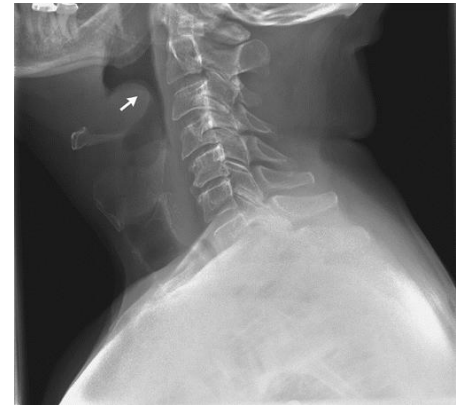
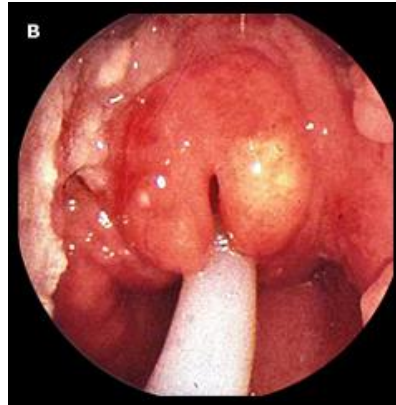
- **Definition:** < 2 weeks inflammatory changes in laryngeal mucosa commonly caused by viral infections: rhinovirus (most common), RSV, parainfluenza virus or adenovirus.
- **Clinical features:** URTI symptoms + hoarseness.
- **Fiber-optic laryngoscopy:** congested larynx.
- **Treatment:** bed rest, antivirals (can be given), anti-histamines and hydration.





- **Epiglottitis:**

- It is an acute inflammation and edema of epiglottitis that is caused by HIB in children between 2-7 yrs. Nowadays it is rare, due to routine vaccination.
- **Clinical features:** high-grade fever (bacterial infection), muffled speech, dysphagia with drooling and sitting in tripod position with neck hyperextension.
- **Investigations:** CBC (leukocytosis), blood culture (positive if it is caused by HIB) and chest X-ray shows the thumb sign. If visualized with bronchoscope: erythematous swollen epiglottitis can be seen (but this is not done because airway obstruction and respiratory arrest can occur at any moment. This condition is a pediatric emergency).
- **Management:** patient is intubated and given IV 3<sup>rd</sup> generation cephalosporins (ceftriaxone).



- **Croup:**

- It is an inflammation of larynx, trachea and bronchi that occurs between ages of 3 months to 3 years and is most commonly caused by parainfluenza virus.
- **Clinical features:** low-grade fever (viral infection), inspiratory stridor and barking cough.
- **Investigations:** anterior-posterior view of neck X-ray will show the steeple sign.
- **Management:** mainly supportive (cool mist and fluids). Hospitalization is only indicated for children in respiratory distress. Notice that inhaled epinephrine and a single dose of steroids can be given to reduce the length of time in the emergency room and hospitalizations.

