Professor Ramadan Hashem Sayed & Usama Mohammed Rashad

- TUMORS OF THE LARYNX -

❖ **Classification:**

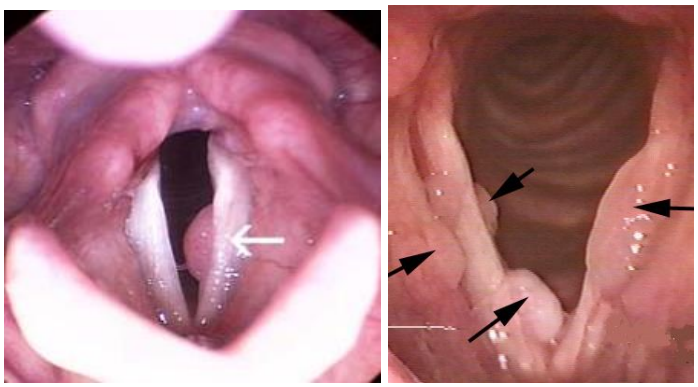
	Benign tumors	Malignant tumors
	Rare, account for 5%	**Much more common**
Epithelial	**Commonest** - Squamous cell papilloma: commonest - Adenoma - Mixed salivary gland tumor	**Commonest** - Sq cell carcinoma: commonest - Verrucous carcinoma - Adenocarcinoma
Mesenchymal	**Very rare** - Chondroma - Haemangioma - Lipoma - Leiomyoma	**Very rare** - Chondrosarcoma - Fibrosarcoma - Haemangiosarcoma - Rhabdomyosarcoma

(I) Squamous cell papilloma -

❖ **Incidence:** Commonest benign tumor of the larynx

❖ **Types:** 2 types:

	A- Solitary papilloma of adult	B- Multiple papillomata of children
• **Incidence:** o Age o Sex	 - Usually adults 30-50 years - Males > females	 - Usually children 5-15 years - Equal in both sexes
• **Etiology:**	- A true neoplasm	- Not a true neoplasm - Theories: a- Viral: resembles cutaneous warts b- Hormonal: occurs in children, usually disappears at puberty
• **Symptoms:** o Dysphonia o Stridor	 - is the cardinal symptom - late, if big	 - if affects the vocal folds - is the cardinal symptom
• **Signs:** o Number:	 - Always solitary (fig 29) - Usually involves anterior 1/2 of	 - Multiple, grape like (fig 29) - Any site of the larynx and trachea

○ Site:	the vocal fold	especially vocal fold, ventricular band
○ Shape:	- Sessile or pedunculated, red, warty papilliferous surface  **Fig (29)** Solitary (white arrow) and multiple (black arrows) papillomas	
• **Fate:**	- Precancerous (2-8%) - Not recur after excision - No spontaneous regression	- Not precancerous except if irradiated - Tend to recur after excision - Spontaneous regression usual at puberty
• **Treatment:** ○ Conservative	- No	- if there is no marked respiratory obstruction
○ Surgical**:**	- Excision via: * Direct laryngoscopy if small * Laryngofissure if large	- if there is severe respiratory obstruction: * low tracheostomy * Repeated removal with CO_2 laser

(II) Carcinoma of the larynx -

❖ **Incidence:**

- General: Much more common than benign tumors, accounts for 2% of head and neck cancer
- Age: middle and old age above 50 years
- Sex: Much more common in males than females (8:1)
- Site: glottic carcinoma is the commonest (50-80%), followed by supraglottic (20%), and subglottic is the least common.
- Histopathology: squamous cell carcinoma is the commonest (95-98%)

❖ **Etiology:** Exact cause is unknown:

- **Precancerous lesions:**
  - - Leukoplakia - Solitary adult papilloma
- **Predisposing factors:**
  - Chronic laryngeal irritation by:

    - Smoking - Alcohol intake - Asbestos dust - Irradiation

- Herpes simplex type I virus

❖ **Classification and presentation:**

A. Glottic carcinoma: (commonest)

- **Symptoms:** Early → good prognosis
  - Hoarseness of voice: Earliest and cardinal symptom is progressive unremittent dysphonia. Any old male with persistent dysphonia for more than 2 weeks should be excluded for the presence of cancer larynx
  - Late symptoms:

    - Stridor: due to airway obstruction by tumor bulk
    - Pain: due to cartilage invasion and perichondritis
    - Dysphagia: due to spread to the pharynx
- **Signs:** (fig 30)
  - Site: Usually the free edge or upper surface of the middle or anterior 1/3 of the vocal fold
  - Shape: may be:

    - Irregular thickening of the vocal fold with leukoplakia
    - Cauliflower mass
    - Epitheliomatous ulcer
  - Vocal fold mobility:

    - Early: mobile
    - Late: impaired mobility or fixed

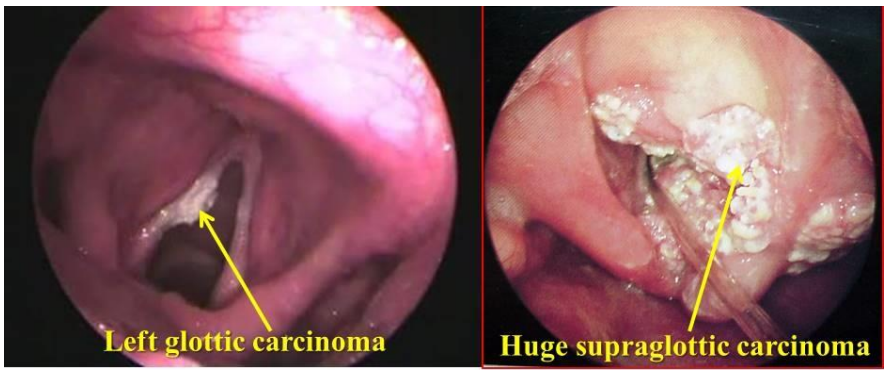


Fig (30) Cancer larynx

- **Spread:**
  - Direct spread:

    - Anteriorly to the anterior commissure and other VF
    - Posteriorly to the vocal process
    - Superiorly to the ventricle and ventricular band
    - Inferiorly to the subglottic region
  - Lymphatic spread: No or sparse lymphatics in the VFs, so lymphatic spread is very rare and late → good prognosis.

- Haematogenous spread: rare and late

B. Supraglottic carcinoma: (next common)

- **Symptoms:** Late symptoms → poor prognosis
  - Early: Asymptomatic or vague symptoms (FB sensation or discomfort in the throat)
  - Late symptoms:
    - Dysphonia if extends to the vocal fold
    - Stridor: due to airway obstruction by tumor bulk
    - Painless lump in the neck: early and common, due to LN metastasis
    - Pain radiating to the ear: due to ulcerative carcinoma
    - Dysphagia: due to spread to the pharynx
    - Hemoptysis: due to ulcerative tumor
- **Signs:** (fig 30)
  - Site: Can affect laryngeal surface of epiglottis (commonest), aryepiglottic fold, ventricular band and ventricle.
  - Shape: may be:
    - Ulcerative type (usually)
    - Cauliflower mass: sometimes
    - Infiltrative type (occasionally)
- **Spread:**
  - Direct spread:
    - Anteriorly to the lingual surface of epiglottis, pre-epiglottic space, valleculae, and base of the tongue
    - Laterally to the pyriform fossa
    - Inferiorly to the vocal fold
  - Lymphatic spread:
    - Early and common due to rich lymphatic supply → poor prognosis
    - To the UDCxLNs, may be bilateral
  - Haematogenous spread: Late

C. Subglottic carcinoma: (rare)

- **Symptoms:** Late → poor prognosis
  - Biphasic stridor: due to airway obstruction by tumor bulk
  - Dysphonia if extends to the vocal fold
  - Painless lump in the neck: due to LN metastasis
- **Signs:**
  - Site: usually the anterior 1/2 of the subglottic region, usually unilateral
  - Shape: Usually ulcerative type, diffuse edge with no much crustations

- **Spread:**
  - Direct spread:
    - Circumferentially in the subglottic region - Anteriorly to the thyroid cartilage
    - Posteriorly to the cricoid cartilage - Superiorly to the vocal fold
    - Inferiorly to the trachea
  - Lymphatic spread: To prelaryngeal, pretracheal LN → lower DCxLNs
  - Haematogenous spread: Late

❖ **Histopathology:**

- Squamous cell carcinoma is the commonest
- May be: well differentiated, moderately differentiated, poorly differentiated or undifferentiated carcinoma
- Glottic carcinoma is usually well differentiated carcinoma

❖ **Investigations:**

- Evaluation of the patient's general condition
- Radiologic examination: - CT scanning - MRI
- Direct laryngoscopy: To evaluate tumor extension, VF mobility and to take a biopsy for histopathological examination
- Metastatic work up: Chest x-ray, abdominal sonography, bone scan

❖ **Staging:**

- According to TNM staging where T: tumor extension; N: LN metastasis; M: distant metastasis

❖ **Treatment:**

A. Operable cases: The tumor can be controlled with treatment and the aim is cure

- Early cases:
  - Conservative surgery: partial laryngectomy or
  - Radiotherapy
- Late cases: Total laryngectomy in cases with:
  - - Vocal fold fixation - Cartilage invasion - Perichondritis
  - - Wide extension - Recurrence after radiotherapy or partial laryngectomy
- Block dissection of clinically evident LN metastasis

B. Inoperable cases: The tumor cannot be controlled with treatment (extensive local extension or distant metastases) and the aim is not cure but palliation:

- - Palliative radiotherapy, chemotherapy - Tracheostomy for airway obstruction
- - Palliation of pain - Palliative total laryngectomy
- - Gastrostomy for feeding in severe dysphagia

❖ **Prognosis:**

- Cancer larynx has good prognosis with 67% 5-year survival rate.
- Glottic carcinoma has better prognosis than supraglottic one due to:
  1. Early presentation and diagnosis (dysphonia is an early manifestation of vocal fold affection while the supraglottis is capacious so early lesion is asymptomatic or presentswith vague symptoms and needs more time to cause symptoms).
  2. No or late lymphatic spread (vocal folds have no or sparse lymphatic drainage while the supraglottic region has abundant lymphatic drainage with early and common LN metastasis)

Pearls in bullets:

- Leukoplakia of the larynx is precancerous.
- Adult solitary papilloma is precancerous while juvenile multiple papillomata are not.
- Glottic malignancy has better prognosis than supraglottic malignancy due to:
  1. Early presentation and diagnosis (Hoarseness of voice is a manifestation of vocal fold affection while the supraglottis is capacious needing more time to cause respiratory obstruction).
  2. Less lymphatic spread (Vocal folds have no or sparse lymphatic drainage while the supraglottic region has abundant lymphatic drainage).