

Tumours of the larynx

Assist. Prof.

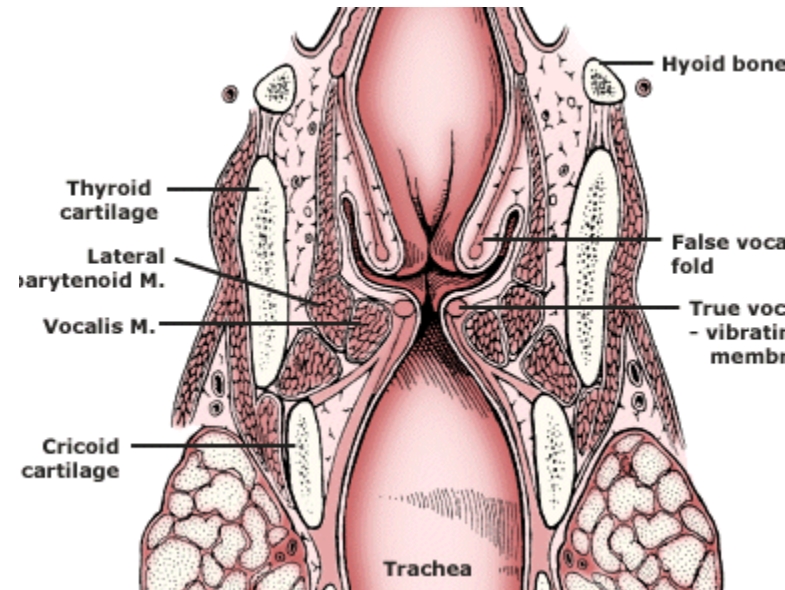
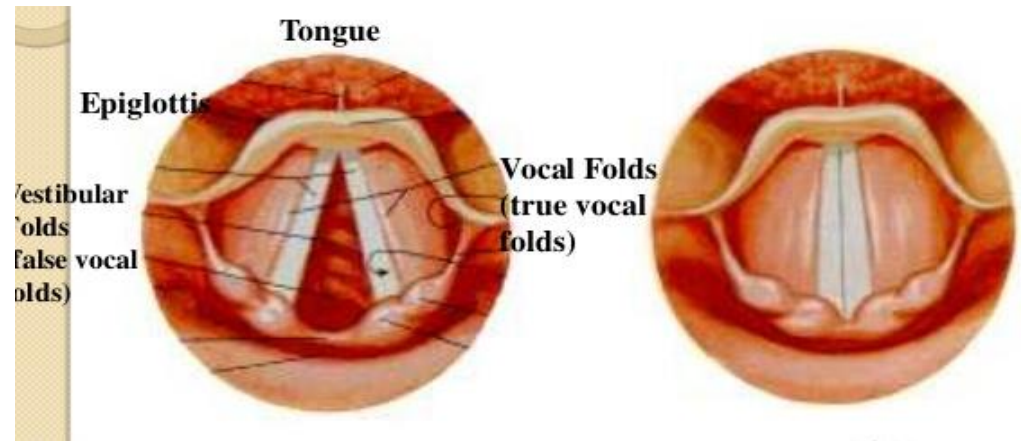
- **Dr. Salim hussain**
 - **F.I.C.M.S (ENT)**

Objectives

- 1.To Study the benign and malignant tumors of the larynx.
- 2.Identify the clinical features of laryngeal tumors.
- 3.How to diagnose the laryngeal tumors.
- 4.Classification and treatment of laryngeal carcinoma.

The larynx divided anatomically in to three parts.

- **1. Supraglottic region.**
Includes
 - * a. Epiglottis.
 - * b. False vocal cord
 - * c. The ventricle.
 - * d. The arytenoids.
 - * e. Aryepiglottic fold.
- **2. Glottic region.**
Involves True vocal cord (anterior and posterior commissure.)
- **3. Subglottic region**
- .Extended from below the vocal cord to the inferior border of the cricoid cartilage.



I: BENIGN TUMORS OF THE LARYNX:

1. Papilloma. *The commonest benign laryngeal tumor (80%).

It is of two types

1. Recurrent (Juvenile) respiratory papillomatosis (RRP).

*The commonest benign laryngeal tumor (80%),

* Caused by infection with Human Papilloma Virus (HPV) subtype 6 and 11, transmitted from the mother to the child in the birth canal, or in utero.

*(50%-70%) of patients have mother with genital warts.

Site: Commonly seen at the junction of respiratory epithelium with squamous epithelium, generally at the glottis, although it may occur throughout the air way.

Clinical features:.

The age of presentation is 2-6 years,
There are *hoarseness,*aphonia,*stridor
and* dyspnea due to airway obstruction.
It is1 ***usually multiple**, warty appearance,
mainly involved the true and false vocal
cords, but may extend to
subglottic,trachea ,bronchi, and epiglottis.



2*Has **propensity to recur** after local
removal, (HPV has been found
consistently in the epithelium of papilloma
lesions and adjacent normal appearing
tissue; this explains the ability of the virus
to cause recurrent disease, despite
apparent surgical eradication of lesions),

3 ***may regress spontaneously after
puberty** ,and

4 ***not undergoes malignant changes
unless irradiated.**

Diagnosis

- *Direct laryngoscope and biopsy and histopathological study.
- *Bronchoscopy.To exclude lung involvement

Treatment;

1.Avoid tracheotomy. to prevent seeding of the virus to trachea,

2.Surgical excision.

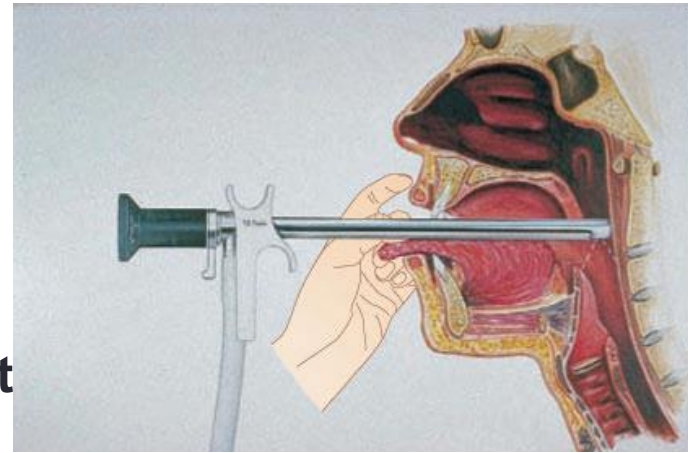
- * Best by Co2 Laser vaporization,
- *Cryotherapy to reduce seeding of the virus.
- * microforceps(conventional microlaryngeal surgery.)

The growths recur regularly, requiring repeat operations

3.Ajuvant medical treatment; aimed the virus and growth of tumors. like *Alfa interferon(subcutaneously),

*Cidofovir (intralesionally). *Indole-3-carbinol.

4.Other includes ;preventing and therapeutic vaccines,



2. Adult type laryngeal papillomatosis.

Common in young adults (18-39 years old) presented with hoarseness

- *It is usually single.
- *Less propensity for recurs after local excision.
- * when recurs may gets malignant changes.
- *no spontaneous regression.



Multiple laryngeal papillomatosis



Single adult papilloma

2.Haemangioma. Juvenile and adult forms, It is typically located in the subglottic region, but the supraglottic space, vocal cords or upper part of the trachea may involved.

Generally associated with cutaneous haemangioma(63%).

* A characteristic history of rapid growth during the first 6 months of life, and then after 12 months a slow regression takes place.

symptoms:

*stridor, *dyspnoea, *cough, and *hoarseness are present in the clinical picture of other congenital obstructions of the airway passage.

Treatment,

*When large tumor require a tracheotomy until their natural resolution.

*Laser surgery.

* Steroid (Dexamethazone.)

3.Other benign tumor,rare includes.Chondroma (mostly cricoids cartilage) ,fibroma, schwannoma,neurofibroma,.

Subglottic haemangioma presenting cutaneously in “beard” distribution over the face, and over the neck and chest.



II: Malignant tumors of the larynx

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Includes

1. Squamous cell carcinoma.
2. Lymphoma .second common malignancy of the larynx
3. Uncommon malignancy. Verrucous carcinoma, adeno ca. ,sarcoma, minor salivary gland tumors.
4. metastatic tumors. From renal, prostate, breast, lung ,stomach.(rare).

Squamous cell carcinoma.

Commonest malignant laryngeal tumor (94%).

* 67% glottis,*31% supraglottic,*2%subglottic.

Risk factors;

- 1.Age;Old age (over the age of 55.)
- 2.Sex; Men are four times more than women .
- 3.Smoking and alcohol abuse, they increase the risk 50%.
- 4.Irradiation for neck ex. for thyroid .
- 5.Occupational like asbestoses. Nickel, wood products and painters.
6. Human papilloma virus infections :Solitary respiratory papilloma (infection with high risk subtype HPV infection (e.g.16:RR3).
- 7.Others like genetic ,family tendency , Gastro-esophageal reflux..



Clinical features:

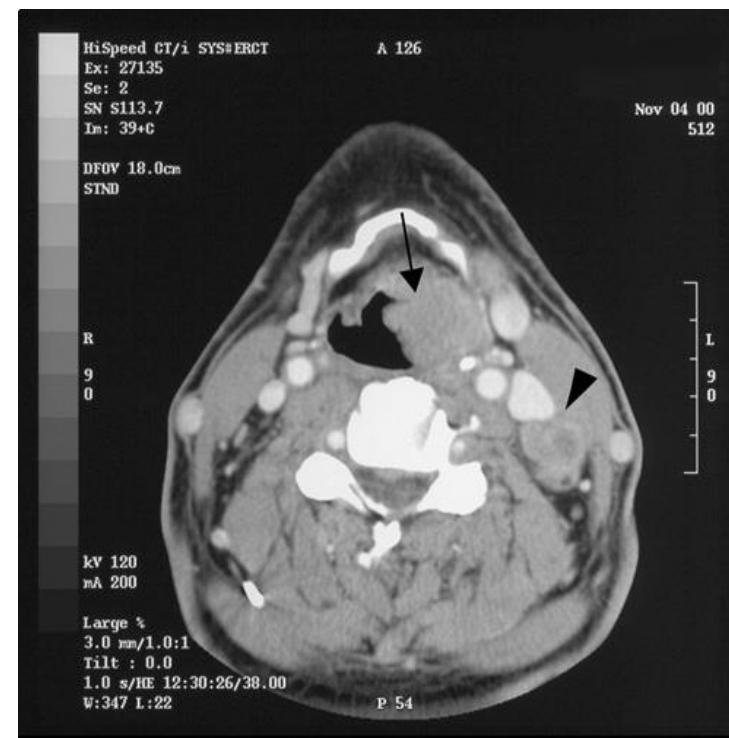
Common in **male** 90%, peak age incidence 55-65 year .(**usually elderly male with low socioeconomic status**)

1. Progressive unremitting dysphonia (Hoarseness).
2. Stridor and dyspnea due to vocal cord paralysis, or extensive enolaryngeal lesion in supraglottic, Glottic, and subglottic.
3. Pain (referred otalgia). indicate deep invasion, involvement of the pharynx.
4. dysphagia. when the tumor involve the hypopharynx.
5. Neck mass. Metastatic node, or local spread.
6. Haemoptysis. is late symptoms in ulcerative or invasive lesion specially supraglottic lesion.
7. Cough an irritation. By the tumor it self, or associate with pneumonia, chronic bronchitis, or lung metastasis.
8. Anemia, cachexia, an fetor due to tumor necrosis.

* **Glottic cancer** tends to present early with voice changes, (Every patients with hoarseness for three weeks or more require to be seen by specialist)

* **Supraglottic tumors** delay in presentation are common due to vagueness of symptoms such as globus, and otalgia therefore may advanced and have nodal disease at time of presentation

- **1. Indirect laryngoscope** (Mirror.or Flexible laryngoscopy.)
- **2. Direct laryngoscopy.** To assess.
 - a. Site and limit of the tumor.
 - b. See the hidden areas (Ventral surface of epiglottis, anterior commissure, the ventricle, subglottic region.)
 - c. Probing the vocal cord for fixation or paralysis.
 - d. Take biopsy for histopathological study.
- **3. CT scan(Computerized Tomography).**
- **4. Magnetic Resonance Imaging (MRI)**
- (3&4) with enhancement use for further evaluation of the tumor.
- ***MRI better** for soft tissue detail evaluating the supraglottis, subglottic ,and soft tissue involvement (preepiglottic space, paraglottic space, cartilages, thyroid gland, muscles,)
- ***Lymph node involvement**(Number, site, and relation to the major vessels.)



Contrast CT scan showing bulky left supraglottic tumor (arrow) with ipsilateral lymph node metastasis (arrowhead)

The (T) Classification laryngeal carcinoma

The larynx divided anatomically in to three parts.

1. Supraglottic region. Includes *a. Epiglottis. *b.False vocal cord.* c.The ventricle. d.The arytenoids. e. Aryepiglottic fold.

2. Gliottic region. Involves True vocal cord(anterior an posterior commissure.)

3. Subglottic region.Extened from below the vocal cord to the inferior border of the cricoid cartilage.

Generally the (T) classification.

can be applied to any region.

Tis=Carcinoma in situ.

T₁a= Ca. limit to on site.

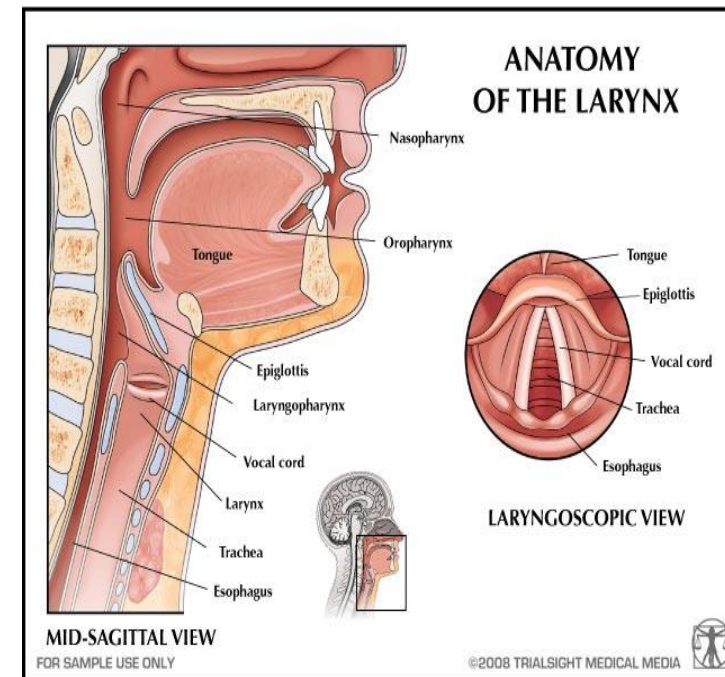
T₁b=Ca. in two sites, but within one region.

T₂=Ca. affected two regions{Transglottic}
e.g. supraglottic and glottis, or glottis and subglottic region.

But mobile vocal cords.

T₃=Tumor within the larynx but fixed vocal cord.

T₄=Tumor out side the larynx.



Treatment:

1.Ca. in situ : Endoscopic resection; by microlaryngeal instruments or by Carbon dioxid (CO2) laser.

2;T1,andT2 : *Radiotherapy.

*. Partial laryngectomy.. An operations in which part of the larynx is removed, but the trachea and pharynx remain intact.. It is Voice preservation surgery ,includes.

A. Vertical partial laryngectomy(PL).(Hemilaryngectomy). Used for glottis tumor with mobile vocal cord, like cordectomy,Frontal partial laryngectomy(PL).Lateral partial laryngectomy, Extended froto-lateral PL.

B.Horizontal partial laryngectomy. Used for T1,T2 Supraglottic tumor ,remove the portion of the larynx above the vocal cords,,Epigloectomy.*Supraglottic laryngectomy,Exteneded supraglottic laryngectomy.

3.T3,T4,Failure of treatment of T1,andT2 : surgical treatment Total laryngectomy.

4. Nodal metastasis:

*Elective neck dissection is commonly preferred for T 2- 4 Supraglottic cancer even with No.

*Neck dissection. It is usually done at the same time as surgery to remove an already existing tumor. The type of surgery (Radical neck dissection or modified radical neck dissection.) depends on the stage of cancer.

5.Combine surgery *Surgery +Radiotherapy, or chemotherapy.

*Radiotherapy+Chemotherapy.

Total laryngectomy:

indicated in stage T3,T4 tumor, and failure of treatment of stage T1,andT2

The mainstay of treatment for advanced laryngeal carcinoma.

It is a surgical procedure when the whole larynx (voice box) is removed, and the trachea sutured to the skin anteriorly (stoma) as permanent tracheostomy, the patient breathe through the stoma. The pharynx closed and sutured to the base of the tongue .

*In total laryngectomy Removal

Of* the larynx,

- *thyroid cartilage,
- *cricoid cartilage,
- *epiglottis,
- *hyoid bone,
- *strap muscles,
- *one or both lobes
- *of thyroid gland,
- *2-3 tracheal rings.

Prognosis of ca.larynx.

5 years survival of ca.larynx

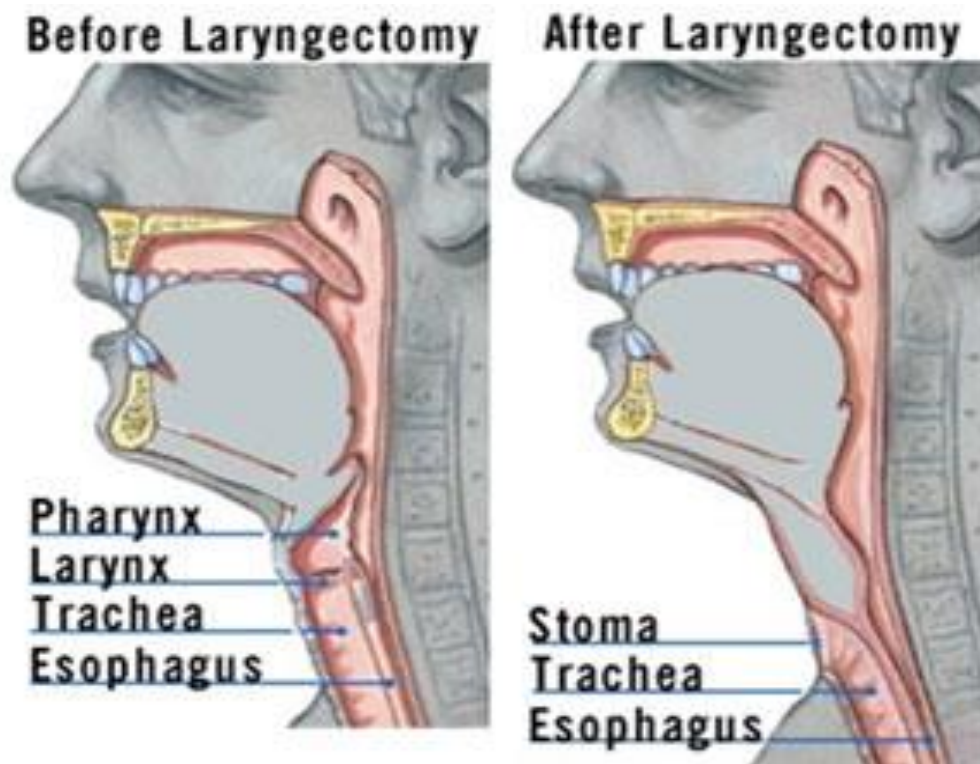
Stage 1 = >95%

Stage II = 85-90 %,

Stage III = 70-80%

Stage IV=50-60%

*patient considered cured after being disease free for five years



Rehabilitation after total laryngectomy

The chief problems where rehabilitation is likely to be required are:

- 1.Speech.(Voice restoration)**
- 2.Swallowing**
- 3.Tracheostomy problems.**
- 4.Problem with loss of glottis occlusion, e.g. lifting. swimming, bathing and shower**
- 5.problems with airway diverging ,e . g. loss of olfaction. because the air not pass through the nose and mouth .**
- 6. Body image/psychological/social problems.**

Methods of voice restoration after total laryngectomy.

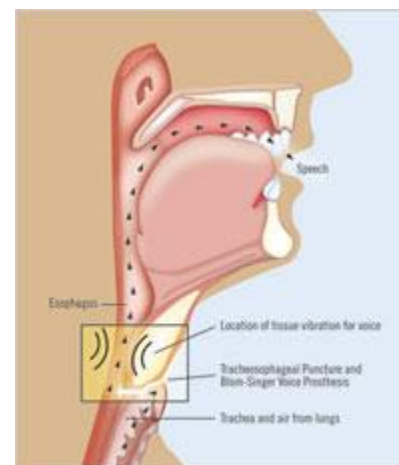
1. Esophageal speech.

2. Artificial (electronic) larynx

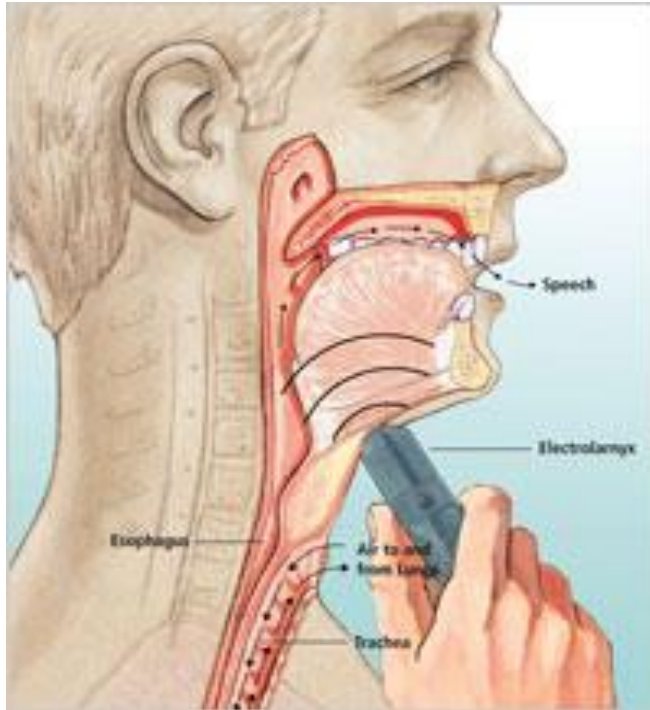
3. Tracheo-esophageal speech

- **1. Esophageal speech.** The laryngectomee patient can learn from a speech therapist . where air is injected, then expelled in a controlled way to form voice.

A. Tongue press to inject air into esophagus
B. Air enters esophagus
C. Air released from esophagus to produce voice
D. Voice shaped into speech

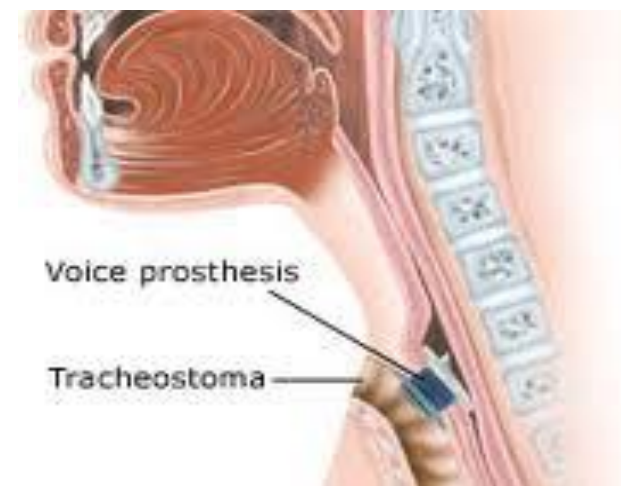


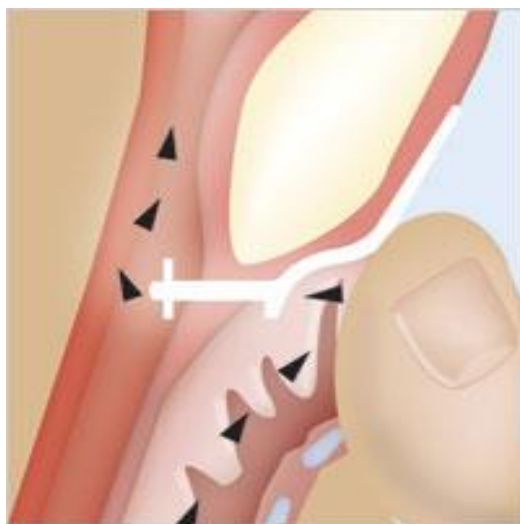
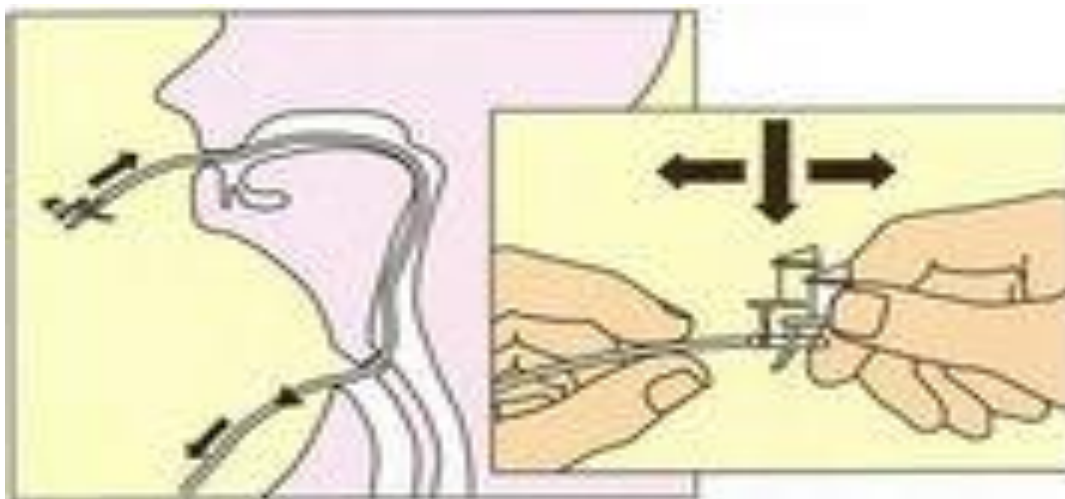
2.Artificial (electronic) larynx .. It is a device emits a vibrating noise and is hand-held against the throat. By mouthing words, the laryngectomee converts the vibrations to speech.



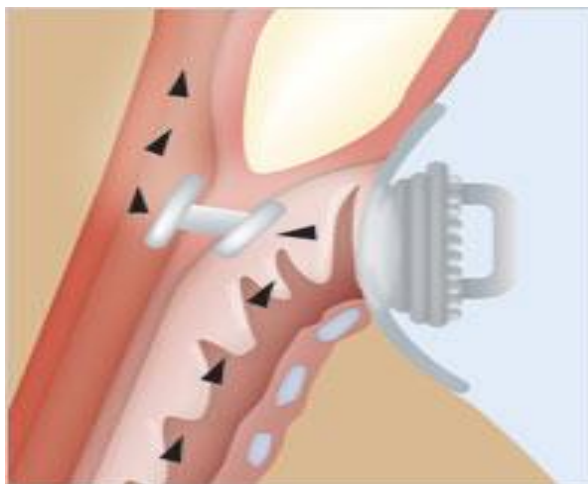
3.Tracheo-esophageal speech.(preferred methods)

- **.By creating a small surgical passage (TEP, or Tracheoesophageal Puncture (fistula)), inside the stoma, from the back wall of the trachea into the esophageal wall, a small one-inched valved tube (voice prosthesis) can be placed into this passage to enable tracheoesophageal speech.**
- **Voice is produced by blocking the stoma, either with a finger or an adjustable tracheostoma valve, so that exhaled air from the lungs can be directed from the trachea through the prosthesis into the esophagus (where vibrations are produced) and vibrations which are modified by the tongue, palate, and lips to produce speech. Fluent, conversational speech is usually acquired within a few days.**
- **Use of one way valve,**
- **like ,Blom-Singer voice prostheses,**
- **and Panje Voice Button**





Stoma occlusion with thumb.



Adjustable tracheostoma



The end

Thank you