



Today's Topics:

F B in air passage
Hoarseness of voice
Tracheostomy

Presented by-

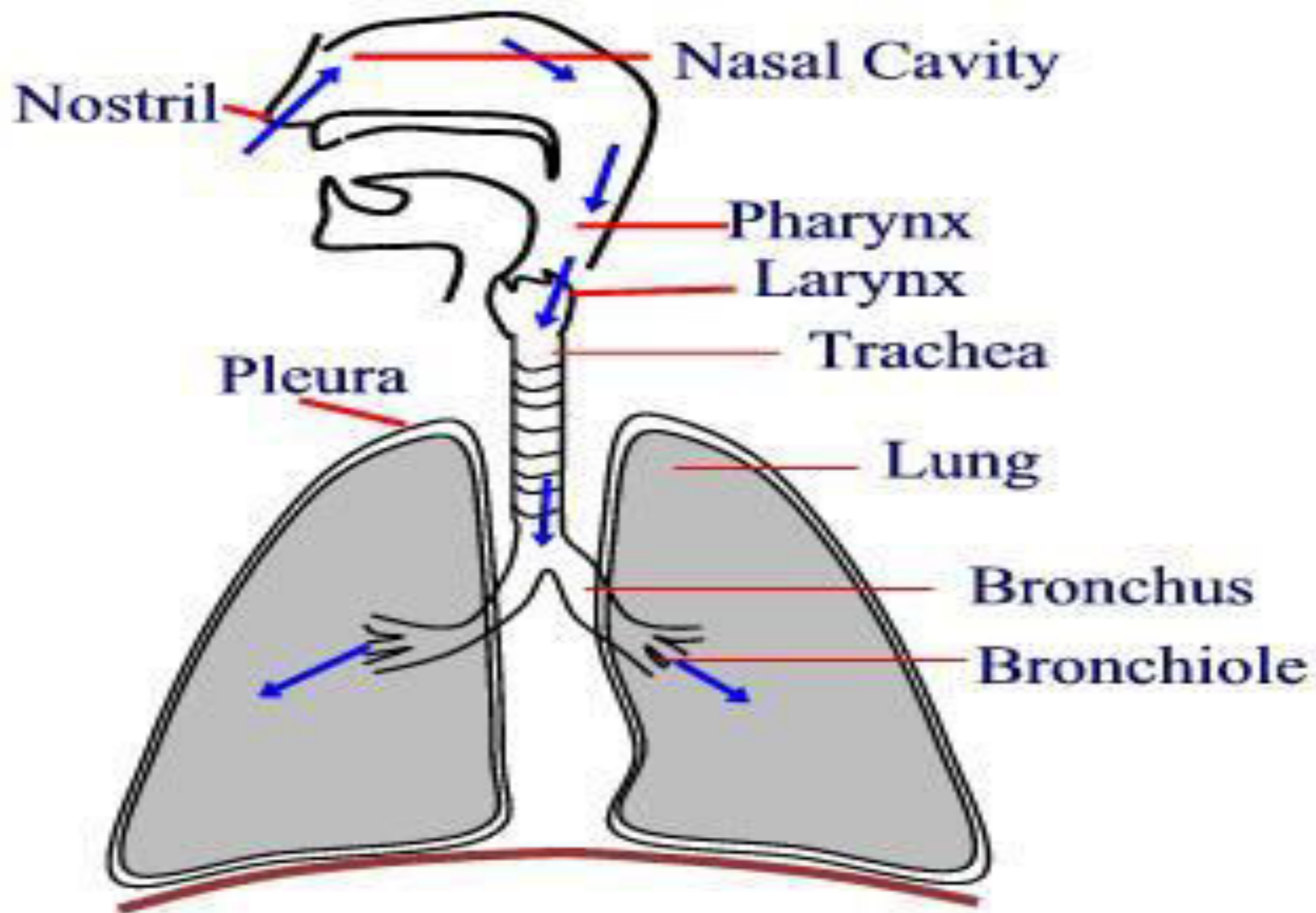
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FOREIGN BODY IN AIR PASSAGE







FOREIGN BODY IN AIR PASSAGE

- A foreign body aspirated in air passage can lodge in the **larynx, trachea or bronchi** .
- Site of lodgment would depend on **the size and nature of foreign body**.



FOREIGN BODY IN AIR PASSAGE (cont.)

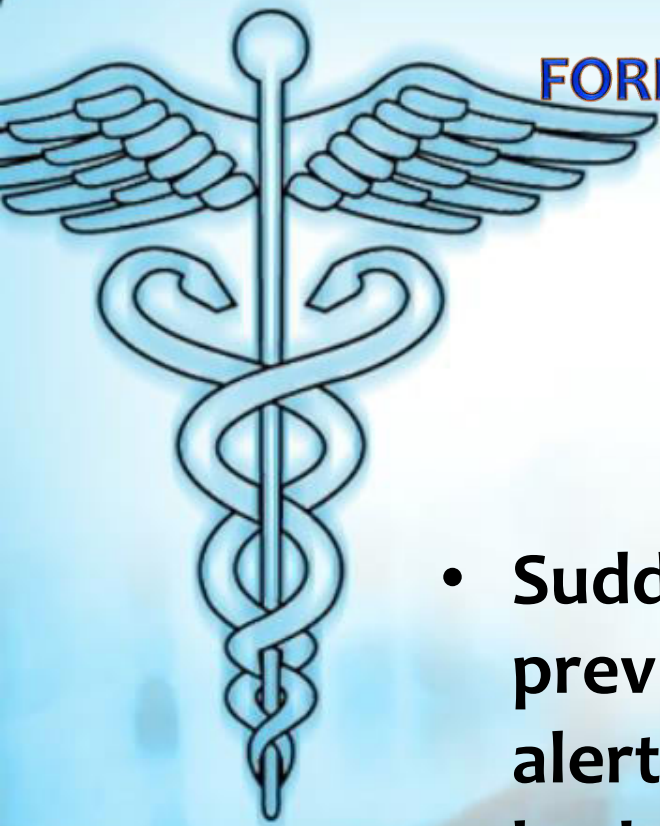
Aetiology:

- **Children are more affected, more than half of them are below 4 years.**
- **In adults foreign bodies are aspirated during coma , deep sleep or alcoholic intoxication .**
- **Loose teeth or denture may be aspirated during anaesthesia.**



Nature of foreign bodies

- **Non irritating type:** Plastic , glass or metallic foreign bodies are relatively non irritating & may remain long time symptomless.
- **Irritating type:**
 - Vegetables, peanuts, beans, seeds etc. set up a diffuse violent reaction leading to congestion and edema of the tracheobronchial mucosa – vegetable bronchitis.
 - They also swell up with time causing airway obstruction and later suppuration in the lung.



FOREIGN BODY IN AIR PASSAGE (cont.)

Clinical Features

- Sudden onset of a wheeze in a child not previously known to have asthma , should alert one to the possibility of a foreign body being the cause – especially if the wheeze is predominantly unilateral.



FOREIGN BODY IN AIR PASSAGE (cont.)

Clinical Features

Symptomatology of foreign body is divided in 3 stages –

- **Initial period of choking , gagging and wheezing – Foreign body may be coughed out or it may lodge in the larynx or tracheobronchial tree.**
- **Symptomless interval – The respiratory mucosa adapts to the presence of F.B and initial symptoms disappear.**

Clinical Features

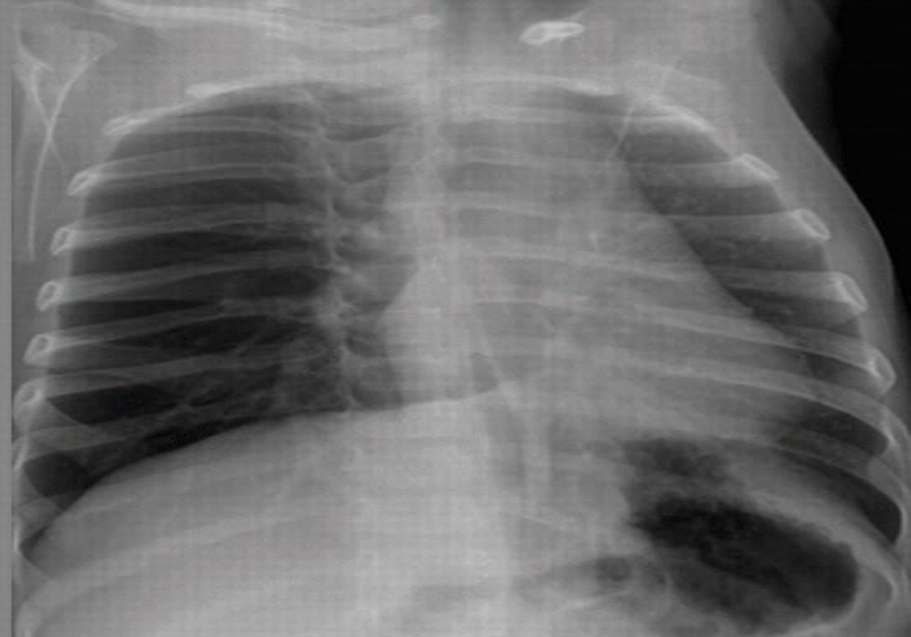


Later symptoms-

- (a) **Laryngeal foreign body**- A large foreign body may totally obstruct the airway leading to sudden death .A partially obstructive F.B may cause pain , hoarseness of voice, croupy cough , aphonia ,dyspnoea wheezing and haemoptysis.
- (b) **Tracheal foreign body**- A sharp foreign body will only produce cough and haemoptysis.
- (c) **Bronchial foreign body**- Most foreign bodies enter the right bronchus because it is wider and more in line with tracheal lumen.
- **A retained foreign body in the lung may give rise to pneumonitis , bronchiectasis or lung abscess**



A



B



C



D



Investigations

- 1. X-ray neck posteroanterior & lateral view of neck –This can show radio-opaque or radiolucent foreign bodies in larynx or trachea.**
- 2. X-ray chest posteroanterior & lateral view.**
- 3. Fluroscopy/ vediofluroscopy**
- 4. Bronchograms**



FOREIGN BODY IN AIR PASSAGE (cont.)

Treatment

- ❖ Bronchoscopy should be done after confirmation by radiology of the foreign body and its site . Various types of grasping forceps are necessary with suction arrangement to remove the foreign body.
- ❖ Removal by thoracotomy may be performed when the object is small and has descended into a small lower lobe bronchus.
- ❖ In cases where dyspnea is marked , tracheotomy is advisable.
- ❖ Antibiotics.

HOARSENESS OF VOICE





HOARSENESS OF VOICE

Definition

- Hoarseness is defined as roughness of voice or Husky voice.

HOARSENESS OF VOICE (cont.)

Causes of hoarseness:

1. Inflammations:-

- a) **Acute** : Acute laryngitis, Laryngo-tracheo-bronchities, Diphtheria.
- b) **Chronic** : (1) *Specific*- Tuberculosis , syphilis , scleroma , fungal infections.
(2) *Non-specific* - Chronic laryngitis , atrophic laryngitis .



Causes

2. Tumours:-

- a) **Benign** : Papilloma , chondroma , fibroma , haemangima, leukoplakia.
- b) **Malignant** : Carcinoma.
- c) **Tumour like masses** : Vocal cord nodule , vocal cord polyp , amyloid tumour , cysts , laryngocele.



HOARSENESS OF VOICE (cont.)

Causes



3. Trauma - Sub mucosal haemorrhage ,
Laryngeal trauma (blunt and sharp),
Foreign bodies, Intubation injuries.

4. Paralysis - Paralysis of recurrent laryngeal
nerve.

5. Fixation of cords- Arthritis or fixation of crico
arytenoids joints.

HOARSENESS OF VOICE (cont.)

Causes



6. Congenital - Laryngeal web, Laryngeal cyst ,
Laryngocele.

7. Miscellaneous - Dysphonia plica
ventricularis, Myxoedema, Gout

8. Functional - Hysterical aphonia.



HOARSENESS OF VOICE (cont.)

Management

1. History – mode of onset, duration of illness, occupation, associated symptoms.
2. Indirect laryngoscopy.
3. Examination of neck, chest, cardiovascular and neurological system- to find cause of laryngeal paralysis.
4. Laboratory investigations.
5. Radiological examinations.
6. Direct laryngoscopy and biopsy.
7. Bronchoscopy and oesophagoscopy.



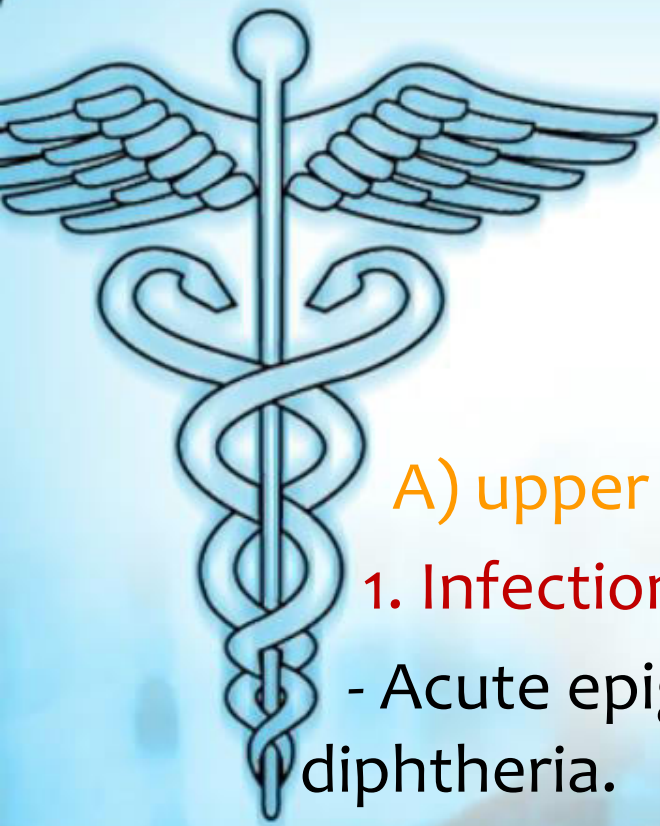
Tracheostomy

Definition

- **Tracheostomy**- is an operation to make an opening in the anterior wall of the trachea and converting it into a stoma on the skin surface.
- **Tracheotomy** – means opening the trachea.

Aims of tracheostomy:

1. To relief upper airway obstruction.
2. To reduce anatomical dead space.
3. To facilitated tracheobronchial toileting.
4. To protect lower respiratory tract.
5. For assisted ventilation.



Tracheostomy (cont.)

Indications :

A) upper airway obstruction:

1. Infections-

- Acute epiglottitis, acute laryngo-tracheo- bronchitis, diphtheria.

- Ludwigs angina, peritonsillar, retropharyngeal or parapharyngeal abscesses,

2. Trauma-

- External injury of larynx and trachea.

- Trauma due to endoscopies.

- Fracture of mandible or maxillofacial injuries.



Tracheostomy (cont.)

- 3. Neoplastic-

- Benign and malignant neoplasms of larynx, pharynx, upper trachea, tongue and thyroid.

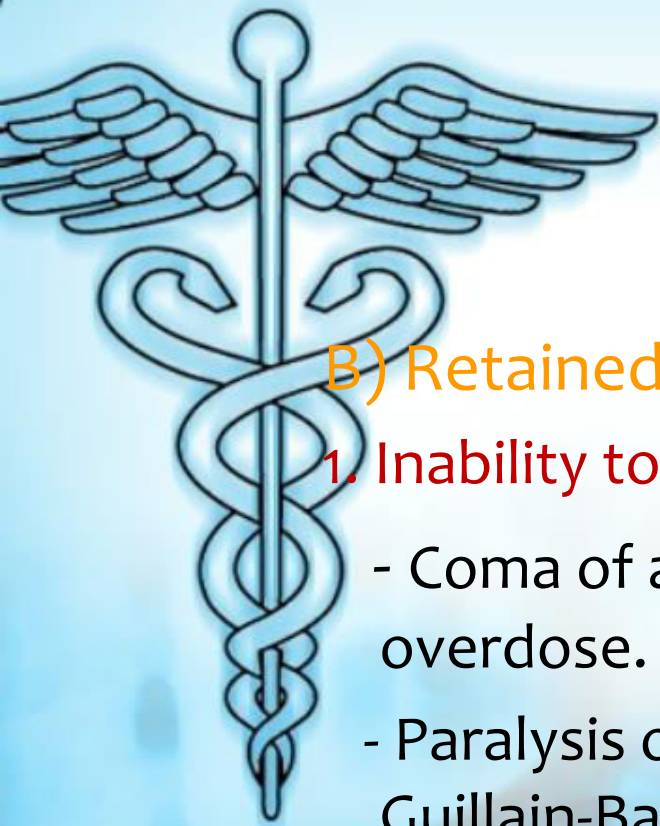
- 4. Foreign body larynx.

- 5. Oedema of larynx- due to steam, irritant fumes or gases , allergy, radiation.

- 6. Bilateral abductor paralysis.

- 7. Congenital anomalies-

- Laryngeal web, cysts, tracheo- oesophageal fistula.
- Bilateral choanal atresia.



Tracheostomy (cont.)

B) Retained secretions:

1. Inability to cough-

- Coma of any cause, e.g. head injury, CVD, narcotic overdose.
- Paralysis of respiratory muscles, e.g. spinal injury, polio, Guillain-Barre-syndrom, myasthenia gravis.
- Spasm of respiratory muscles, tetanus, eclampsia,

2. Painful cough-

- Chest injuries, multiple rib fractures, pneumonia.

3. Aspiration of pharyngeal secretions-

- Bulbar polio, polyneuritis, bilateral laryngeal paralysis.



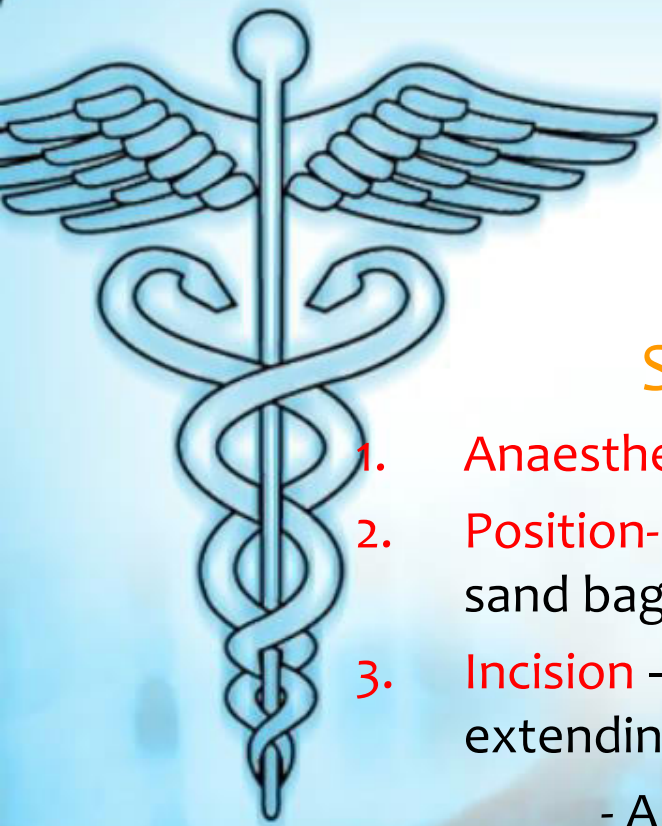
Tracheostomy (cont.)

C) Respiratory insufficiency:

- - Chronic lung conditions, e.g. emphysema, chronic bronchitis, bronchiectasis atelectasis.
- - Conditions listed in A and B.

Types of tracheostomy:

1. **Emergency tracheostomy**- when airway obstruction is complete or almost complete and there is an urgent need to establish the airway. Usually done under L.A.
2. **Elective tracheostomy**- a planned procedure, usually done under G.A.
3. **Permanent tracheostomy**- following total laryngectomy or laryngopharyngectomy.



Steps of operation:

1. **Anaesthesia**- G. A. or L.A.
2. **Position**- Supine, head down, neck is extended by placing a sand bag underneath shoulder.
3. **Incision** – A vertical incision is made in the midline of neck, extending from cricoid cartilage to just above the sternal notch.
 - A transverse incision , 5 cm long, given 2 fingers breath above the sternal notch.
4. **procedure**- skin, subcutaneous tissue, platysma are cut in the same line of incision. Strap muscles are retracted laterally to expose pretracheal fascia and thyroid isthmus. Thyroid isthmus either retracted upwards or cut in between clamps to expose 2nd-4th tracheal ring. Part of the anterior tracheal wall is removed and tracheostomy tube is inserted. Skin is closed loosely with 3/0 silk.



Steps of operation

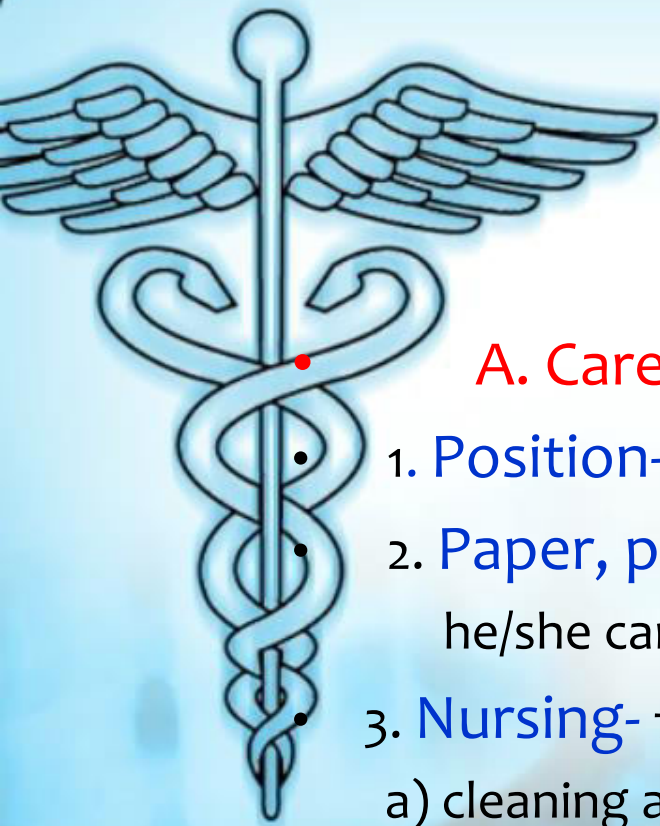


Figure 1: Diagram showing the steps of the operation.



Tracheostomy





Tracheostomy (cont.)

A. Care of the patient:-

- 1. **Position**- comfortable position, chin should not occlude tube.
- 2. **Paper, pen & calling bell supplied to the pt.**- so that he/she can communicate.
- 3. **Nursing**- for first 24 hours.
 - a) cleaning and suction of the secretion with sterile catheter, 1/2 hourly.
 - b) regular check up- respiration' cyanosis, pulse' BP' temperature .
 - c) feeding- nasogastric if unable to feed orally.
 - d) maintain fluid, electrolyte and nutrition.
 - e) care of mouth, back & eyes.



Tracheostomy (cont.)

4. **Humidification**- For few days, 24_48 hours, for prevention of crusting. By-

- Humidifiers.
- A piece of moist gauze piece placed over the outer tube.
- Boiling water kettle in the closed room.
- Salaine or sodi-bi-carb 7.5% installation inti the trachea at a regulr interval, 1_2 ml/hour followed by suction.

5. **Dressing**- water proof dressing.

6. **Physiotherapy**-

- - Encourage early ambulant.
- - cough out secretion.
- - Frequent change in position



Tracheostomy (cont.)

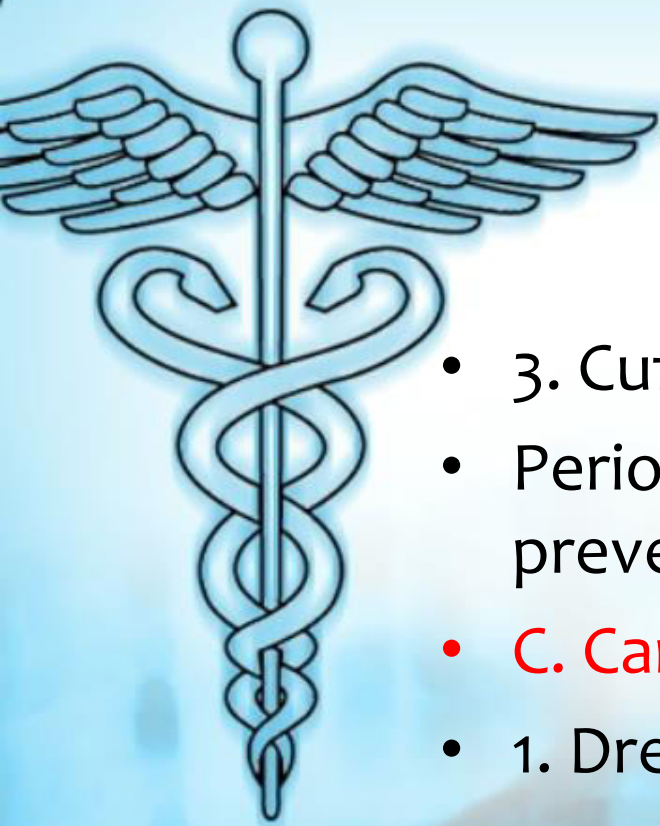




Tracheostomy (cont.)

B. Care of the tube-

1. Suction (tracheo-bronchial toileting) - suction of the secretion when ever blocked or following instillation of 5ml saline into the tube with sterile catheter hourly.
2. Changing of the tube-
 - Inner tube taken out & cleaned whenever necessary, hourly and reinserted.
 - Outer tube will fixed properly, not withdraw within 4-5 days until the tract is formed. Then it should be changed daily or replaced by plastic tube.



Tracheostomy (cont.)

- 3. Cuffed tube-
- Periodic and regular deflection of the cuff to prevent pressure necrosis.
- **C. Care of the stoma-**
 - 1. Dressing-water proof dressing/ dry dressing.
 - 2. Decanulation- removal of the tube. It is the process of taking out the tube permanently and close the stoma when the tracheostomy is no longer required.
 - By- corking. Gradual block the stoma or gradual reduction the size of the tube.





Tracheostomy (cont.)

Complications

A. Immediate-

1. Haemorrhage.
2. Apnoea.
3. Air embolism
4. Cardiac arrest.
5. Local tissue damage-
 - Injury to the thyroid vessels, jugular vein, carotid artery. RLN
 - Damage to the apical pleura' damage to the cricoid cartilage.



Complications (cont.)

• B. Intermediate-

1. Dislodgement or displacement of the tube.
2. Surgical emphysema
3. Pneumothorax & pneumomediastinum.
4. Tracheal erosion/ necrosis.
5. Dysphagia.
6. Scabs & crust / obstruction.
7. Fistula- tracheo- arterial & tracheo- oesophagial.
8. Infection- perichondritis,



Complications (cont.)

C. Late-

1. Sub glottic & tracheal stenosis.
2. Decanulation problem.
3. Tracheo cutaneous fistula.



Tracheostomy tubes





laryngectomy

- Treatment of laryngeal cancer:
- 1. Radiotherapy.
- 2. Surgery
 - a. Conservative laryngeal surgery
 - b. Total laryngectomy
- 3. Combined therapy



- Conservative surgery:
- Earlier total laryngectomy was done for most of the laryngeal cancers and the patient was left with no voice and a permanent tracheostomy.
- Lately, there has been a trend for conservation laryngeal surgery which can preserve voice and also avoid a permanent tracheal opening.
- Few cases would be suitable for this type of surgery and they should be carefully selected.



- Conservation surgery includes:
- i) excision of vocal cord after spitting the larynx (cordectomy via laryngofissure)
- li) excision of vocal cord and anterior commissure region (partial frontolateral laryngectomy)
- lii) excision of supraglottic i.e. epiglottis, aryepiglottic folds , false cords and ventricle-a sort of transverse section of larynx above the vocal cords (partial horizontal laryngectomy)



- Total laryngectomy :
- The entire larynx including the hyoid bone , pre-epiglottic space, strap muscles , and one or more rings of trachea are removed.
- Pharyngeal wall is repaired and lower tracheal stump sutured to the skin for breathing.
- Laryngectomy may be combined with block dissection for nodal metastasis.



- Indications of total laryngectomy:
- T3 lesions (with cord fixation)
- All T4 lesions
- Invasion of thyroid or cricoid cartilage.
- Bilateral arytenoid cartilage involvement
- Lesions of posterior commissure
- Failure after radiotherapy or conservative surgery
- Transglottic cancers i. e. tumours involving supraglottic and glottic across the ventricle, causing fixation of the cord.



- Contraindication :
- Distant metastasis.



- Vocal rehabilitation after total laryngectomy.
- After laryngectomy, patient loses his/her speech completely.
- Various methods by which communication can be established are-
 - 1. Oesophageal speech.
 - 2. Artificial larynx.
 - 3. Tracheo-oesophageal speech



Thank you

All