

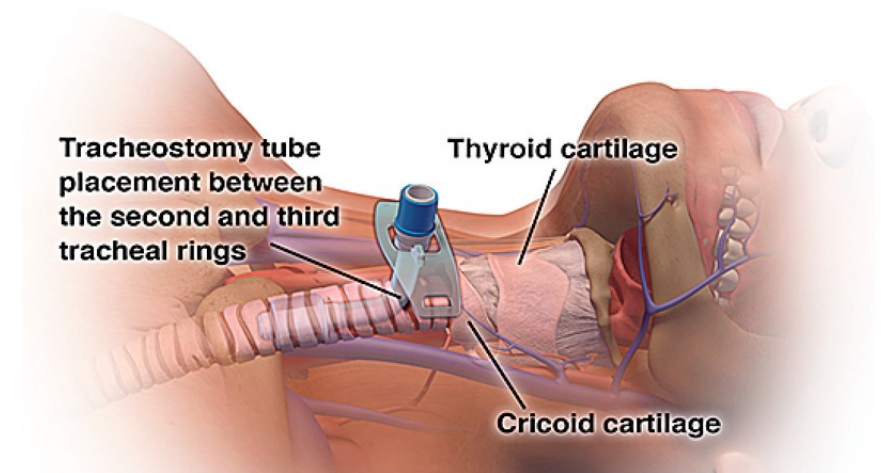
Tracheostomy



- Making an opening in the anterior wall of trachea & converting it into a stoma on skin surface.

Indications:

- i) Obstruction above the level of trachea
(Infection, tumor, trauma, foreign body, vocal cord palsy)
- ii) Mechanical Ventilation for prolonged period
- iii) Suction of Secretions (incubated patients)



iv) Maxillofacial, head & Neck
Surgeries

iv) Prevent Aspiration (B/L Vocal
Cord Palsy)

Functions:

- (i) Alternative pathway of breathing
- (ii) Improves alveolar ventilation
- (iii) Protects the airways
- (iv) Permits removal of
tracheobronchial secretions
- (v) Intermittent positive pressure
respiration (IPPR)
- (vi) To administer Anaesthesia.

Indications for tracheostomy

1. Respiratory obstruction

- (a) Infections
 - (i) Acute laryngo-tracheo-bronchitis, acute epiglottitis, diphtheria
 - (ii) Ludwig's angina, peritonsillar, retropharyngeal or parapharyngeal abscess, tongue abscess
- (b) Trauma
 - (i) External injury of larynx and trachea
 - (ii) Trauma due to endoscopies, especially in infants and children
 - (iii) Fractures of mandible or maxillofacial injuries
- (c) Neoplasms
 - Benign and malignant neoplasms of larynx, pharynx, upper trachea, tongue and thyroid
- (d) Foreign body larynx
- (e) Oedema larynx due to steam, irritant fumes or gases, allergy (angioneurotic or drug sensitivity), radiation
- (f) Bilateral abductor paralysis
- (g) Congenital anomalies
 - Laryngeal web, cysts, tracheo-oesophageal fistula
 - Bilateral choanal atresia

2. Retained secretions

- (a) Inability to cough
 - (i) Coma of any cause, e.g. head injuries, cerebrovascular accidents, narcotic overdose
 - (ii) Paralysis of respiratory muscles, e.g. spinal injuries, polio, Guillain-Barre syndrome, myasthenia gravis
 - (iii) Spasm of respiratory muscles, tetanus, eclampsia, strychnine poisoning
- (b) Painful cough
 - Chest injuries, multiple rib fractures, pneumonia
- (c) Aspiration of pharyngeal secretions
 - Bulbar polio, polyneuritis, bilateral laryngeal paralysis

3. Respiratory insufficiency

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

Types :

- (i) Emergency tracheostomy (Vertical incision)
- (ii) Elective or tranquil tracheostomy (Horizontal incision)
- (iii) Permanent tracheostomy
- (iv) Percutaneous dilatational tracheostomy
- (v) Mini tracheostomy (Cricothyroidotomy)

Below cricoid to suprasternal notch
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↓
2.5 cm above
suprasternal
notch.

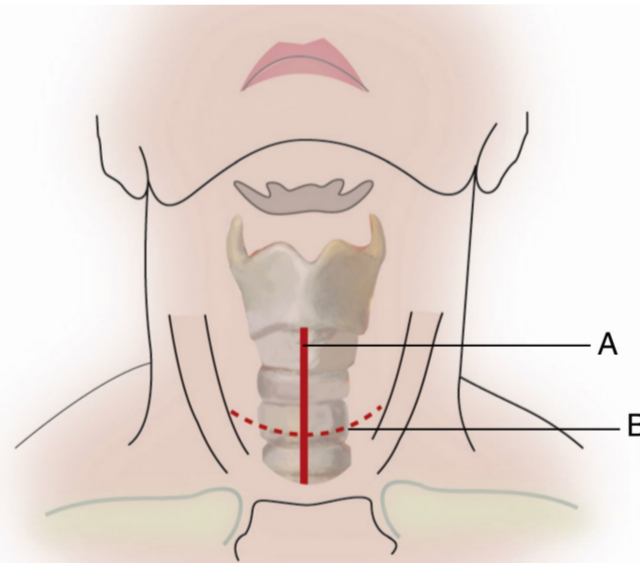
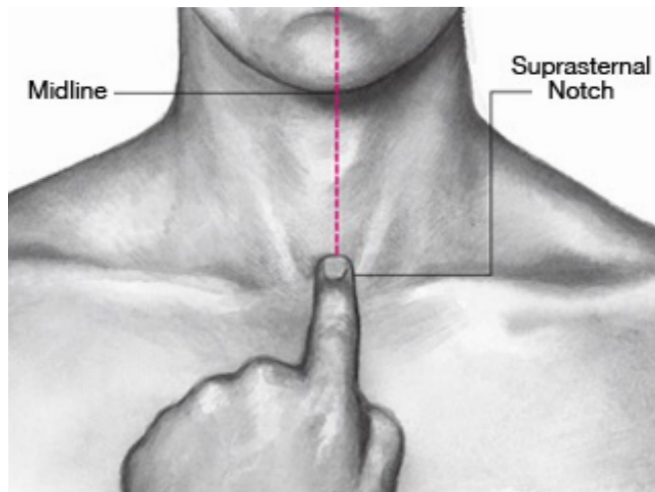


Figure : Skin incisions in tracheostomy. (A) Vertical midline incision. (B) Transverse incision.

Technique:

- Whenever possible, endotracheal intubation should be done before tracheostomy.
(important in Infants & Children)
- Position = Rose's position.
- Extension at = (1) Atlanto occipital joint
(2) Cervicothoracic joint
- Anaesthesia = Not required in Unconscious patients or in emergency.
 - In conscious patients, 1-2% lignocaine with epinephrine is infiltrated in the line of incision & area of dissection.
 - Sometimes general anaesthesia with intubation is used.

Procedure:

Skin incision



Strap muscles retracted



Thyroid gland pulled up
with help of cricoid hook



Aspirate air

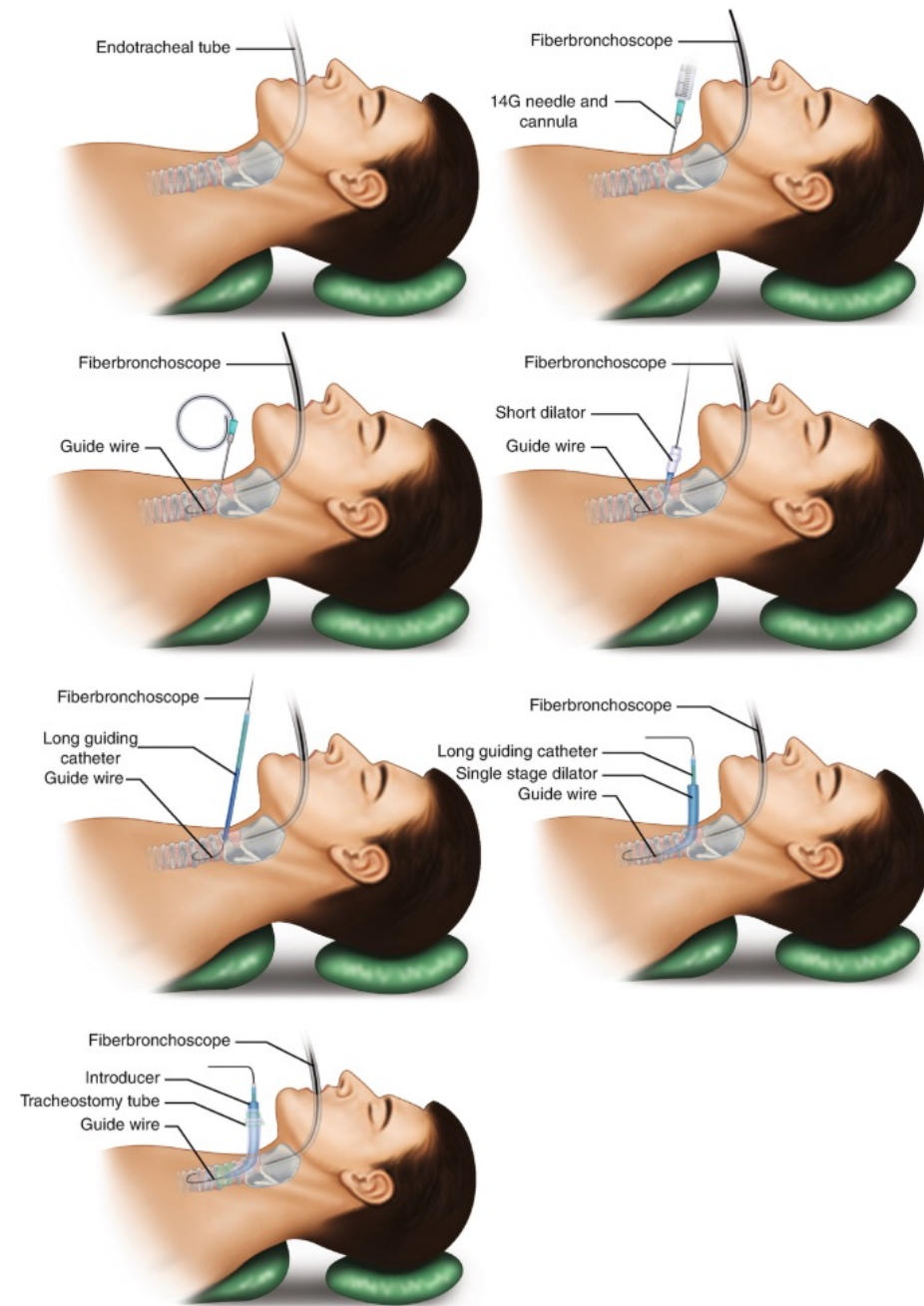


Incision on T₂ - T₄

* Never on T₁ (only in case of
laryngeal carcinoma)
↓
High Tracheostomy



Can lead to Subglottic stenosis



Post operative Care:

- (i) Constant supervision
- (ii) Suctioning & Cleaning with saline & Sodium bicarbonate throughout the day.
- (iii) Permanent cuff deflation after 12 days
- (iv) Change to uncuffed tube, adult - After 3 days
Child - After 7 days.



Cuffed tracheostomy tubes are developed for patients require positive pressure ventilator and airway protection



Uncuffed tube is used when the patient no longer needs positive pressure ventilation and has no significant aspiration risk. The tube is still for access to chest secretions or bypass an upper airway obstruction

* Decannulation : Tracheostomy tube should not kept longer than necessary.

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Can lead to Tracheobronchial Infections, Tracheal ulcerations, granulations, stenosis & Scars.

Complications:

- (I) Immediate : (time of op.)
- (i) Hemorrhage
 - (ii) Apnoea
 - (iii) Pneumothorax due to injury to Apical pleura
 - (iv) Aspiration of blood
 - (v) Injury to Recurrent Laryngeal Nerves.
 - (vi) Injury to Oesophagus.

II) Intermediate : (first few hrs to days)

- i) Bleeding
- ii) Displacement of Tube
- iii) Blocking of Tube
- iv) Subcutaneous emphysema
- v) Tracheitis & Tracheobronchitis with crushing of trachea
- vi) Atelectasis
- vii) Lung abscess
- viii) Local wound & granulations.

III Late : (weeks & months)

- i) Hemorrhage (erosion of major vessel)
- ii) Laryngeal stenosis
- iii) Tracheal Stenosis
- iv) Tracheo-oesophageal fistula
- v) Problems in Decannulation
- vi) Tracheostomy scars
- vii) Granulations & Infection.



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