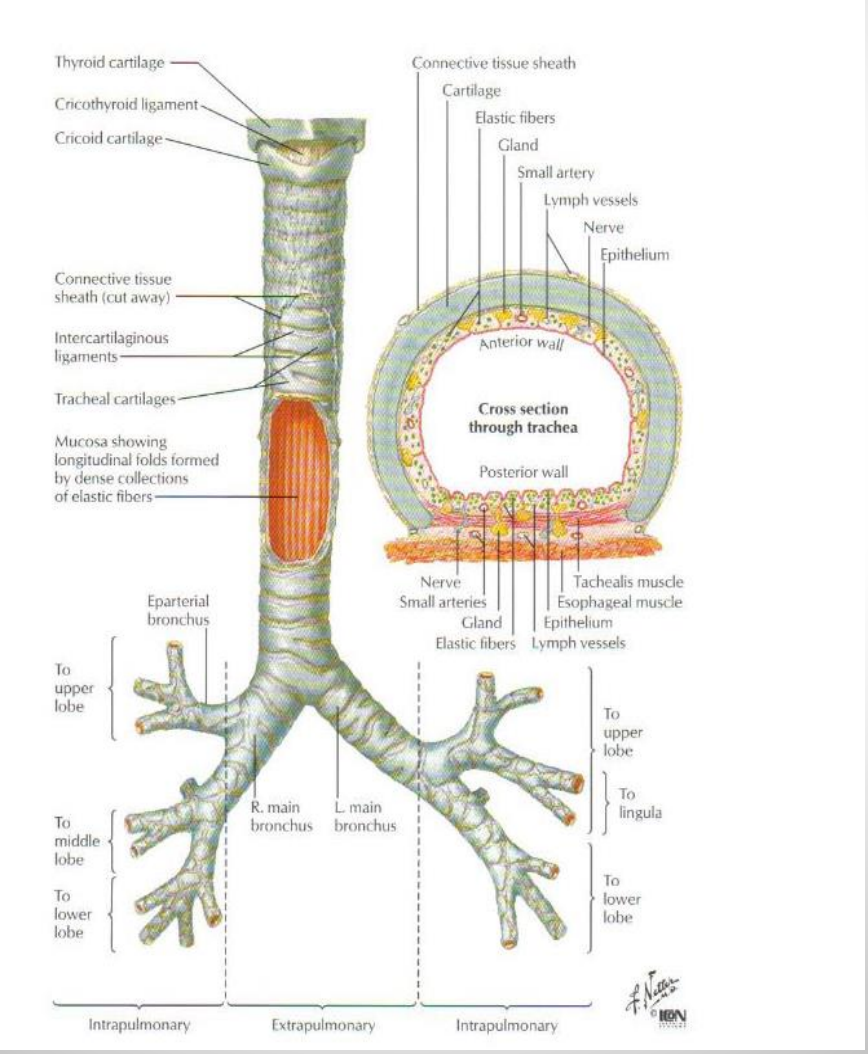
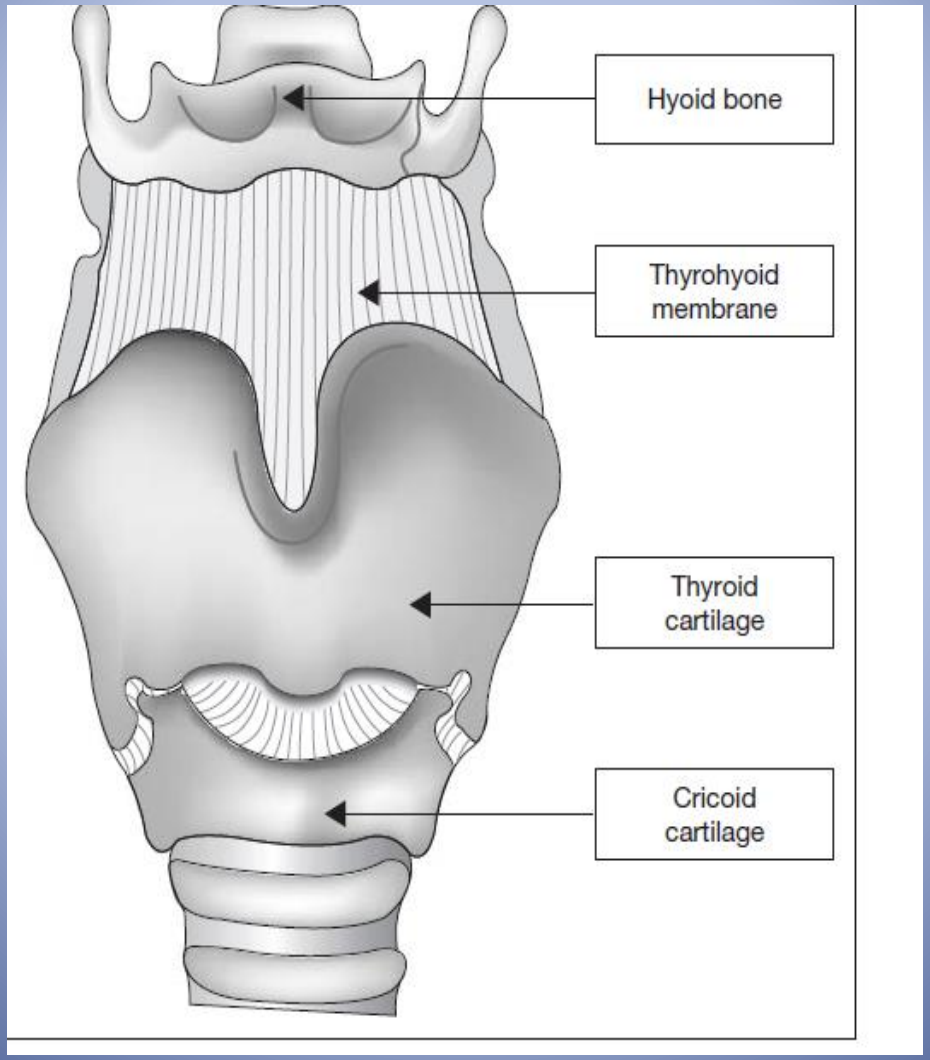
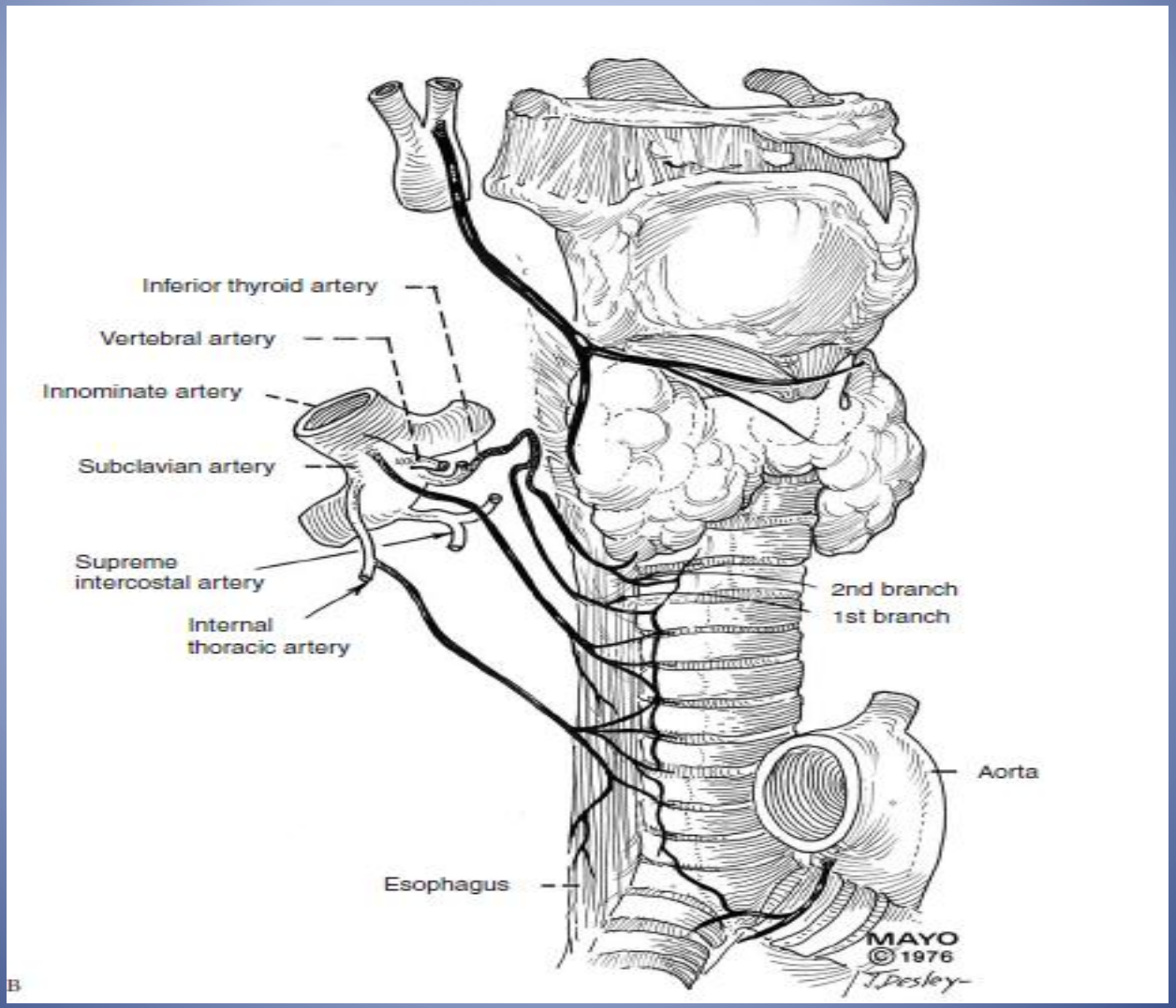
تراکئوستومی و مراقبت از آن

آناتومی تراشه




Hyoid bone
Thyrohyoid membrane
Thyroid cartilage
Cricoid cartilage


Inferior thyroid artery
Vertebral artery
Innominate artery
Subclavian artery
Supreme intercostal artery
Internal thoracic artery
2nd branch
1st branch
Aorta
Esophagus
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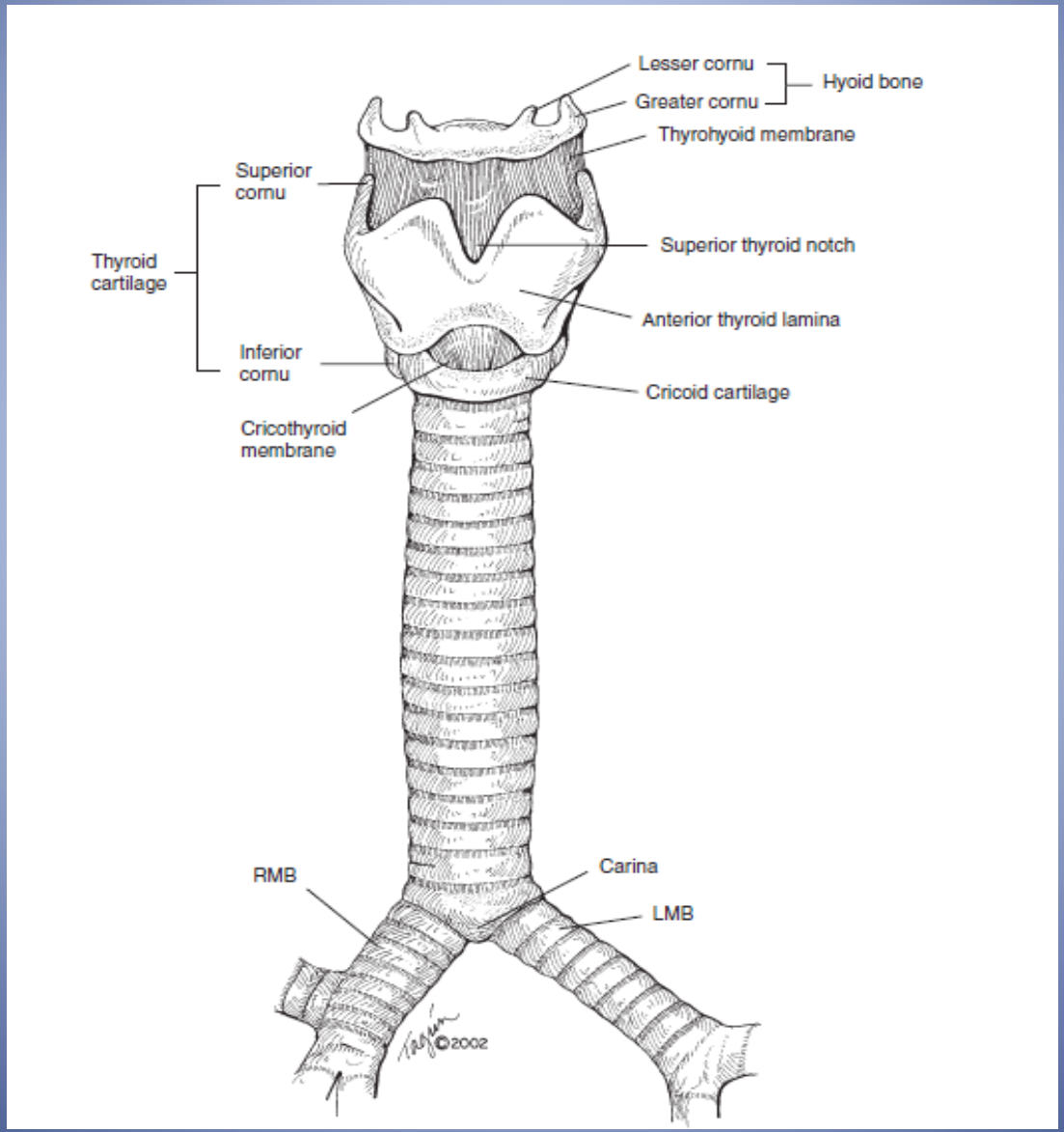
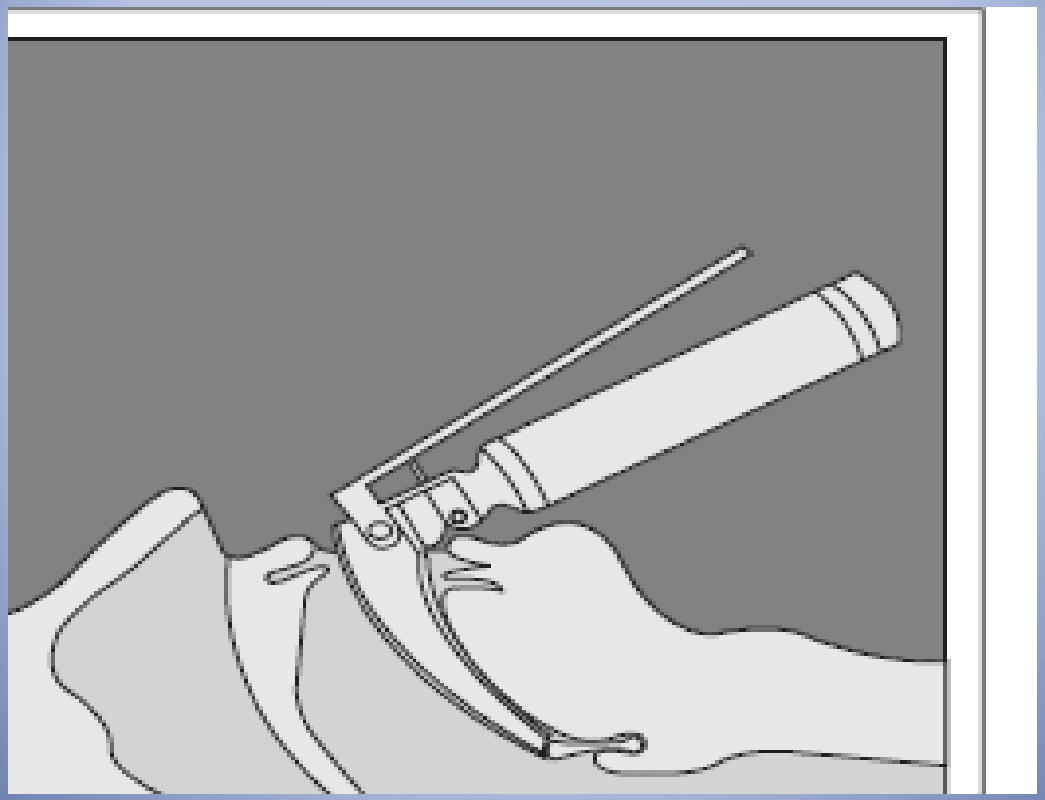
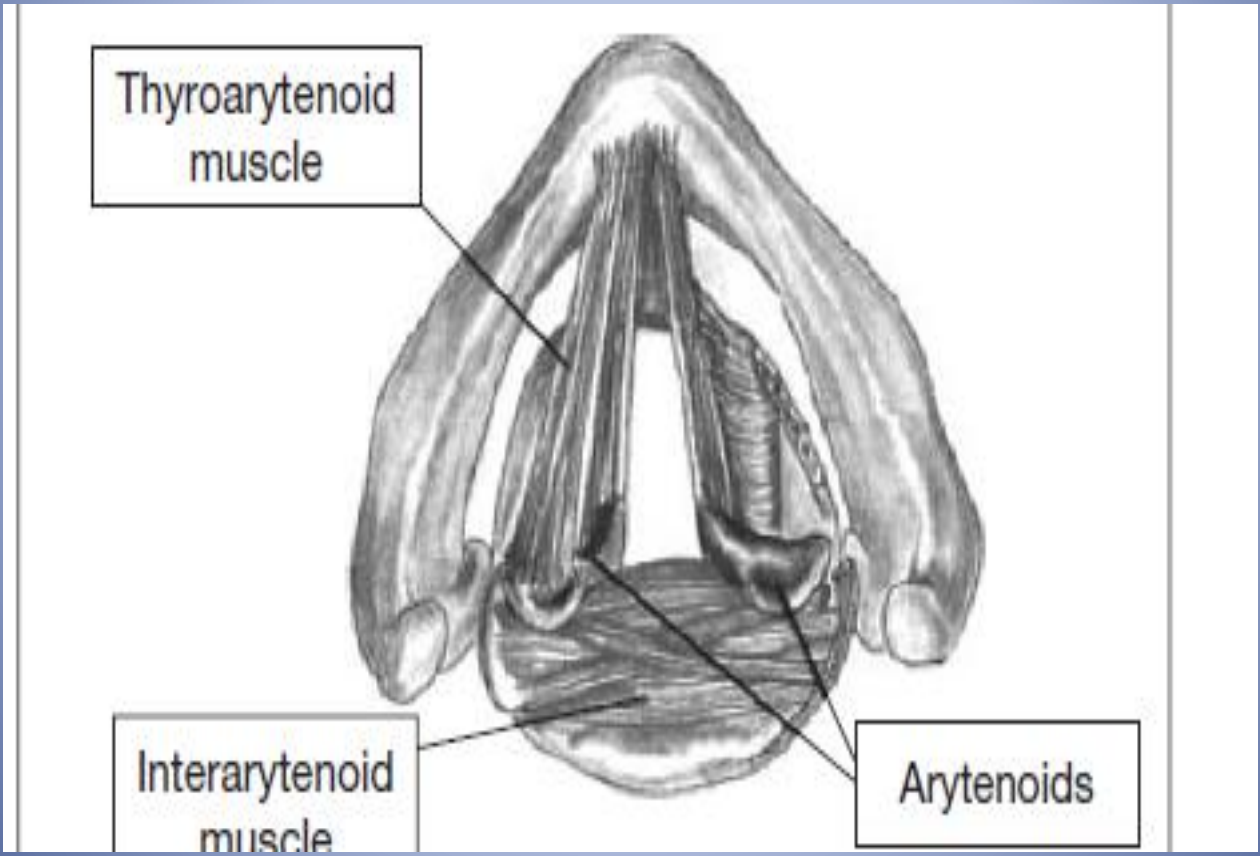
آناتومی تراشه



لارنگوسکوپی



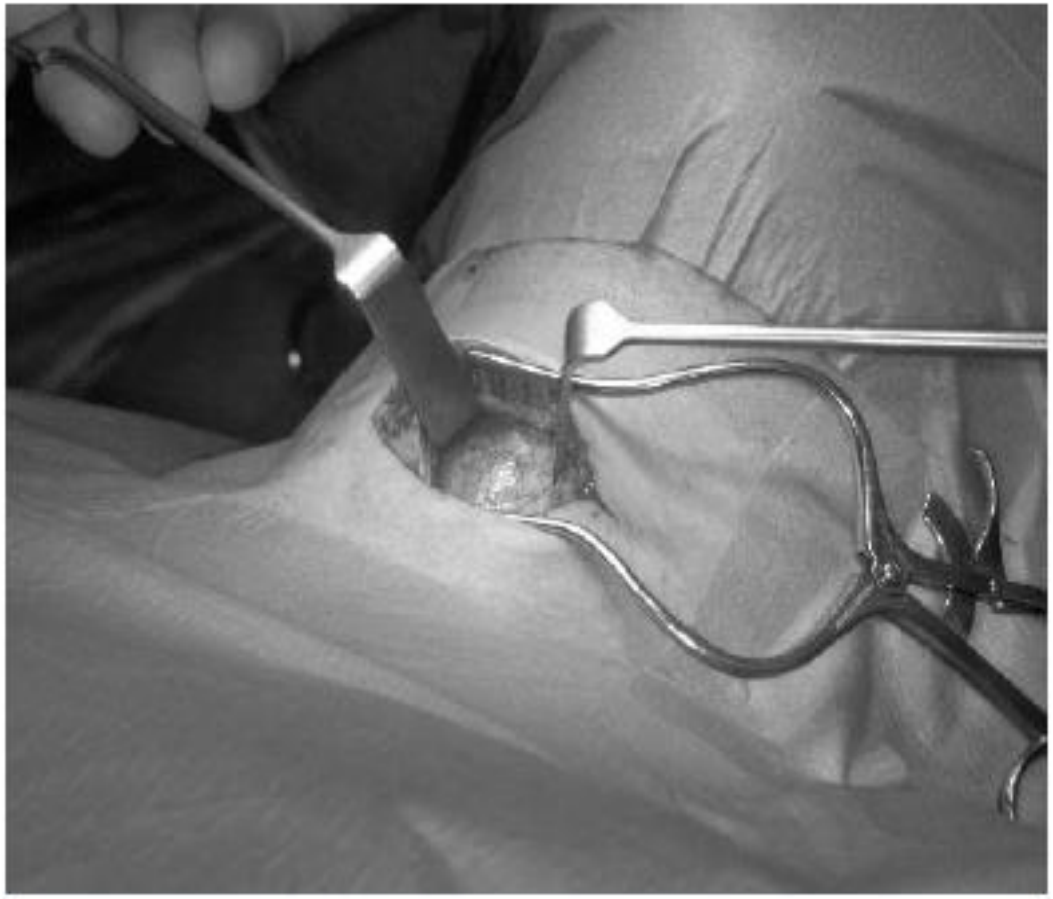

Thyroarytenoid muscle
Interarytenoid muscle
Arytenoids

اندیکاسیون تراک در آی سی یو

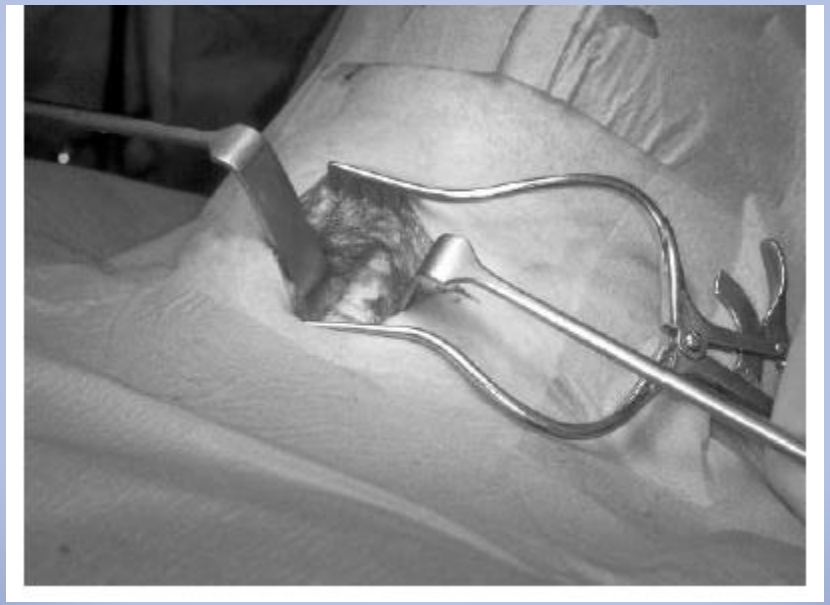
Table 2: Indications for tracheostomy in the ICU

Indications for tracheostomy	ICU patient groups
Facilitate prolonged assisted ventilation	Coma • Major head injury • Cerebral bleed/infarct/lesion • Encephalitis High spinal cord injury Neuromuscular disorder • Guillain–Barre syndrome • Critical care polyneuropathy Chronic obstructive pulmonary disease
Inability to prevent pulmonary aspiration	Posterior fossa/infratentorial lesions • Cerebellum/brain stem • Basilar/posterior cerebral artery Cranial nerve dysfunction
Upper airway obstruction	Maxillofacial surgery or trauma Congenital malformation Facilitate upper cervical surgery Vocal cord paralysis

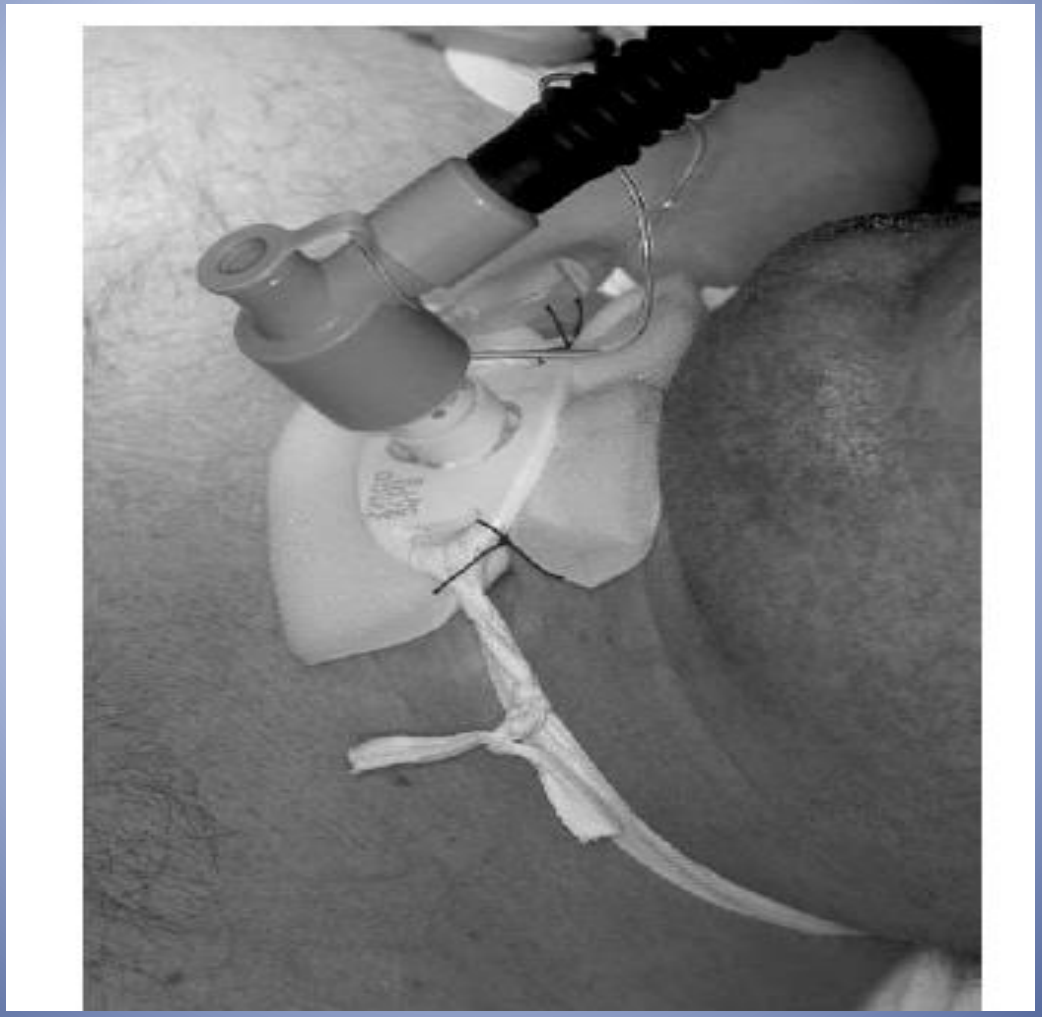
برش اولیه تراک



برش جراحی تراک روی تراشه



جاگذاری و تعبیه تراک



جاگذاری تراک روی مولاژ

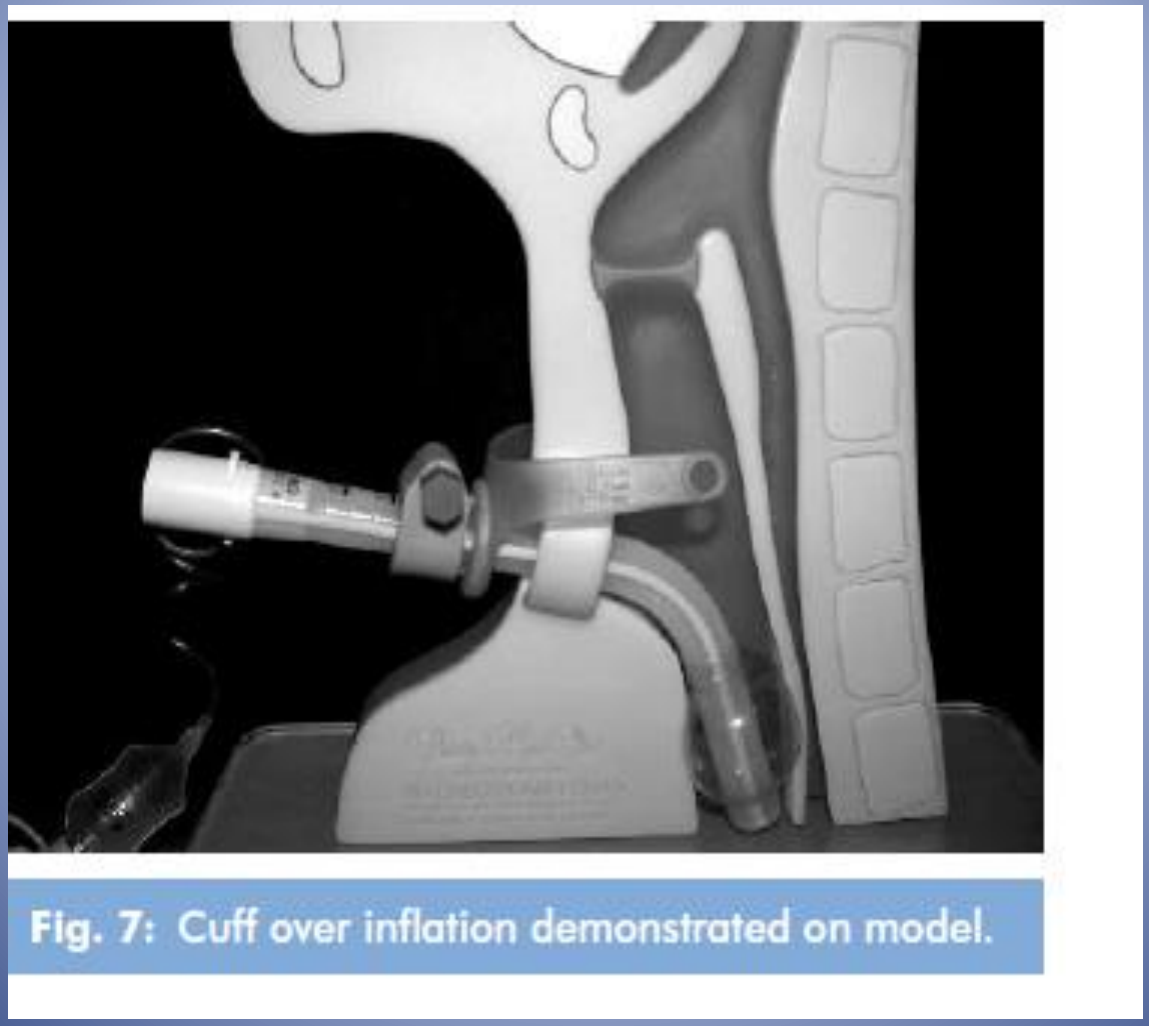
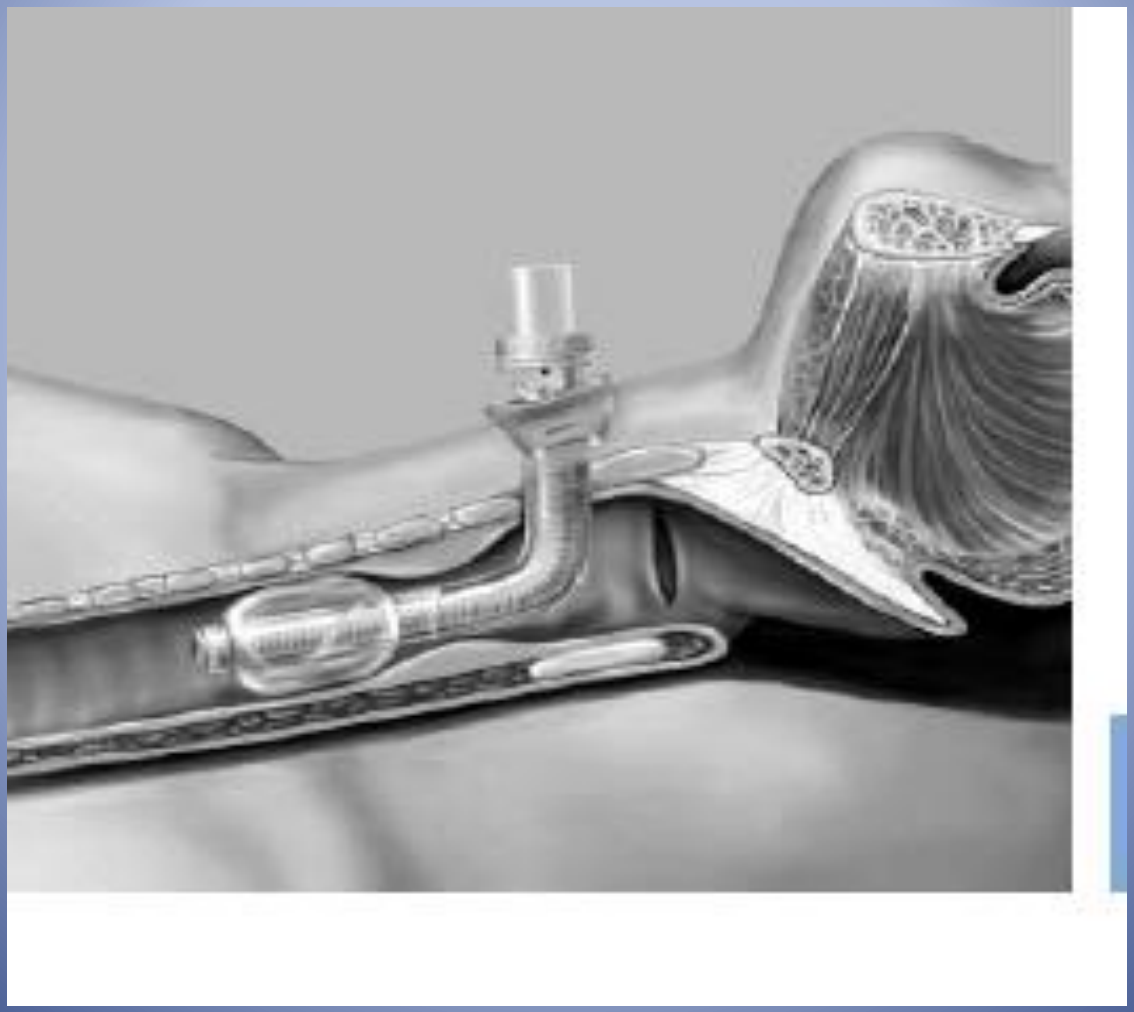


Fig. 7: Cuff over inflation demonstrated on model.

نمای ساژیتال



فیکس کردن تراک

Fig. 4: Application of dressing and Velcro tube holders.

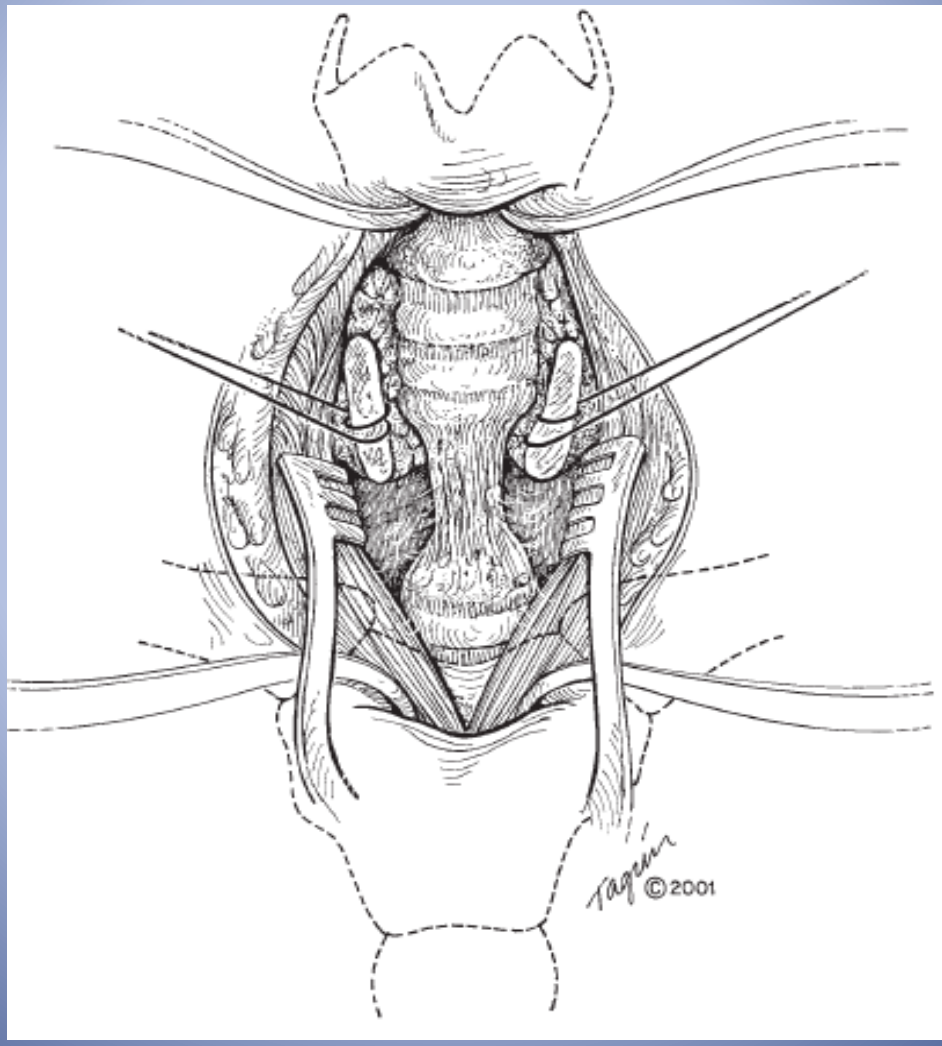
تراک پلاستیکی

Fig. 3: Adjustable flanged tube (courtesy of Portex).

تراک نمونه

Fig. 8: Plain cuffed tube with inner tube (courtesy of Portex).

تراک اسپیرال



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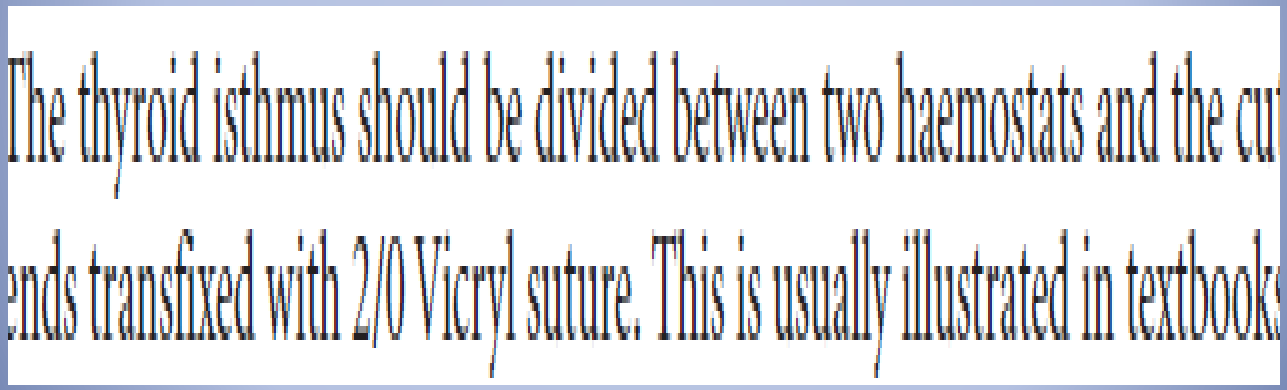
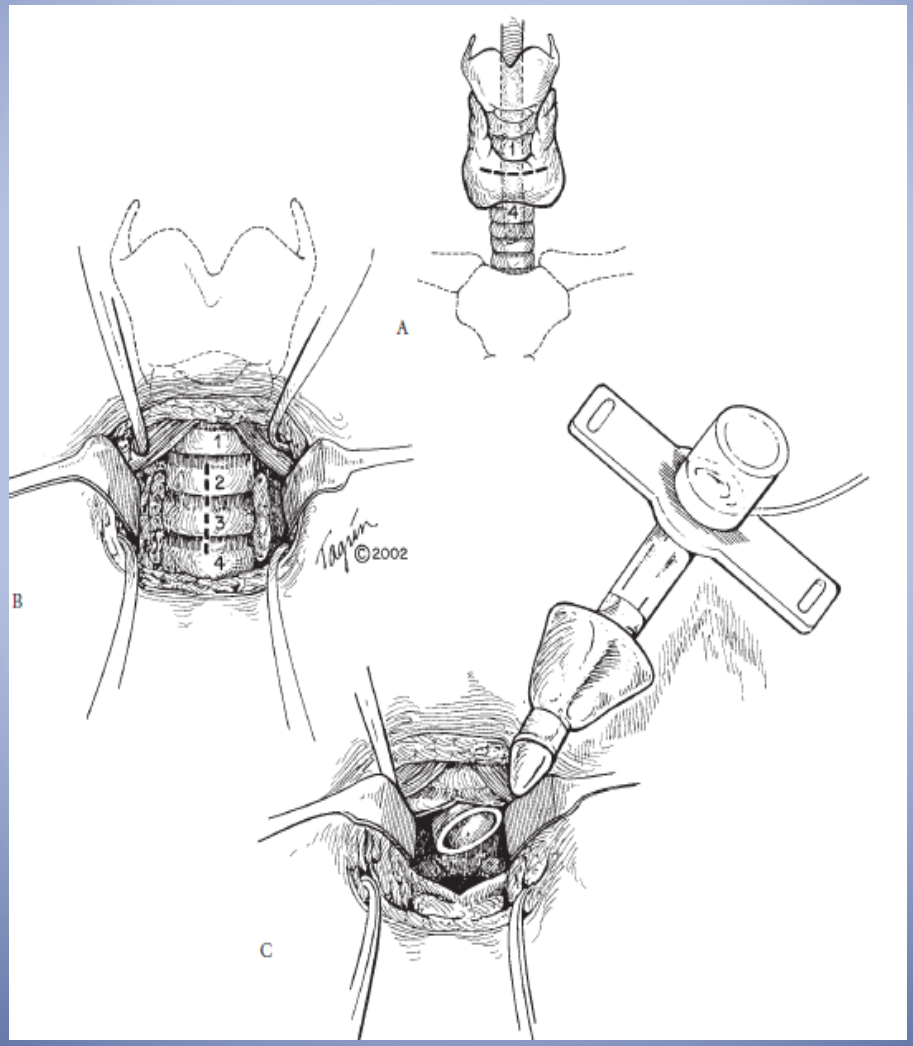
قطع ایسم تیرویید در تراکئوستومی



برش تراک روی غضروف تراشه



بخیه های نگهدارنده

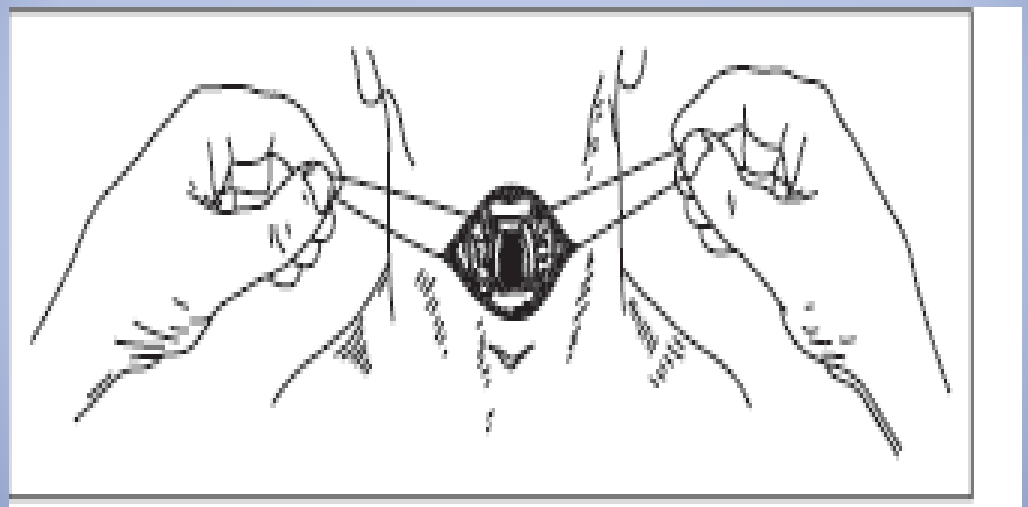


Fig. 3: Stay sutures.

تراک فوم

Fig. 10: Fome-Cuf (courtesy of Portex).

تراک پلاستیکی

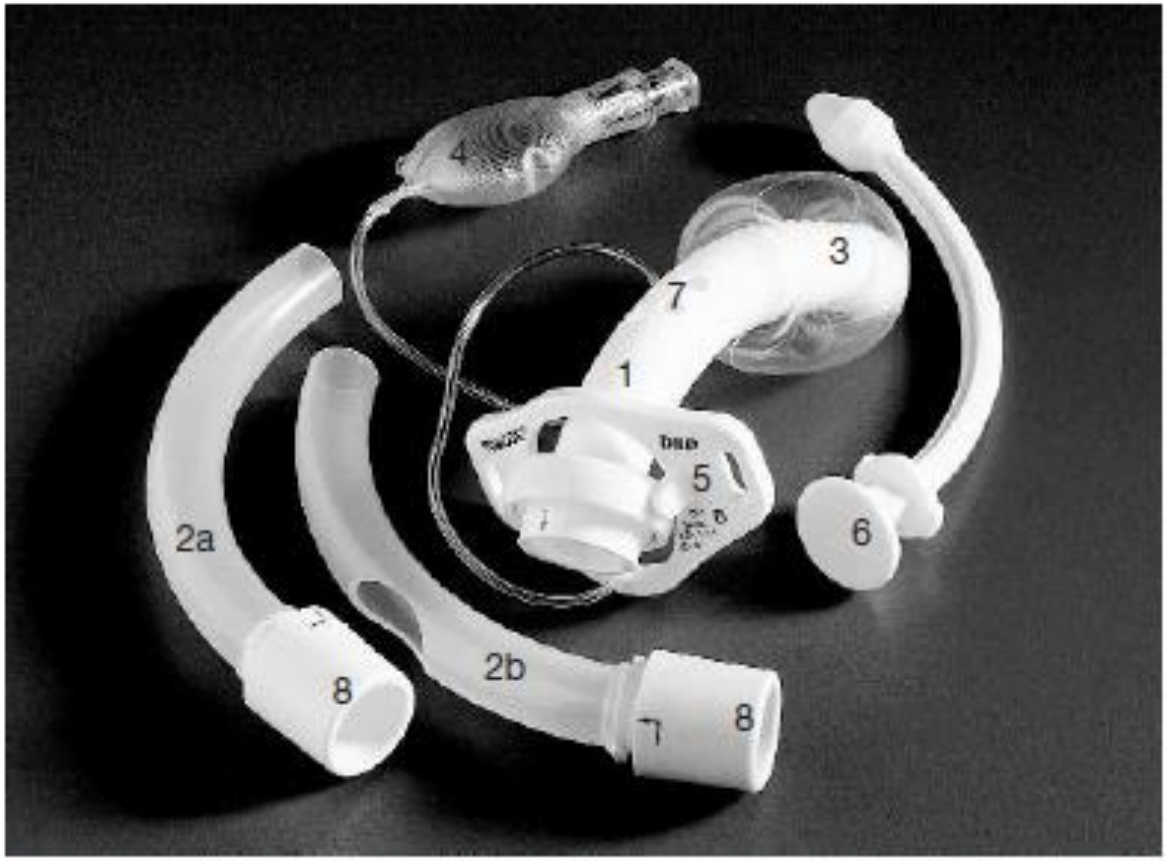


Fig. 2: Fenestrated cuffed tube (courtesy of Kapitex).

مانومتر فشار سنج تراک

Fig. 6: Cuff pressure manometer.

مراقبت روزانه از زخم تراک

استفاده از نبولایزر

Fig. 7: Nebuliser and tracheostomy mask.

تمیز کردن تراک

Fig. 4: Removal of the inner tube.

سایز نلاتون مورد استفاده در ساکشن

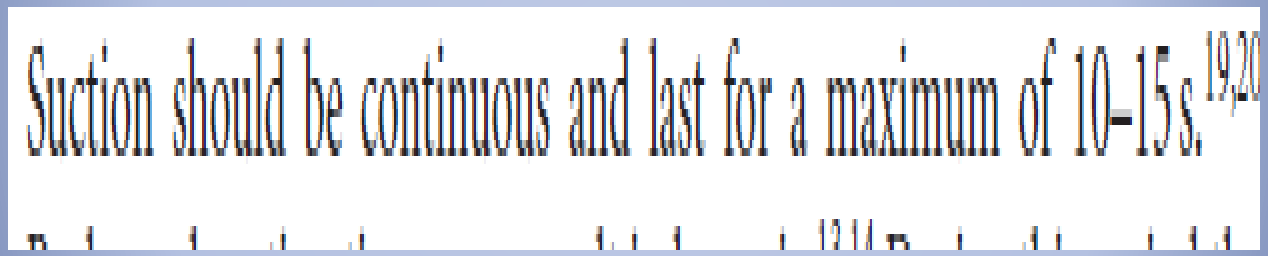
choosing a catheter is as follows:

1. Divide the internal diameter (mm) of the tracheostomy tube by 2, this gives the external diameter (mm) of the catheter.
2. Multiply this by 3 (to obtain the French gauge): e.g., a size 8 tracheostomy tube.
3. $8 \div 2 = 4$ (external diameter) of catheter.
4. $4 \times 3 = 12$ (French gauge).
5. Therefore the appropriate catheter is a size 12.

قدرت خلا ساکشن

- Check that the suction apparatus is functioning and that the vacuum pressure is set between 13.5–20 kPa/100–150 mmHg (Fig. 1).[11,17] Limiting the negative pressure will help to reduce the risk of mucosal damage, hypox

مدت زمان ساکشن



وسایل موجود ساکشن

Fig. 1: Wall suction unit and oxygen delivery system.

شماره تراک شایلی

Table 8: Adult tubes: Tracheostomy tubes with inner cannula

Shiley,	**Size**	**4**	**6**	**8**	**10**
Mallinckrodt	O.D. (mm)	9.4	10.8	12.2	13.8
	I.D. (mm)	5.0	6.4	7.6	8.9
	Length (mm)	65	76	81	81

شماره تراک

Table 4: Tracheostomy tube sizes according to age and tracheal transverse diameter[11]

Age	Trachea (transverse diameter, mm)	Inner diameter tracheostomy tube, mm
Pre-term–1 month	5	2.5–3.0
1–6 months	5–6	3.5
6–18 months	6–7	4.0
18 months–3 years	7–8	4.5
3–6 years	8–9	5.0
6–9 years	9–10	5.5
9–12 years	10–13	6.0
12–14 years	13	7.0

Table 5a: Complications of a tracheostomy tube

- Tracheal ulceration and necrosis
- Tracheal stenosis (narrowing)
- Tracheo-oesophageal fistula
- Tracheo-onimate artery fistula and haemorrhage
- Stoma ulceration and breakdown
- Overgranulation tissue
- Tracheal irritation and coughing
- Discomfort
- Cosmetic appearance

Table 5b: Complications caused by tube length

Too long

- Trauma caused by the tube tip or suction catheter catching the carina
- Collapsed lung due to unilateral ventilation caused by tracheostomy tube entering bronchi
- Patient discomfort
- Convulsive or excessive coughing due to irritation of the carina

Too short

- Tube displacement, loss of tracheostomy tract, respiratory arrest and/or death
- Tube displacement causing ventilation into pre-tracheal space leading to surgical emphysema
- Ulceration and/or erosion of the posterior tracheal wall, from poorly positioned tube within trachea
- Ineffective ventilation from a poorly positioned/ angled tube within the trachea

Fig. 5: Bougie inserted into tube lumen.

Fig. 6: Tube removal over bougie.

Passy Muir tracheostomy and ventilator speaking valves

MECHANICAL UPPER AIRWAY OBSTRUCTION

This group contains the largest number of examples and is best broken down further by employing the 'surgical sieve':

Cause	Examples
Congenital	Subglottic or upper tracheal stenosis, laryngeal web, laryngeal and vallecular cysts, tracheo-oesophageal anomalies or haemangioma of the larynx.
Infective	Acute epiglottitis, laryngotracheobronchitis, diphtheria or Ludwig's angina.
Malignancy	Advanced tumours of larynx, tongue, pharynx or upper trachea presenting with stridor.
Trauma	Gunshot and knife wounds to the neck, inhalation of steam or smoke, swallowing of corrosive fluid.
Vocal cord paralysis	Post-op complication of thyroidectomy, cardiac or oesophageal surgery, bulbar palsy.
Foreign body	Swallowed or inhaled object lodged in upper airway causing stridor.

PROTECTION OF THE TRACHEOBRONCHIAL TREE FROM ASPIRATION

In chronic conditions where laryngeal or pharyngeal incompetence may allow aspiration and inhalation of saliva or gastric contents, a tracheostomy should be performed. A cuffed tube will prevent inhalation of fluids and the tube allows easy access to the trachea and the bronchi for suction. Examples include:

- Neurological diseases [polyneuritis (e.g. Guillain–Barre syndrome), motor neurone disease, bulbar poliomyelitis, multiple sclerosis, myasthenia gravis, tetanus, brain-stem stroke and bulbar palsy].
- Coma (in any situation where the Glascow Coma Scale score is less than 8, the patient is at risk of aspiration as the protective reflexes are lost. That includes head injury, overdose, poisoning, stroke, and brain tumour).
- Trauma (severe facial fractures, may result in the aspiration of blood from the upper airways).

Table 2a: Indications for an uncuffed tube

- Vocal cord palsy
- Head and neck tumour
- Respiratory insufficiency
- Neuromuscular disorders
- Paediatric or neonatal tracheostomy

Table 2b: Contra-indications for an uncuffed tube

- Dependent on positive pressure ventilation
- Significant risk of aspiration
- Newly formed tracheostomy