



تقنيات اجهزة تخدير الكورس الاول

Tracheal tubes

Sawa University

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techniques

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Stage 3

جامعة ساوة

الاهلية

كلية التقنيات الصحية

والطبية

قسم تقنيات التخدير

المرحلة الثالثة

محاضرة رقم 4

الجانب العملي

Lecture No 4 practical

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Tracheal tubes

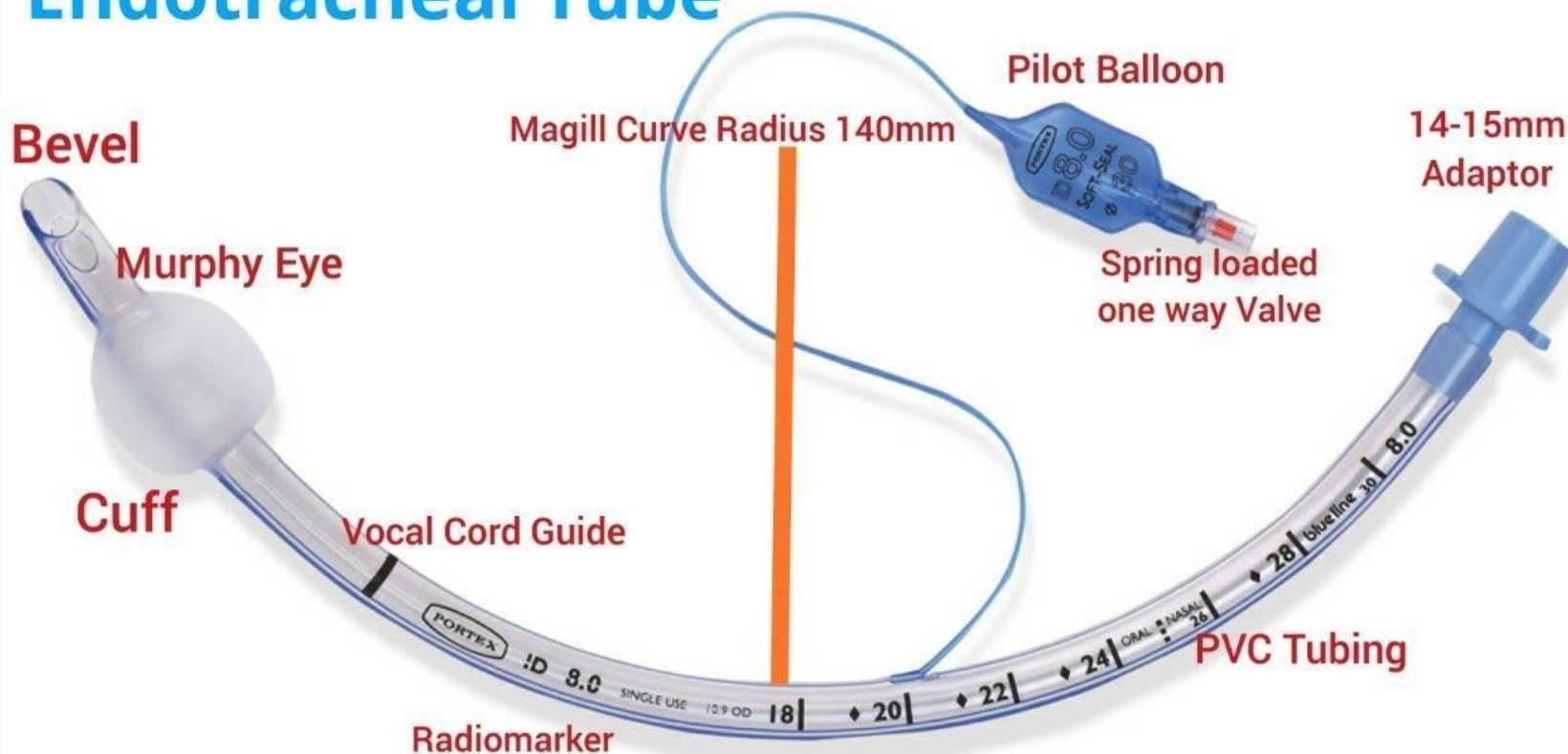
Tracheal tubes provide a means of securing the patient's airway. These disposable plastic tubes are made of polyvinyl chloride (PVC).

As plastic is not radio-opaque, tracheal tubes have a radio-opaque line running along their length, which enables their position to be determined on chest X-rays. The siliconized PVC aids the passage of suction catheters through the tube.



tracheal tube components

Endotracheal Tube



Tracheal tube sizes

Adult: ID for

adult male: 8-8.5 mm ID

adult female: 7-7.5 mm ID

Length or Depth: 20-23 cm

Pediatric :

1-6 year $3.5+ (\text{age}/4)$ in years cuffed tube.

uncuffed tube : $4+ (\text{age}/4)$ More than 6 year $4.5+ (\text{age}/4)$ in years)

Length in pediatric is $12+ (2/\text{age in years})$, or another way by Neonate = weight in kg+6



Route of insertion

1. Tubes can be inserted **orally or nasally**.

2. The indications for nasal intubation include:

a. **surgery** where access via **the mouth** is necessary, e.g. ear, nose and throat (ENT) or dental operations

b. **long-term ventilated patients** on intensive care units. Patients tolerate a nasal tube better, and **cannot bite** on the tube. However, long-term nasal intubation may cause sinus infection.

3. Nasal intubation is usually avoided, if possible, **in children up to the age of 8–11 years**. **Hypertrophy of the adenoids** in this age group increases the risk of profuse **bleeding** if nasal intubation is performed.



Problems in practice and safety features

1. Obstruction of the tracheal tube by kinking, herniation of the cuff, occlusion by secretions, foreign body or the bevel lying against the wall of the trachea.
2. Oesophageal or bronchial intubation.
3. Trauma and injury to the various tissues and structures during and after intubation.



Specially designed tracheal tubes

1. OXFORD TRACHEAL TUBE

This anatomically L-shaped tracheal tube is used in anaesthesia **for head and neck surgery** because it is

non-kinking. The tube can be made of rubber or plastic and can be cuffed or uncuffed. This is undesirable especially in **pediatric anesthesia**.



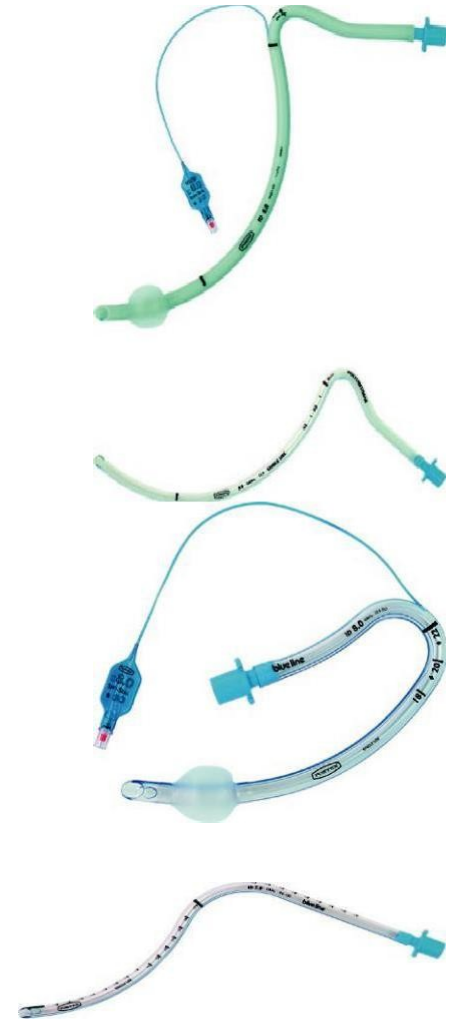
2- ARMoured/REINFORCED TRACHEAL tubes

The walls of the armoured tube are thicker than ordinary tracheal tubes because they contain an embedded **spiral of metal wire or tough nylon**. They are **used in anaesthesia for head and neck surgery**. The **spiral** helps to prevent the kinking and occlusion of the tracheal tube when the head and/or neck is rotated or flexed so giving it strength and flexibility at the same time. An introducer stylet is used to aid intubation.



-3 POLAR AND RING TRACHEAL TUBES

The polar tube is a north- or south-facing preformed **nasal cuffed or uncuffed** tracheal tube . It is used mainly during anaesthesia **for maxillofacial surgery** as it does not impede surgical access.



LASER-RESISTANT TRACHEAL -4 TUBES

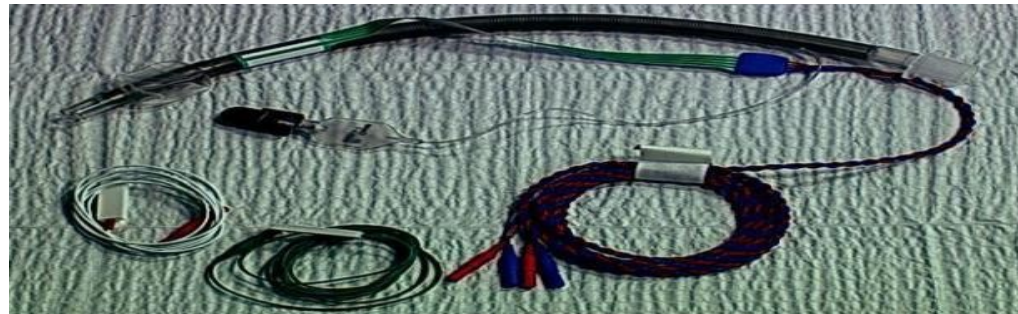
These tubes are used in anesthesia **for laser surgery on the larynx or trachea** . They are designed to withstand the effect of **carbon dioxide and potassium-titanyl-phosphate (KTP)** laser beams, avoiding the risk of fire or damage to the tracheal tube. One design has a flexible stainless steel body. The **cuff is filled with methylene blue-colored saline**.



-5 EVOKED POTENTIALS TRACHEAL TUBES

These tubes are used in a number of surgical procedures that have the risks of **damage to nerves, e.g. thyroid surgery**. Bipolar stainless steel contact electrical electrodes are embedded in the tracheal tubes above the cuff where they are in contact with the vocal cords. These electrodes are connected to a nerve stimulator. An additional earth electrode is attached to the skin of the patient.

The use of such tubes allows continuous nerve monitoring throughout surgery providing visual and audible warnings



-6 MICROLARYNGEAL TUBE

This tube allows better exposure and **surgical access to the larynx**. It has a small diameter (**usually 5-mm ID**) with an adult sized cuff. Its length is sufficient to allow nasal intubation if required. The tube is made of ivory PVC to **reduce trauma to the nasal mucosa**.



***Thank
you***

