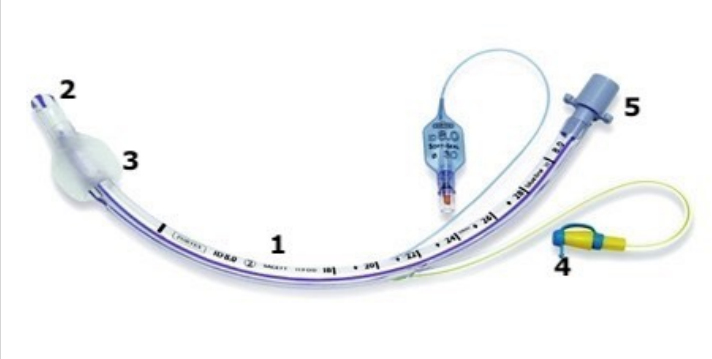
ACCU KIT OF THE WEEK

THE ROYAL LONDON HOSPITAL

Oral ETT

JM January 2021



What is this?

This is an oral endotracheal tube with a subglottic aspiration port.

What's the appropriate size?

In children, you can use age-based calculations for diameter and depth. In adults, we tend to recommend the maximum diameter that can be inserted atraumatically. This is for two main reasons- (1) reducing the diameter of the tube increases resistance to air flow making work of breathing and resistive airways pressure higher (2) bronchoscopy may be indicated in many of these patients which is easier and safer in larger tube diameters.

What are its main features?

(1) the tube is made of clear PVC with depth markers and a radiopaque line running lengthways (2) a murphy's eye at the tip- this allows ventilation if the main aperture is occluded. It also helps to avoid accidental one-lung ventilation is there is partial endo-bronchial intubation. (3) a soft low-pressure, high volume (minimally traumatic) cuff connected to a pilot balloon and inflation port (4) sub glottic aspiration port used to aspirate secretions from above the cuff. (5) a connector to fit to ventilator tubing.

How is it inserted?

Insertion without anaesthetic is difficult and very uncomfortable. It is either inserted in cardiac arrest or under GA with muscle relaxation.

What is the optimum position?

On Xray, the tip should be mid-trachea thereby safely avoiding both extubation and endobronchial intubation on head movements.

Should it be cut?

Cutting the tube reduces the resistance to airflow. However this is dangerous where oro-pharyngeal swelling is anticipated. Ask your consultant.

What's the cuff for?

The cuff allows ventilation of the distal airways without air leaking back out. It also protects the airway from aspiration of unwanted material from above (e.g. regurgitated gastric contents)

What's the subglottic port for?

Suction and removal of secretions above the cuff prevents pooling of a potential infectious reservoir that can be micro-aspirated into the lungs. This is a potential source of ventilator associated pneumonia- subglottic suction is part of the VAP bundle. Any critical care patient expected to be intubated for longer than 24 hours should have subglottic suction (not all tubes have this feature). A meta-analysis of 13 studies found that it reduces VAP by 45% also reducing length of stay and duration of ventilation.

What else is in VAP bundle?

Raised head of bed (minimises microaspiration)

Daily sedation hold and assessment of readiness to extubate (decreases duration of ventilation)

Appropriate peptic ulcer prophylaxis (minimises complications and length of stay)

VTE prophylaxis (minimises complications and length of stay)

Oral care with chlorhexidine (minimises aspiration)

What are the hazards of ETT insertion?

Unrecognised intubation of the oesophagus is potentially lethal. The tube might cause trauma on insertion. This could comprise bleeding, swelling and airway obstruction on extubation. The tube can migrate too far in causing endobronchial intubation and associated hypoxia, hypercapnoea and barotrauma. It can also migrate out- this is an emergency- call an airway doctor. The tube can obstruct- another emergency! Cuff leak will compromise ventilation and the 'security' of the airway. Hazards of ventilation would be considered separately.