Airway devices

Introduction

- We anaesthetists love our flashy equipment
- There will be a whole set of new equipment that you will become familiar with on starting anaesthetics
- A lot of names of laryngoscopes and tubes that people reel off expecting you to know
- Intimidating at the start but give it time, as you use more of them you will become more familiar with them
- This presentation will act as a quick reference that you can use to familiarise yourself with all the different anaesthetic equipment

Laryngoscopes

- Macintosh
- McGrath
- Glidescope
- C-MAC
- Airtraq
- (fibre optic scope)

Video laryngoscopes (VL)

Macintosh laryngoscope

- "Conventional" or direct laryngoscope
  - Gives you a "direct view" of glottis
    - i.e the straight view from your eye to the glottis
  - Going out of fashion
  - Most hospitals will use a video laryngoscope as their default 1st choice
  - Irrespective of your hospitals 1st choice scope I would strongly advise learning how to intubate with these, you may find yourself in ED/or on the wards and only have this scope available
- Blade size
  - Expect your ODP to ask you "MAC 3 or 4 doc?"
  - This is referring to the blade size where for an adult you will be using a either size 3 (smaller) or 4 (larger)
  - General rule of thumb is to get used to using MAC 4 blade for all patients, you just won't need to advance it as much in smaller adults
    - This means if the vallecular is further down than you anticipated you won't need to waste time switching your laryngoscope blade
  - Not unreasonable to ask for a MAC 3 blade in a small patient with a small mouth
    - MAC 4 blades take up a lot of space!

McGrath laryngoscope

- Video laryngoscope
  - Gives you video feed from tip of scope (indirect view)
  - Allows you to see “round the corner”
  - Great scope, transforms difficult airways
- Tips for using scope
  - Ensure works and has enough battery
  - Select blade size (same size code as Macintosh blades, see previous slide)
  - Don’t get lazy!
    - Optimise patient position
    - Blade tip into vallecular and lift
    - Attempt to get direct view before looking at video screen
      - Ensures you learn how to traditionally intubate
      - Documentation of direct view is important for further anaesthetists
        - » Note strictly speaking can’t use traditional Cormack and Lehane grading of views for “indirect” views – when documenting just say “good view with McGrath”
    - Like with direct intubation watch the tube go through the cords
  - May often need bougie
    - May have great view of the glottis however you may struggle to get the tube “round the corner”
    - “Hockey stick” the bougie before inserting it
      - Bend the lower length of bougie so it is more likely to follow the angle of your blade

Glidescope

- Alternate video laryngoscope
  - Your hospital may use these as first line scopes instead of McGraths
- Similar principles to McGrath scopes
  - Blade often more acute angle so more likely to need bougie to get tube in

C-MAC

- Bulkier video laryngoscope
- Often found near the difficult airway trolley
- Unique feature – connects to larger screen
  - Clearer view, others can see
- Often wheeled out in an anticipated difficult airway

Airtraq

- "Older generation" video laryngoscope
- Not frequently used now but some consultants may be more familiar with them and therefore use them
- Key features
  - Hyper-acute curve at tip
  - Side port to preload ETT
    - This means tube is guided along acute angle to enter the glottis

Fibre optic scope

- Think of it as a bougie you can see out the end of and direct the tip as you advance it
  - Clearly a useful tool in a difficult airway
  - Preload the ETT, advance into cords and then rail road tube*
- Common brand of fibre optic scope used is from ambu – hence often referred to as “ambu scope”
- Used for difficult airways, often awake so you can safetly bail out if you cannot secure their airway
  - Aka the “awake fibre optic intubation”
- Ask your anaesthetic department if they have an “Oxford box” and a training scope
  - Practice tool to get you used to manipulating and advancing the scope

* https://www.youtube.com/watch?v=QEE3M7waKzk&ab_channel=PaediatricEmergencies
or search youtube for “Ambu aScope 4 Slim Demonstration” – first link

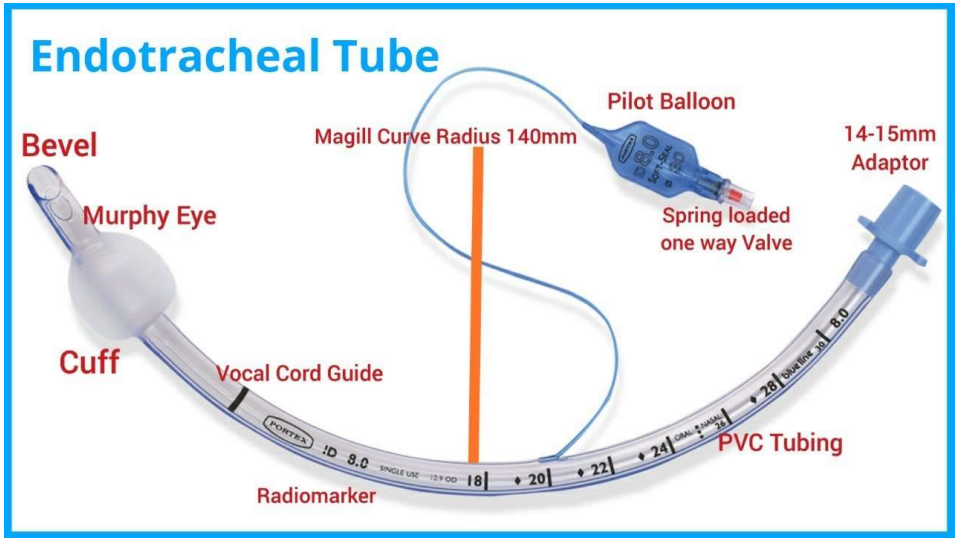
Endotracheal tubes

Types of endotracheal tubes

- Cuffed oral endotracheal tubes (COETT)
- RAE tube
- Reinforced tube
- Nasal tube

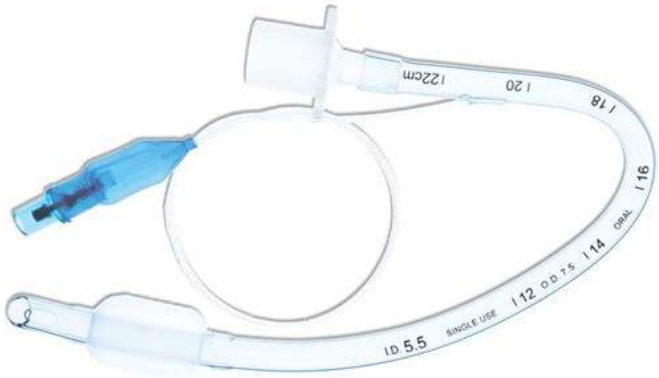
Cuffed oral endotracheal tubes (COETT)

- "Normal" endotracheal tube
- Key points
  - Sizing based on internal diameter in milimeters
    - Eg size 8 tube has an internal diameter of 8mm
    - General guide for sizing (your ODP will ask you what size you will want, have an answer ready!):
      - Woman: size 7 – 7.5
      - Man: 8 – 8.5
  - When intubating watch for vocal cord guide line passing the cords
    - Don't advance further – ensures you don't intubate one bronchus!
  - Ensure cuff is inflated before ventilation and deflated before extubation



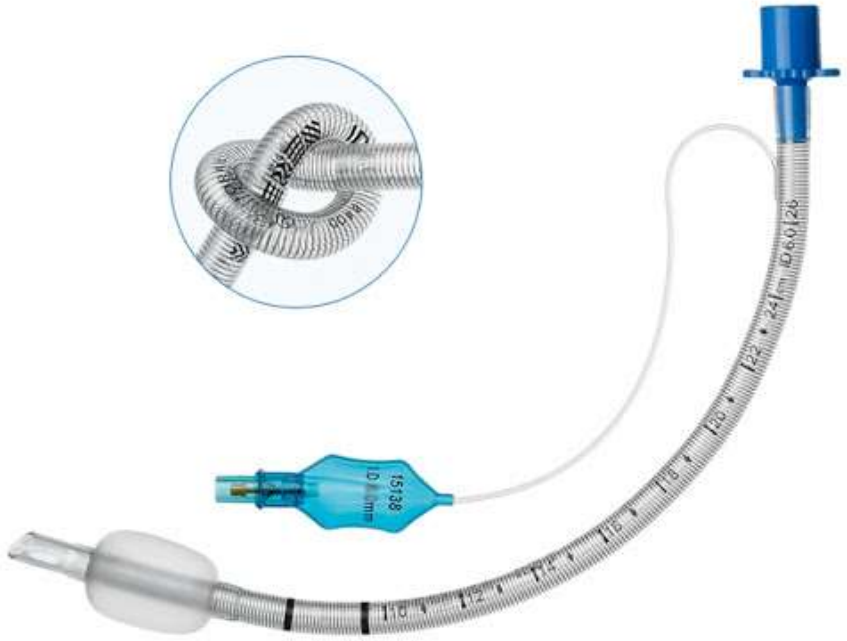
RAE (Ring-Adair-Elywyn) tube

- Used in ENT/max-fax procedures (i.e shared airway)
- Surgeons will often ask you to insert this if it is needed
- Most common is a “south-facing” RAE tube
- Acute bend ensures ETT stays out of surgeons field of operating
  - Acute angle also often makes insertion easier – follows the curve of your scope easier!



Reinforced tube

- As name suggests – reinforced with metal rings
- This prevents any kinking/damage to the tube
- Used commonly in ENT/max fax procedures where you want to ensure good airway protection from surgical instruments
- Bendable, floppy tube
  - Means you can tape it to the patients chin, keeping it out of the way of the surgeons, acting like a south facing RAE tube
  - But also can make it more difficult to insert – a bougie helps with this



Nasal tube

- Used if:
  - Surgeons (usually max-fax for dental work) want clear oral field
  - Jaw locked/unable to open
    - Often inserted awake fibre optically for safety
- Size 7.0 for woman, size 8.0 for man
- Insertion techniques:
  - Blind with external laryngeal manipulation
  - Using fibre optic scope
  - Using video laryngoscope (eg McGath) and McGill's forceps to guide tube in