

Asleep Fibre-optic Intubation via a conduit

Asleep fibreoptic techniques using the LMA or Berman airway as conduits can be employed in the unanticipated difficult airway (the “can’t intubate *can* ventilate” situation, Plan B). Outside the DAS guidelines, they can also be useful in elective management of the known difficult airway and in patients with C-spine injuries. These techniques should always be carried out under fibreoptic guidance, as blind success rates are low. With the aid of a fibreoptic bronchoscope, success rates of 90-100% can be achieved. There is also evidence to suggest that the LMA facilitates asleep fibreoptic intubation as compared to the conventional technique (without a conduit).

Indications

- Unanticipated difficult intubation (Plan B)
- Known straightforward bag-mask ventilation but difficult laryngoscopy (anticipated difficult intubation)

Contraindications (to planned use)

- Any possible difficulty with bag and mask ventilation (i.e. can’t ventilate)
- High risk of aspiration
- Upper airway abnormality

Complications

- Failure
- Oesophageal intubation
- Desaturation

Fibreoptic-assisted intubation via the Berman airway



Berman Airway

1. The head and neck should be supported in the *neutral* position. Confirm adequate bag and mask ventilation then administer a muscle relaxant.
 2. Insert the Berman airway as a conduit to aid ventilation and for the fibreoptic bronchoscope.
 3. Preload the bronchoscope with a TT then manoeuvre through Berman airway into the larynx.
 4. Jaw thrust and anterior displacement of tongue may help to increase space in the posterior pharynx.
 5. Once the carina is visualised, remove the Berman airway laterally from the fibreoptic bronchoscope and railroad the TT over the bronchoscope.
 6. Gentle rotation of the TT can help prevent its tip from getting caught in the piriform fossae (this is easier with a reinforced TT).
 7. Confirm placement of the TT using auscultation and capnography.
- NB: Berman airway may not be around much longer. Alternative is to insert Guedel airway as bite block and pass scope alongside.

Fibreoptic-assisted intubation via the LMA or I-Gel

1. Passage of the TT through classic LMA should *always* be fibreoptically guided as blind success rates are low.
2. The head and neck should be supported in the *neutral* position. Insert the LMA in the usual fashion. Inflate the cuff and confirm adequate ventilation, then administer a muscle relaxant.
3. Pass a heavily lubricated *uncut* TT through the LMA. Some resistance may be met at the grille of the cLMA.
4. Guide the bronchoscope into the trachea until the carina is visualised, then railroad the TT over the bronchoscope. Observe placement of the TT when withdrawing the bronchoscope.
5. Confirm placement of the TT using auscultation and capnography.
6. The LMA should stay in place due to the difficulty and potential failure of techniques to remove it. The Aintree Intubating Catheter can solve this problem (see below). This is especially useful if the LMA will interfere with surgical access.

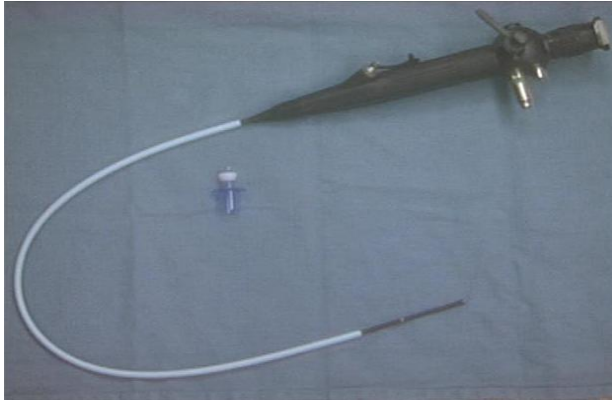
LMA / TT COMPATIBILITIES

- **LMA sizes 3 and 4 have ID of 10mm, allowing passage of a cuffed TT size 6.0**
- **LMA size 5 has ID of 11.5 mm, allowing passage of a cuffed TT size 7.0**

Notes

- A maximum of two LMA insertion attempts should be made before proceeding to PLAN C.
- The length of standard Mallinckrodt size 6.0 TT (excluding the connector) is 26-27cm. The average distance from the connector of correctly placed size 4 LMA to the vocal cords is approx 22 cm, therefore only 4-5 cm of TT protrudes beyond the LMA grille into the trachea using the above technique. The risk of the cuff sitting astride the vocal cords and accidental extubation is therefore high. This risk can be reduced by using specialised TTs such as the nasal (north-facing) RAE (which can be straightened), flexometallic / reinforced tubes or microlaryngoscopy tubes. Alternatively, other supraglottic airways can be used – such as the Proseal™ LMA (size 4 airway channel is 17cm long, though note that the internal diameter is only 9mm) or the i-gel (size 4 airway channel is 19 cm long).
- The aperture bars of a classic LMA can obstruct the passage of the tracheal tube.

Fibreoptic-assisted intubation via the LMA using the Aintree Intubating Catheter (AIC)



1. The head and neck should be supported in the *neutral* position. Insert an LMA in the usual fashion. Inflate the cuff and confirm adequate ventilation, then administer a muscle relaxant.
2. Load the AIC over a well-lubricated bronchoscope, then guide the assembly through the LMA grille and into the trachea, until the carina is visualised.
3. Remove the bronchoscope from the AIC. The “Rapi-fit” connector (which comes with the AIC) may be fitted to allow oxygenation using any anaesthetic circuit with a 15 mm connector.
4. Remove the LMA and railroad a lubricated TT size 7.0 or above.
5. Confirm placement of the TT using auscultation and capnography.

Use of Aintree Intubating Catheter is preferable because:

- It allows removal of the LMA
- It reduces the likelihood of the TT getting caught in the LMA grille
- It enables oxygenation via the “Rapi-fit” connector in case of difficulty passing TT

The Aintree Intubating Catheter has an external diameter of 6.5mm, so must be used with TT size 7.0 or above

The internal diameter is 4.8mm, so a bronchoscope of 4.4mm or less is needed. Length of AIC = 56cm, therefore easier to remove LMA without dislodging.