

Awake Fiberoptic Intubation

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The following is general guidance for the technique of providing topical anaesthesia to the airway and performing awake tracheal intubation using a flexible fiberoptic scope. The technique and choice of drugs may vary based on the clinical experience of the anaesthetist, the indication for awake intubation, the route of tracheal intubation and general/ physical status of the patient. Most of the procedure refers to nasal route. In some situations you may choose an oral route. If you are unsure, please seek assistance from experienced clinicians.

Preparation of patient

- 1) Explain the procedure (including benefits and associated complications such as nasal bleeding and coughing) to the patient.

In the anaesthetic room

- 2) Position –Sitting at 45°. This improves the view by preventing the tongue and jaw falling backwards.
- 3) Secure intravenous access.
- 4) Commence standard monitoring – SpO₂, ECG and NIBP.
- 5) Check for nostril patency.
- 6) Administer glycopyrrolate 200mcg iv and Midazolam 0.5-1mg iv (if not contraindicated).
- 7) Oxygenation with nasal prongs

Preparation of drugs and equipments for the procedure

- 1) Local anaesthetic drugs – drawn in syringes

4% lidocaine (40mg/ml)

- a) one 5ml syringe with 4ml and
- b) four 2ml syringes with 1.5-2 ml.

5% lidocaine with 0.5% phenylephrine -2ml nasal spray

Maximum dose of lidocaine for topical use is 7-8 mg/kg as systemic absorption is minimal.

Approximate maximum dose for 70kg patient, is 500mg = 10 ml of 4% and 2 ml of 5% lidocaine.

- 2) Sedation drugs – Target controlled infusion of Propofol (0.5-1.5 mcg/ml) or Remifentanyl (1-4 ng/ml).
The antitussive effect of opioids is beneficial during the procedure.
- 3) Intubating fiberoptic scope with light source and monitor screen,
- 4) Epidural catheter is advanced through the working channel of the scope ensuring tip protrudes out, and then withdraw slightly. Catheter is cut at distal end so that side exit ports are cut off.
- 5) Endotracheal tubes of appropriate sizes. Generally size 6.0 for nasal intubation, 6.5 or 7 for oral intubation. The larger the tube size, more difficulty can be experienced in railroading the tube.

- 6) McKenzie device – Connect the oxygen tubing through 3 way tap to 20G venflon cannula. Oxygen flow used for the device is 3l/min.
 - 7) Berman airway for oral route. It has one side open, which splits to facilitate removal. It is used as a mouth guard or bite block. Cut the distal 1 or 2 cm so that patient can tolerate better. Ensure ET tube will fit down Berman airway. *Please ensure that patient doesn't bite the fiberoptic scope. Please use some sort guide or protector to protect the fiberoptic scope*
 - 8) MAD device (Mucosal atomiser device).
 - 9) Nasal specs or 40% venturi mask for oxygenation
- Other accessories*
- 10) Anti fog solution.
 - 11) Vomit bowls
 - 12) Foot stool/ step

Anaesthesia of upper airway

Nose and Nasopharynx –

- 1) Spray 2 ml of 5% lidocaine with 0.5% phenylephrine (gentle spray; one or two squirts each time).
- 2) Can also spray 2ml of 4% lidocaine using MAD device.
- 3) Leave the Dental roll soaked in 4% lidocaine in the nostril for 2-3 min.

Oropharynx and tongue—

- 1) Gargling 4% lidocaine -if the patient can tolerate other wise use McKenzie technique -4 ml.
- 2) McKenzie technique – connect 2ml syringe with 4% lidocaine on 3 way tap or MAD device can also be used to anaesthetize the base of the tongue. *Target the spray to soft palate, uvula, base of tongue and posterior pharyngeal wall.*

Ask the patient to spit out or swallow the local anaesthetic after gargling. Once swallowed it is removed by liver following first pass metabolism without ill effects.

Sedation and Oxygenation

- 1) Start oxygenation using nasal specs.
- 2) Commence sedation with either TCI propofol or remifentanyl.

Procedure

- a) Once the upper airway is anaesthetised, preload the lubricated scope (lubricate body excluding the tip) with ETT (reinforced). Ensure that there is good lubrication between tube and FOS
- b) Secure the tube at the top with tape.
- c) Advance the scope through the air space between the inferior turbinate and floor of the nose, through the choanae into the nasopharynx and oropharynx until larynx is visualized.
- d) **Anaesthetise the lower airway** with 'Spray As You Go' technique. Spray 1 to 2 ml of 4% lidocaine on to the epiglottis and around the vocal cords. Alert the patient that they may cough.
- e) Advance the scope through the vocal cords and spray 1ml of 4% lidocaine to the trachea.

f) Advance the scope further until the carina is visualized. Lubricate the tip of the ETT to ease the passage. Advance the tube with gentle rotating motion. Remove the scope whilst visualizing to ensure tip is 3-5 cm above carina. Confirm the position of ETT by capnography.

g) If there is any concern about the stability of cervical spine, gross assessment of neurology at this point is recommended.

h) Induce general anaesthesia.

i) *If applicable you may perform a direct laryngoscopy and document the grade in the patient's notes. Once the tube is passed through the glottis the view is suboptimal, may not reflect the accurate grading of laryngeal view.*

Useful tips

- 1) Utilise a step and lower the bed maximally to optimise your height above the patient so that the scope can be held straight.
- 2) Ensure scope is orientated and the camera is white balanced.
- 3) Keep the dark space that is air cavity in the centre of the visual field.
- 4) If secretions are present, ask patient to take a deep breath which moves the secretions away. Otherwise ask the patient to swallow or use Yankauer suction.
- 5) Whilst advancing FOS, aim for apex of cords otherwise tube can impinge on arytenoids.
- 6) Ask the patient to protrude the tongue (opens oropharynx); say eeh (brings epiglottis in view); take deep inspiration (opens glottis).
- 7) Keep the carina in view to prevent the fiberscope falling out of the larynx into the oesophagus.
- 8) If any resistance is felt, withdraw slightly, rotate the ETT more than 90° anticlockwise and advance gently.
- 9) Continuous verbal contact with the patient should be maintained throughout the procedure.
- 10) You need about 26cm length of the scope without the tube for nasal route otherwise tube will be entering the nose before the tip of scope is in the trachea.
- 11) Do not attempt to remove the scope on maximal flexion otherwise it may get stuck.
- 12) If experiencing difficulty in railroading the tube due to lack of lubrication, try 0.5 to 1 ml of sterile water between tube and scope.
- 13) Advise the patient to stay nil by mouth for 2 hours after the procedure.

References:

- 1) Telford R. Oxford Handbook of Anaesthesia. Oxford University Press, UK, 2003; 882-885.
- 2) Sudheer P. Anaesthesia for awake intubation. British Journal of Anaesthesia | CEPD Reviews | Volume 3 Number 4 2003.

