

Airway Management

In the assessment of a critically ill or injured patient, airway management is the first priority in their care. If damage to the spine is suspected, minimize movement, but the rule is 'think spinal, do airway' – if the only way to open the airway involves moving the head, *never* hesitate to do so.

Assessment

Listen for sounds, look for signs of breathing (chest expansion, fogging of oxygen mask), feel for air movement. Complete absence of sound suggests airway obstruction, noisy breathing suggests partial obstruction. Type of sound gives clue as to obstruction – snoring is often due to soft tissues (tongue, soft palate), gurgling suggests fluid.

Manual methods

Open the mouth and look for foreign bodies. Anything seen in the front of the mouth can be removed with a single finger hooked behind the object. Do not probe blindly, do not use thumb and forefinger. Well fitting dentures should be left in place. If fluid is seen, roll the person on to their side and allow it to drain (postural drainage).

Head tilt combined with chin lift is the most effective. Palm of one hand placed on forehead, tips of fingers of other hand placed on bony part of chin, head rotated back until it comes to a natural stop, chin lifted upwards. If done gently, cannot tilt an adult head too far.

If spinal damage is suspected, use jaw thrust. Balls of thumbs on zygomatic arch, fingers behind angle of mandible lift upwards, thumbs used to hold mouth open. Much more difficult technique, so be prepared to resort to head tilt if it is ineffective, and add an adjunct as soon as possible.

Suction

If fluid is seen, it may be removed by suction. Suction catheter is attached to wall mounted or portable suction unit, which is switched on. Suck only under direct vision, starting distally and working proximally within the mouth. Limit suction to 10s at a time, unless the airway is completely blocked by the fluid, in which case attempt to clear it. Postural drainage will often be more efficient for clearing large volumes of fluid (e.g. active vomiting)

OP airway (Oropharyngeal or Guedel airway)

Can only be used on an unconscious casualty with no gag reflex, hence limited use outside of a cardiac arrest situation. If they gag on the airway or attempt to spit it out, remove it immediately.

Size from angle of mandible to front of incisors. Insert inverted, rotating as tip passes the hard palate (approximately halfway in). Take care not to catch the tongue or scrape the inside of the mouth.

Continued manual support will usually be necessary.

NP airway (Nasopharyngeal airway)

Can be tolerated by patients with intact gag reflex. Arguably contraindicated in patients at risk of basal skull fracture (i.e. in any significant head injury). Very useful if the jaw is clenched (trismus).

Size by comparison with diameter of patient little finger, or from tragus of ear to nasal septum. Insert safety pin through edge of flange. Lubricate with water based gel (KY-jelly or similar) or patients saliva. Check patency of nostril (try right first) and insert in an antero-posterior direction, following the line of the hard palate, using a gentle twisting motion. If excessive resistance felt, withdraw and try the other nostril.

LMA (Laryngeal Mask Airway)

Can only be tolerated by patients with no gag reflex. Significantly improves ease and efficacy of ventilation compared with BVM, but does not secure the airway as well as an ETT. However, much easier to place correctly.

Size 4 is suitable for average sized adult.

Empty cuff, ensuring no wrinkles around the tip. Lubricate the back, and hold in the dominant hand. Place tip behind upper incisors, and push into mouth maintaining contact with hard palate. At full reach of finger, hold tube with other hand, withdraw dominant hand, and push until resistance met. Let go of tube, and inflate cuff ([size-1]x10ml of air). Ventilate patient, look for symmetrical chest expansion, bilateral breath sounds, absence of epigastric sounds. Insert a bite block (e.g. OP airway) and tie in place.

ETT (Endotracheal Tube)

Gold standard for airway management. Difficult to perform correctly, and requires absent gag reflex. Variations in use exist, but the standard is oral endotracheal intubation.

Pre-oxygenate patient. Empty cuff, lubricate tube. Open laryngoscope and hold in left hand. Insert into mouth in stages, visualizing tongue then vallecula. Insert tip into vallecula, lift along line of handle to visualize vocal cords (AP opening, triangular, well defined – oesophagus is lateral opening and floppy). Insert tube between cords under direct vision, until balloon is past thyroid cartilage. Inflate balloon, ventilate, check for

symmetrical chest expansion, bilateral breath sounds, absence of epigastric sounds. Insert a bite block (e.g. OP airway) and tie in place.

BVM (Bag-Valve-Mask)

Alternative to mouth-to-mouth ventilation. The mask is placed over the nose, and lowered over the chin. Thumbs are placed either side of the centre, and the jaw lifted into it (cf. jaw thrust technique). A second operator then gently squeezes the bag to push air into the patient. In principle can be done by one person, but extremely difficult to master and not recommended.

Bag has a standard 15mm connector, so can be attached to an LMA or ETT. If connected to high flow (15lpm) oxygen and used with an ETT can deliver close to 100% oxygen to the patient.

Disclaimer: These notes are no substitute for proper training in the techniques described by an instructor. Familiarity with these notes should not be taken as qualification in, or license to use, the methods described.

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