

# Securing the airways (half heels)

**Motto** *Dum spiro, spero.* or loosely translated *As long as the patient breathes, one can hope.*

**Securing the airway** is a skill required of every person. With the level of education, it is necessary to increase the level of one's skill. Basic is a simple **tilt**. Maintaining the patency of the airways and maintaining the exchange of respiratory gases is a condition of life. The key place is the area from the root of the tongue to the rings of the trachea.

If the airway needs to be secured, you usually have little time to choose a method and perform the procedure. It cannot be expected with certainty that the first method chosen will be feasible or sufficient. Holding a mask cannot be learned from a picture, and intubation is a procedure mastered after about 20 attempts. During 50 to 100 intubations, you will encounter a "can't intubate, can't ventilate" situation, when it is necessary to use alternative methods (from laryngeal mask to coniopuncture).

## Why the airway must be secured (indications)

- Developed or worsening impairment of consciousness (including analgo-sedation and surgery).
- Exhaustion from excessive work of breathing during respiratory failure.
- Obstruction of the upper respiratory tract (facial injury, swelling of the tongue, laryngospasm).

## What options do we have, some advantages and disadvantages, the method of choice

*Attention - the list of advantages and disadvantages is not exhaustive!*

### Recovery position:

- + without the need to be present with the patient, reduces the risk of aspiration of stomach contents;
- spontaneous breathing must be sufficient.

### Tilt, forward jaw:

- + necessary skill to perform other methods;
- spontaneous breathing must be sufficient.

### Breathing mask:

- + necessary skill to perform other methods, enables emergency positive pressure breathing ;
- use of both hands, poorly functional in patients without teeth, obese, facial injuries.

### Laryngeal mask with rigid bent tube:

- + emergency option in case of intubation failure, can be introduced from the front, in a semi-sitting position, without leaning back, opening the mouth to 2 cm between the incisors, possibility of use by trained non-medical personnel, possibility of emergency artificial ventilation;
- the possibility of easy luxation of the mask from the correct position.

- Similarly, other supraglottic devices ( combitube , laryngeal tube) - intended mainly for use by trained non-medical personnel.
- Laryngeal masks with a flexible, straight tube are preferably used in anesthesiology rooms, their introduction requires practice.
- All of the above methods **do not prevent aspiration** of gastric contents and do not allow major changes in the patient's position.

### Endotracheal intubation:

- + prevention of aspiration, the possibility of pressurized breathing and changes in position;
- mostly necessary administration of muscle relaxants , high current resistance during spontaneous ventilation.

### Coniopuncture:

- + entry into the airways below critical points (glottis, epiglottis);
- invasive procedure.

Ducts are omitted from this list for limited benefit. Tracheostomy is a surgical intervention requiring preliminary securing of the airways.



Performing intubation

# Some points in the intubation process

- Preparation of a wide tube suction cup and other aids.
- Checking the brightness of the laryngoscope.
- Inspection of the introducer (the tip of the introducer must not protrude from the tube).
- Preoxygenation (minimum 2 minutes or 3 breaths, oxygen flow above 13 L/min or reservoir).
- Sellick palpation for fear of regurgitation.
- Relaxation check by pulling on the chin - we detect the relaxation of the masticatory muscles.
- Laryngoscope in left hand, we enter in the right corner.
- Introduce with an arcing motion, then pull up, dislike.
- Protect the incisors .
- Work on your own exhalation, try not to extend it for more than 15 seconds.
- When glottis ligaments are seen, keep pulling on the laryngoscope and check the penetration of the balloon.
- After insertion, fix the tube with your fingers in the right corner until its final fixation with a patch (bandage, fixator).
- To inflate the balloon, only now to release Sellick's touch.
- Ventilation, storage control by triple listening, fogging, capnometry.

## Links

### Related Articles

- Securing the airway during anesthesia
- Artificial lung ventilation
- Endotracheal intubation
- Crush introduction to anesthesia
- Difficult intubation

### Recommended literature and texts

- Jan Bruthans - Ensuring the airway KARIM 1.LF UK (<https://connect.cuni.cz/nm07>) (half-hour lecture summarizing the issue with an emphasis on laryngeal mask and intubation)
- **Akutně.cz:** Difficult airway management in a child - interactive algorithm + test (<https://www.akutne.cz/algorithm/cs/401--/>)
- **Akutně.cz:** Management of unexpected difficult intubation - interactive algorithm + test (<https://www.akutne.cz/algorithm/cs/19--/>)



Intubation with video laryngoscope

## External links

- Prezentace pro postgraduální vzdělávání (<https://www.ipvz.cz/vzdelavaci-akce/dokumenty/11052-doc-michalek-zajisteni-dychacich-cest.pdf>) Michálek: Zajištění dýchacích cest
- Ukázka poklesu brady a použití obličejové masky ([https://www.lf3.cuni.cz/cs/pracoviste/anesteziologie/vyuka/studijni-materialy/zaklady-anesteziologie/12-1\\_1-00\\_3-10\\_oblicejova-mask.html](https://www.lf3.cuni.cz/cs/pracoviste/anesteziologie/vyuka/studijni-materialy/zaklady-anesteziologie/12-1_1-00_3-10_oblicejova-mask.html))
- Zajištění dýchacích cest - přehled metod (<https://www.lf3.cuni.cz/cs/pracoviste/anesteziologie/vyuka/studijni-materialy/CMCP1434/dalsi/filmy.html?request-type=server-request-file&request-location=%2Fzabezpeceni-dychacich-cest.mpg>)
- MEDICINA.cz: Kardiopulmonální resuscitace v anesteziologii a resuscitaci ([http://nova.medicina.cz/odborne/clanek.dss?s\\_id=1859#10](http://nova.medicina.cz/odborne/clanek.dss?s_id=1859#10))
- Indian J. Anaesth. (Yathindra, Preethy): Airway management with endotracheal intubation (ht

Průběh laryngoskopie, není zobrazena lžičce laryngoskopu



Lžičci zasouváme až se v horní části zorného pole objeví okraj epiglotis. V tomto okamžiku mírným tahem za rukojeť směrem vzhůru docílíme zvednutí epiglotis a přehledně vstup do hrtanu. Charakteristickým útvarem vchodu do hrtanu jsou vazy hlasové, nápadné perleťovou bělostí, které tvoří laterální ohraničení vchodu. Dolní okraj vchodu do hrtanu tvoří světlé arytenoidní hrboleky.

Course of laryngoscopy



Laryngoscope

[tp://medind.nic.in/iadt/t05/i4/iadt05i4p263.pdf](http://medind.nic.in/iadt/t05/i4/iadt05i4p263.pdf)