

Laryngeal endoscopies

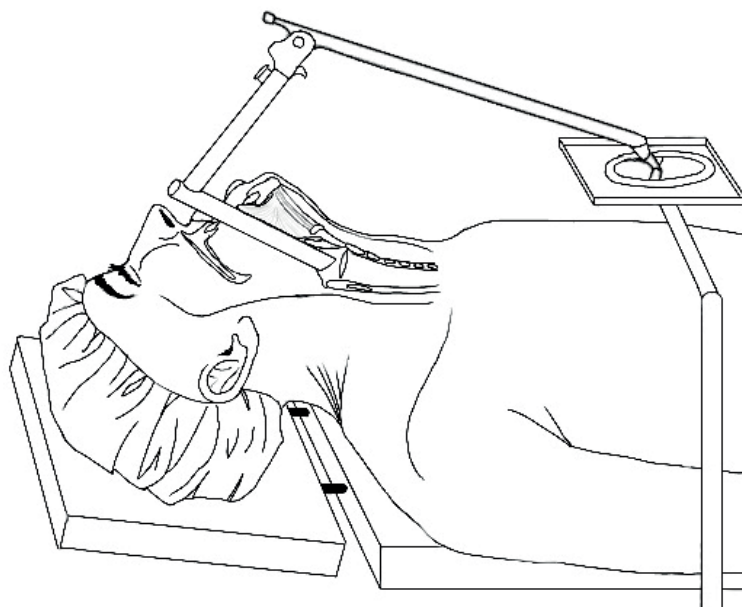
BY JEROCIN VISHANI LOYALA, OLIVIA KENYON AND DECLAN COSTELLO

Here, the authors provide some great tips for performing a successful microlaryngoscopy which should be of benefit to those learning this very common procedure.

In this article, we will discuss tips for performing a microlaryngoscopy, and different laryngoscopes used to visualise the larynx.

Procedure – step by step

1. Review previous procedure notes for access descriptions and endotracheal tube requirements.
2. If the patient is intubated, ensure the tube is taped on the side opposite your dominant hand (usually to the left of the mouth).
3. Place patient in supine position, with the head flat on the bed or a head ring, without shoulder bolster. The best position for laryngoscopy is 'sniffing the morning air' – i.e. flexed at the thoraco-cervical junction and extended at the cranio-cervical junction.
4. Ensure proper draping.
5. Place the mouthguard over the top teeth (or a wet swab over the gums if the patient is edentulous). If there are large gaps between teeth and the mouthguard is slipping, fold a wet swab and place it in the gap between the teeth and the mouthguard should fit better without too much pressure on the surrounding teeth.
6. Using the non-dominant hand, place the middle finger on the top teeth and pull upwards, and the index finger on the buccal mucosa in front of the bottom teeth to sweep the lip out of the way, with the thumb pushing down on the lower teeth.
7. Introduce the laryngoscope with the dominant hand, avoiding damage to the tongue and mucosa.
8. If the airway is not anticipated to be difficult, start with the Lindholm scope as it has the biggest lumen and working area.
9. Place the lip of the Lindholm in the vallecula, and gently push on the hyoepiglottic ligament to flip the epiglottis upward to sit out of your view. Glottoscopes (e.g. Dedo, Rhys-Evans or anterior commissure) are placed under the epiglottis with the tip near the anterior commissure.
10. If it is difficult to get a clear view of the vocal folds, lift the head of the bed attachment to help with alignment. This might seem counterintuitive but gives the best line of sight. Apply anterior (and / or lateral) cricoid pressure if required.
11. Once a good view is achieved, take pictures with the Hopkins rod and stack.
12. Place the laryngoscope in suspension. Use assistance to attach the suspension arm prior to the operating surgeon tightening the angle whilst checking the view.
13. Set the microscope to 400mm focal length, and maximum zoom.
14. Hand tremor can be problematic in fine laryngeal surgery: consider turning the operating chair round to rest the elbows on the back of the chair.
15. With a palpator or probe, palpate the top of the vocal fold, and gently push down and laterally to roll the inferior aspect of the cord into view.
16. If taking a biopsy with cold steel instruments, hold the lesion gently with heart-shaped forceps angled towards the side of the lesion and use curved scissors angled the other way. After the first cut, slide the lower tine into the mucosa and slide up and cut, so you can take the mucosa only and not the underlying vocal ligament.
17. For well-demarcated lesions, excise them completely unless they are very large, in which case an incisional biopsy is preferred. For diffuse lesions with dysplasia, perform biopsies to avoid extensive excision. Use cucumber slices to orient samples if necessary or sample the margins with separate biopsies.
18. Control haemostasis with neuropatties soaked in 1:10,000 adrenaline.
19. Take further pictures at the end of the procedure.
20. If malignancy is suspected, complete the panendoscopy and examine for field changes or second primaries. Palpate the neck, tonsils, and tongue base to ensure no abnormalities are missed.
21. Document the findings in the operation note, including ease of access and the laryngoscope used. This information is very helpful if further procedures are going to be required.



A sketch by Olivia Kenyon showing the position of the patient during the microlaryngoscopy.

HOW I DO IT

Features of different laryngoscopes

When performing laryngoscopy, we suggest starting with one of the larger laryngoscopes to give an optimal view of the vocal cords. If the access is difficult, we would then work through other laryngoscopes:

Lindholm

- Gentle ski slope curve, with its tip sitting in the vallecula; difficult to use if there is limited mouth opening.
- Wide proximal and wide distal apertures, so easy-to-use instruments in both hands. Wide degree of movement of instruments is possible, making microsurgical procedures easier.
- Good for supraglottis and posterior glottis lesions.
- Bad for anterior commissure and subglottic lesion or patients with limited mouth opening.
- Variants:
 - Benjamin Lindholm (for babies 0–1 years)
 - Paediatric Lindholm (for 1–6 years)
 - Adult Lindholm (for patients over 6 years)



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Dedo and Rhys-Evans Glottoscopes

- The tip of these slimmer laryngoscopes lies behind the epiglottis and they are ideal for accessing the glottis. The Dedo is taller than the Rhys-Evans and is particularly useful for subglottic lesions, as it can splay the vocal cords.
- A size 5 MLT tube can fit down a Dedo scope, making it suitable for intermittent extubation and endoscopy during apnoeic intervals.



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Anterior commissure

- This narrow scope is a 'bailout' option for difficult airways. Due to its limited width, it is challenging to use both a Hopkins rod and another instrument simultaneously, making it less effective for laser procedures. However, it is ideal for difficult airway cases requiring photodocumentation.

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TOP TIPS

- Aim to use the widest laryngoscope possible to give the best view of the vocal folds.
- Do not use a shoulder bolster or pillow.
- Have a wide range of laryngoscopes available.
- For patients having repeat procedures (e.g. papilloma excision), make a note of which laryngoscope is used from one time to the next.

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