Video Laryngoscopy: State of the Art & Practical Pearls

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Introduction

The scope of devices for indirect visualisation of the vocal cords during intubation has undergone extraordinary and rapid expansion during the last decade, and shows no sign of slowing. New devices regularly appear, and the “venerable” devices of 10 years ago have advance significantly in recent iterations. Practitioners from all disciplines who undertake airway management face a bewildering array, each with its own characteristics and requirements for skillful use. Mastery of direct laryngoscopy (DL) does not necessarily confer competence with video laryngoscopy (VL), nor does familiarity with one device guarantee effective use of another type. However, understanding the key structural and functional types and the associated techniques for VL intubation will equip any practitioner to use them to full potential.

VL has been shown to confer no advantage other than for training purposes in routine intubation. However, the majority of established VLs improve success rates for intubation in patients with difficult airways, or where direct laryngoscopy has failed. Although less than 5% of patients have difficult airways,1,2 emergencies and intubation in settings outside of the operating theatre cause increased difficulty.3 Thus, emergency physicians and anaesthetists alike should be skilled in the effective use of another type.

VL Design vs. Function

Intubating endoscopes are placed through the endotracheal tube (ETT) and can be used in conjunction with a conventional laryngoscope or alone. This requires additional skills.3 Video-camera-equipped VLs often offer recording capability, which is useful for training and medicolegal purposes. Fibreoptic and optical ‘scopes can be equipped with cameras to create a hybrid.

Conventional blade designs allow the easiest transition from DL, and are effective teaching tools.4 Deeply curved blade designs are best suited to difficult airways, especially where direct view is impossible or neck movement very limited (as in cervical spine injury).5 Blades with an ETT guide channel are more prone to obstruction, but can be used in conjunction with a bougie.

Disposables are more prone to fogging, but can have a more rapid turnaround between cases.

Practical Pearls

May I introduce…

VLs do not need a direct line of sight to the vocal cords, and thus allow intubation ‘around a corner’. This requires more manoeuvrability of the ETT. Those an ETT guide channel should always be used with an introducer. In the case of optical or video styles, the device itself is the introducer.

Get down and bounce! In the absence of a stylet, a bougie is very effective. VLs with a guide channel may allow intubation of a bulging soft tissue, but bulging soft tissue can obscure the camera. In this situation, a laryngoscope with a guide channel (e.g. AirTraq) can push the swollen tissue away from the lens, allowing a good view. See this PDF for more info.

What nice teeth you have…

…except when they lactate the ETT cuff. Look at the mouth (not the screen) when the ETT is advanced into the oral cavity. Once the cuff is past the teeth, go for video games!

Get away from me with that thing!

A frequent error is inserting the blade ‘scope too deep. Despite often achieving a ‘good’ view of the vocal cords, this causes lost perspective and manoeuvrability. To avoid this, introduce the blade laterally and identify the important landmarks: teeth → tongue → epiglottis → vocal cords. The tip of the blade should be in the vallecula and the epiglottis should be visible. See this VL RSI video.

Centre thyself

Concentrating on achieving a good view with the glottis opening in the middle of the screen and interarytenoid clight in the lower half of the view has been demonstrated to greatly improve success rate.6,7

The more you sweat in peace…

…the less you bleed in war. Like any other skill, video laryngoscopy takes time to master. Each type of device has specific tricks and traits. The solution is to learn practice, preferably under controlled circumstances. Don’t neglect using the VL for the first time until you can see the whites of your hypoxic eyes!

Literature cited