Editor—As someone who has been involved in teaching on ATLS/BATLS/Pre-hospital Anaesthesia/SF Trauma courses, I was interested to find out the reasons why the bougie-assisted ETT method was decided on as the ‘didactic scalpel technique’, when there is an alternative technique which is arguably simpler and has been widely taught for many years on trauma courses in the UK.

I was very pleased to see that the guidelines recommend the adoption of scalpel cricothyroidotomy as a technique that should be learned by all anaesthetists. As described in the article, it is the fastest and most reliable method of securing the airway in a CICO situation. This has been the technique of choice for the military and in our Pre-hospital Anaesthesia course for many years, with needle cricothyroidotomy discouraged, other than in small children.

The technique for scalpel cricothyroidotomy that I have always instructed, has essentially followed the ‘4-step’ technique described by Brofeldt2 in 1996 (quoted in the article): Palpate—Horizontal incision—hook—size 6.0 tracheal tube (with tracheal tube introducer in place).

The only variation on this technique has been the implement used to open the incision in the cricothyroid membrane to allow passage of the tube. The military have for some years used a purpose made (Portex) surgical cricothyroidotomy kit with small forceps—this is the kit that was used for almost every surgical airway performed by UK medics in Iraq & Afghanistan. The forceps can perhaps be slightly awkward for those not used to holding them, but it seems to have worked well over the years.

Our Pre-hospital anaesthesia course used a set of trousseau tracheal dilators as the item to insert before removing the scalpel and we have had these in several in-hospital surgical airway kits I have used. They are simpler to use than the straight forceps and allow relatively easy passage of the tracheal tube.

Our special forces medics reverted to using a tracheal hook some years ago as per the original technique (hook in under the cricoid cartilage—caudal side of the incision) and this is probably the simplest and most intuitive for the anaesthetist; as sometimes described, the action is not dissimilar to lifting up with a laryngoscope in the left hand to open the hole for the right hand to insert the tracheal tube.

All three techniques can be described in the same way: Palpate—horizontal incision—instrument in the hole (before removing the scalpel)—size 6.0 tracheal tube in the hole.

The only difference between hospitals/HEMS/Military units is the type of instrument—essentially you use what’s in the kit provided.

The cut down size 6.0 ETT was always the fall-back option if for some reason there was no tracheostomy tube available.

The bougie technique with an ETT has appeared more recently; the first reports I am aware of are in 2010 by Hill and colleagues3 from Minneapolis, who found that the bougie-assisted cricothyrotomy technique was easier and quicker when performed by inexperienced providers on anaesthetised sheep, when compared with the standard technique—this being a midline vertical incision, blunt dissection to the cricothyroid membrane, a horizontal incision in the cricothyroid membrane, a hook lifting the caudal trachea, insertion of tracheal dilators and finally . . . insertion of a tracheal tube.

The bougie technique was, unfortunately, not compared with the technique described in 1996 by Brofeldt (i.e. simply a horizontal incision, hook lifting caudal trachea and insertion of tracheal tube), which I would strongly wager would have been both quicker and simpler!

Other than taking slightly longer, the bougie technique has a few other issues:

- Risks of perforation of the bronchial tree from over insertion of the bougie (much more likely than with oral intubation)
- It requires three hands: one to stabilise the thyroid cartilage/trachea (as described in the article), one to hold the bougie still and one to railroad the ETT over the top.
- There is no smooth ended tracheal tube introducer, but instead a step around the end of the tube which will potentially ‘catch’ on the cricoid cartilage.
- Over-insertion of the ETT and endobronchial intubation.

None of these issues occur with the four step technique and a size 6.0 tracheal tube.

Bougie-assisted’ cricothyroidotomy technique

T. Lowes*
Middlesbrough, UK
*E-mail: tlowes@doctors.org.uk

Declaration of interest
None declared.

References
doi: 10.1093/bja/aew292
This is why we have always advocated this technique, but acknowledged that occasionally you may be somewhere with no immediate access to a size 6.0 tracheal tube, but a 6.0 ETT can be found in the intubation drawer.

The rest of the guidelines and principles I think are excellent, but I am concerned that the DAS has specified the bougie technique as the UK standard rather than the simpler (and arguably, safer) four step technique described 20 yr ago and used successfully many times since.

Declaration of interest
None declared.

Reply


1Northampton, UK, 2London, UK, 3Edinburgh, UK, 4Coventry, UK, 5Dublin, Ireland, and 6Norwich, UK

*E-mail: Chris.freki@ngh.nhs.uk

Editor—We are pleased that Dr Lowe supports the choice of scalpel cricothyroidotomy for CICO as the fastest and most reliable method of securing the airway.

There was considerable support from anaesthetists around the country to promote a didactic technique so that all staff, including those moving hospitals, would be familiar with at least one surgical technique that would be available on arrival at a new place of work. As Dr Lowe says in his letter “the only difference between hospitals/HEMS/Military units is the type of instrument—essentially you use what’s in the kit provided”. Our aim in describing a didactic technique was to reduce variation in the way the technique is taught in order to promote consistent training and facilitate skill retention. You learn or teach the same steps each and every time whoever you are wherever you are. In the guidelines1 we hope we have been clear that learning this technique is a minimum and that it’s ok if hospitals want to teach additional techniques. What is not acceptable is to just place equipment in a plan D drawer with no associated training programme.

In answer to why we chose the particular surgical technique that we did, we reviewed the literature- some techniques were described very clearly, some not so clearly. We looked at similarities and differences between the described techniques (horizontal vs vertical incision/use and type of placeholders to keep the hole open/type of tube). We corresponded with and spoke to some of the proponents of the major variants of techniques, who have devoted a large part of their professional lives to working on the technique of surgical cricothyroidotomy and attended some of their training courses.2–5

We could never know with any degree of certainty which, if any, was the right technique to promote for anaesthetists in the operating theatre environment. We chose a technique that is simple and uses familiar and available equipment.

We are aware that surgical cricothyroidotomy is associated with, and will continue to be associated with morbidity, including the whole problem of decision to proceed—leave it too long and there may be morbidity and mortality, cut the neck too soon and you may cause serious morbidity in someone who might not have needed the procedure. Dr Lowe highlights overinsertion of the bougie as a potential problem. Since the publication of NAP46 there have probably been another 200 emergency surgical airways performed in the UK. As a profession we don’t know what equipment was used, what techniques were used, whether they were successful nor what if any complications/morbidity occurred.

The 2015 guidelines provide “a solution” which addresses some of the problems of standardization and preparedness (if associated with appropriate training). We recognise the technique may evolve over time, however we will only discover if a different technique could be an improvement, when we have a reporting system in place for all patients with front of neck access to the airway. For this reason we suggested that all emergency surgical airways should be reported to a central database, so the anaesthetic community can see what really works in clinical practice and what doesn’t over the next 3–5 yr. We believe that such a reporting system is under development.

Declaration of interest
None declared.

References


doi: 10.1093/bja/aew293