First, we identify the transversus abdominis plane layer, above which the nerves run, followed by creation of a pocket by dissecting the natural plane between transversus abdominis and internal oblique muscles (Fig 1). Next, we create a pocket below the posterior rectus sheath, followed by closure of the posterior rectus sheath and transversus abdominis layer. An epidural catheter is then inserted into each pocket using a bent 16-G epidural needle. This is followed by closure of the anterior fascia. The catheters are secured by single skin tunnelling and dressing to avoid dislodgement.

Video link:

<https://publishing.rcseng.ac.uk/journal/video?doi=10.1308%2Fvideo.2019.8.2&videoTaxonomy=TECH>

DISCUSSION

Transversus abdominis plane and rectus sheath catheter placement is a robust technique for pain management. This report details an easy approach with step-wise illustration, without a need for new equipment for its placement. The procedure will add 30 minutes to the closure time.

ACKNOWLEDGEMENTS

Addenbrooke's Hospital Media Studio, Addenbrooke's Charitable Trust.

References

1. Hughes MJ, McNally S, Wigmore SJ. Enhanced recovery following liver surgery: a systematic review and meta-analysis. *HPB* 2014; **16**(8): 699–706.
2. Ji HB, Zhu WT, Wei Q *et al.* Impact of enhanced recovery after surgery programs on pancreatic surgery: a meta-analysis. *World J Gastroenterol* 2018; **24**(15): 1,666–1,678.
3. Bell R, Ward D, Jeffery J *et al.* A randomized controlled trial comparing epidural analgesia versus continuous local anesthetic infiltration via abdominal wound catheter in open liver resection. *Ann Surg* 2019; **269**(3): 413–419.
4. Karanickolas PJ, Cleary S, McHardy P *et al.* Medial open transversus abdominis plane (MOTAP) catheters reduce opioid requirements and improve pain control following open liver resection: a multicenter, blinded, randomized controlled trial. *Ann Surg* 2018; **268**(2): 233–240.
5. Behman R, McHardy P, Sawyer J *et al.* Medial open transversus abdominal plane catheter analgesia: a simple, safe, effective technique after open liver resection. *J Am Coll Surg* 2014; **218**(5): e91–94.

The paediatric tracheostomy part-task trainer: low fidelity, low cost

Q Bonduelle¹, WS Cho², MD Elloy³

¹Nottingham University Hospitals NHS Trust, Queen's Medical Centre, Nottingham, UK

²Otorhinolaryngology, Nottingham University Hospitals NHS Trust, Queen's Medical Centre, Nottingham, UK

³Otorhinolaryngology, University Hospitals of Leicester NHS Trust, Leicester, UK

CORRESPONDENCE TO

Quentin Bonduelle, E: quentin.bonduelle@nuh.nhs.uk
doi 10.1308/rcsann.2019.0166

Figure 1 Equipment needed to develop the paediatric tracheostomy part-task trainer.

Figure 2 Suction tube secured in the middle of a plastic box.

BACKGROUND

Paediatric tracheostomies are performed for many reasons, usually in children with multiple comorbidities.^{1,2} Tracheostomy tube displacement can have disastrous implications, including death.³ To minimise this risk, stay sutures are placed intraoperatively either side of the vertical tracheotomy. These sutures assist reinsertion of a dislodged tube, pulling up and presenting the open tracheostomy. Stay sutures are secured to the chest with tape and marked 'Right', 'Left' and 'Do not remove'. On discussion with the nursing team, a part-task trainer was developed to support the maintenance of paediatric tracheostomy care competencies.

TECHNIQUE

The paediatric tracheostomy part-task trainer is produced using readily available equipment (Fig 1). A plastic box is covered with adhesive tape and padded with gauze. A suction tube is secured with tape to the middle of the box (Fig 2). Gauze is used to pad around the tube, leaving a small 1.5 × 1.5 cm opening, simulating a tracheostomy stoma (Fig 3). 4.0 Prolene sutures are then sutured to the tube, either side of a vertical incision. These stay sutures are

Figure 3 Gauze padding around the tube with a 1.5 × 1.5 cm opening, simulating a tracheostomy.

Figure 4 Stay sutures are secured on each side with individual labels marking each side and also 'do not remove'.

secured on each side with labels (Fig 4). A tracheostomy tube is then inserted into the tube incision. Preparation time is around 15 minutes.

DISCUSSION

We have described a simple, easily reproducible trainer which could be used to improve paediatric tracheostomy care. The stay sutures in the trainer provide the learner with a sensation of the safe required tension to open the airway. Through simulation, this could reduce the incidence of emergency calls in the event of displaced tracheostomy tubes.

References

1. Kremer B, Botos-Kremer AI, Eckel HE, Schlondorff G. Indications, complications, and surgical techniques for pediatric tracheostomies: an update. *J Pediatr Surg* 2002; **37**: 1,556–1,562.
2. Pereira KD, MacGregor AR, Mitchell RB. Complications of neonatal tracheostomy: a 5-year review. *Otolaryngol Head Neck Surg* 2004; **131**: 810–813.
3. Lyons MJ, Cooke J, Cochrane LA, Albert DM. Safe reliable atraumatic replacement of misplaced paediatric tracheostomy tubes. *Int J Ped Otorhinolaryngol* 2007; **71**: 1,743–1,746.