Risk of accidental extubation with disposable tonsillectomy instruments

Editor—As a result of the increased prevalence of nvCJD within the UK population, there has been concern about the theoretical risk of transfer of prions during tonsillectomy and adenoidectomy. Disposable instruments were widely introduced in 2001, but concerns regarding the safety of these instruments led to the return to reusable instruments in England. In Scotland, the use of disposable equipment remains mandatory. Although the main concern regarding disposable tonsillectomy equipment is an increase in the postoperative haemorrhage rate, we noted an increased incidence of herniation of RAE tubes through the gap in the blade of the Boyle Davis gag (Fig. 1), risking inadvertent extubation. This could endanger the security of the airway if the gag is moved or adjusted during surgery, and has been previously reported with non-disposable equipment.²⁻⁴

We tested various combinations of RAE tubes and blade sizes with disposable and non-disposable sets and found that herniation was more common with the disposable sets. This is most likely to occur in children aged 4–8 yr, due to the similarity between the tube sizes and the width of the gap in the tongue blades used in this age group.

Different sizes of Boyle Davis tongue blades (sizes 2.5–4.5 inches, Rocketmedical) and RAE tubes (4.5–7.0 mm) were assessed. Blade sizes 2.5 and 3.0 inches were found to have the same size of gap (5 mm anteriorly, 6 mm posteriorly), and blade sizes 3.5, 4.0 and 4.5 inches also have the same gap width (5 mm anteriorly, 7 mm posteriorly). We repeated the study using non-disposable instruments.

The results show that RAE tube sizes 4.5, 5.0 and 5.5 mm are the most likely to herniate with any size of tongue blade. With larger RAE tubes, herniation was less likely as the gap in the tongue blade is smaller than the external diameter of the tube. When the study was repeated with the non-disposable sets it was also found that herniation was less likely to occur. This is because the gap size is smaller, and the area of the blade next to the gap is bevelled to accommodate the tube. It should also be noted that RAE tubes are more malleable at body temperature and this may increase the risk of herniation.

Whilst the risk described above may vary with different equipment manufacturers, anaesthetists and otolaryngologists should be alert to the possibility of the tracheal tube being inadvertently displaced during adenotonsillectomy. This problem should also be considered by companies manufacturing disposable tonsillectomy sets.

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1 Complications post tonsillectomy and adenoidectomy. Memorandum of BAO-HNS 9 November 2001

Fig 1 RAE tube herniating through gap in the blade of a Boyle Davis gag.