5.5-mm ID ETTs (Hi-Lo®; Mallinckrodt Co., Juárez, Mexico, the type of ETT we use in our institution) within the barrel of a 20-mL syringe and inflated the tube’s cuff. We were unable to produce an ETT collapse in any of the ETTs studied even after cuff inflation with 20 mL of air, which developed a cuff pressure well above the maximal pressure (120 cm H2O) measurable with a cuff manometer (Cufflator #8199; Posey Co., Arcadia, CA). We repeated the in vitro test with three 6.0 Rusch ETTs (the type used for the prehospital intubation in our patient) and the lumens of the ETTs collapsed at lower volumes (12.5, 14.3, and 15 mL, respectively) and pressure >120 cm H2O (Fig. 2).

When ETT cuff pressures are not monitored, cuff pressures greater than the recommended 20 to 30 cm H2O may develop. In one study, ETT cuff pressures were within the recommended ranges in only 27% of the patients.1 In the prehospital setting, most cuff pressures exceeded 40 cm H2O and required correction.2

In our in vitro trial, only the Rusch but not the Mallinckrodt ETT collapsed upon extreme overinflation of the cuff. The difference may stem from the quality of the polyvinyl chloride tube and hence from different compliances of the ETT wall.

Although the findings in our in vitro model might resemble those of the in vivo situation, there are some differences. First, the human trachea has a greater compliance than that of a syringe barrel. Second, we did not warm the ETT and the syringe to body temperature but we theorize that warming would have made the ETT even softer (less rigid), thus requiring even less volume for cuff inflation to collapse the ETT. The patient’s clinical timeline suggests that the obstruction worsened over time, possibly because of the temperature effect on the ETT tube, resulting in almost complete obstruction.

Practitioners should be aware of the differences among different ETTs and the possibility that certain tubes may have the propensity to collapse after cuff overinflation.

In Response

With regard to the letter by Davis et al.,1 the Rusch Flexi-Set is designed and tested for compliance to requirements for tracheal tubes and tracheal tube connectors as per ISO 5361:1999. Annex B from these requirements includes a test method for cuffed tube collapse. We confirm the compliance of the Rusch Flexi-Set to this standard.

In addition, the Instructions for Use for the Rusch Flexi-Set Cuffed endotracheal tube state that the clinician should “inflate the cuff slowly with the minimum amount of air required to provide an effective seal.”

We remain committed to complying with ISO standards and with helping clinicians ensure patient safety through the proper use of our products.

Ed Weidner
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Suction the Tongue: A New Adjunct for Improving the Laryngeal View for Fiberoptic Intubation

To the Editor

Flexible fiberoptic intubation (FOI) is often chosen during airway management in pediatric patients recovering from facial burns and now returning for plastic reconstructive surgery.

Under general anesthesia the loss of muscle tone in the pharyngeal and laryngeal structures, and apposition of the tongue base to the posterior pharyngeal wall1 may obscure the operator’s view of the laryngeal aperture during FOI. Although anterior tongue traction alone or supplemented with jaw thrust,2 grasping forceps, malleable tongue retractor, hand grasping with gauze, and zero silk sutures have been used to pull the tongue anterior to improve laryngeal inlet visualization during FOI,3,4 some of these techniques may cause trauma to the tongue, bleeding into the airway, or both, further obscuring the operator’s view during FOI.

Our patient received care at Shriners Hospitals for Children, and the parent of our patient provided written consent to medical photography and its use for treatment and educational purposes provided that the photo is modified and without patient identifiers. The patient was a 9-year-old child, weighing 34 kg, with limited mouth opening, and decreased temporomandibular joint movement due to severe orofacial burn and scarring. After induction of anesthesia, we were unable to obtain a clear view of the laryngeal inlet, and attempts at grasping the

REFERENCES

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