Tracheal intubation through Igel conduit in a child with post-burn contracture

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Sir,

A 25 kg, 9 year old girl was scheduled for post-burn contracture (PBC) neck release and superficial skin grafting following burns. Contracture scar was in the anterior midline of the neck. Neck extension was limited, and interincisor gap was ~ 3.5 cm. All relevant investigations were within normal limits. Standard monitors were attached and intravenous (IV) access was secured on the dorsum of the left hand. Patient was administered glycopyrrolate 0.2 mg, ranitidine 25 mg, metoclopramide 8 mg and fentanyl 50 mcg (IV). Anesthesia was induced with Sevoflurane 2 - 8% in 100% oxygen (O₂) using a size 2 facemask. After adequate jaw relaxation, Igel size 2.5 was inserted, and placement was confirmed by a square shaped capnography wave. Spontaneous ventilation was maintained. An assembly of two uncuffed endotracheal tubes (ETT) of 5.5 mm ID (up to 6 mm ID size, ETT can pass through Igel size 2.5) with connectors removed was created [Figure 1], such that the proximal end of lower tube firmly fitted into the distal end of the upper tube making them a single unit to increase the length of ETT for Igel removal after endotracheal intubation. This assembly was mounted over flexible fiberscope (ED 3.7 mm). Flexible fiberscope with 5.5 mm ID (ETT) over it was kept ready. The surgeon was asked to stand by for scar release in an emergency. Depth of anesthesia was maintained with sevoflurane 4-5% in 100% O₂.

A swivel connector was attached to Igel through which the fiberscope was advanced till the carina became visible. The ETT assembly was advanced over the fiberscope and then the fiberscope was withdrawn. The breathing circuit was attached to the proximal ETT. After confirming the correct placement of the tube, the Igel was removed and distal ETT was detached from the proximal ETT and attached to the breathing circuit. Ventilation was reconfirmed. Neuromuscular blockade was then achieved with vecuronium 2.5 mg IV. Anesthesia was maintained using the standard technique. At the end of the procedure, residual neuromuscular blockade was reversed, and the trachea was extubated and patient was shifted to the postoperative room.

PBC neck causes limited neck extension which increases the potential for difficult intubation. Awake fiberoptic intubation as a standard technique in such cases is not feasible in children. It is prudent to maintain spontaneous respiration in an anesthetized patient with compromised airway. Supraglottic device for maintaining the airway in such cases is not preferred as the airway may be jeopardized in case the device gets displaced. Fiberoptic intubation under anesthesia in a spontaneously breathing patient is routinely practiced. Insertion of a supraglottic device as a conduit for tracheal intubation provides a patent airway and facilitates ventilation and oxygenation during attempts at tracheal intubation, thus helping to maintain a better control of anesthesia depth with uninterrupted breathing.

Intubating laryngeal mask airway is not available in sizes smaller than 3. Fiberoptic intubation through Igel has been found to be a highly successful technique. The wide bore stem of the Igel can be a conduit for tracheal intubation under spontaneous ventilation, and may be a boon to manage a difficult airway in a child.
References


Figures and Tables

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3409958/?report=printable 08-01-2013
Figure 1

An assembly of two uncuffed endotracheal tubes #5.5 with connectors removed

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