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Introduction:

There are many reports of traumatic injuries resulting from passage of endotracheal or nasogastric tubes through the nasopharynx in adults and children. Adverse events include epistaxis, medial turbinectomies, intracranial placement, and perforations of the pharynx and esophagus. We present a rare case of retropharyngeal perforation during laryngoscopic guided nasal intubation in a 5 year-old child.

Case Description:

A 5 year-old child with a history of cerebral palsy was scheduled for dental rehabilitation. The child was brought to the operating room and underwent an inhalational induction with sevoflurane followed by IV placement. The patient was given rocuronium and both nares were sprayed with oxymetazoline. The left nare appeared more patent and direct laryngoscopy(DL) yielded a grade 1 view. A 4.5 cuffed nasal right-angled endotracheal tube(ETT) was lubricated, and rotated so that the bevel was facing towards the nasal septum in order to minimize turbinate trauma. The tube was advanced through the nasal passage with minimal resistance, but failed to advance after approximately 4 cm. At this point the tube was rotated 180 degrees so that the natural curve of the tube aligned with that of the nasopharynx, after which the ETT was advanced with only minimal resistance. With DL the ETT could not be visualized in the posterior pharynx, but a submucosal bulge was noted in the retropharynx. The ETT was removed without bleeding or swelling noted. The patient was then easily intubated through the right nare. After the procedure the ORL team performed fiberoptic and direct laryngoscopic examinations. A 1 cm perforation was noted in the posterior pharynx, just above the inferior border of the soft palate. The patient was given clindamycin and taken for a CT that showed mild edema but no signs of hematoma. The patient was then transported to the ICU intubated, where he was kept overnight out of concerns for potential airway compromise. The patient was sent home on post-op day 2 with a 2-week course of oral clindamycin and had no long-term consequences.

Discussion:

Retropharyngeal dissection is a rare complication of nasal intubation. We encountered only one pediatric case in the literature, which occurred during a forceful blind nasal intubation by a surgeon and was only later recognized during the tonsillectomy.¹ In our case, it is possible that softening the tube in warm saline prior to insertion may have minimized the chance of injury, although one study suggests that it had no effect on increasing tube flexibility, but might decrease epistaxis.² In our case, there was normal resistance during ETT advancement through the proximal nasopharynx, but increased resistance at the point where the tube would have approached the posterior pharyngeal wall. We suspect that when the tube was rotated 180 degrees, it created enough shear stress to cause a perforation and dissection.

1. Ghaffari, S. Forceful insertion of nasal tube may pierce the posterior nasopharyngeal mucosa. *Pediatric Anesthesia* 2006 16: 997–1003
 2. Ahmed-Nusrath, A. et al. Pathways through the nose for nasal intubation: a comparison of three endotracheal tubes. *Br. J. Anaesth.* (2008) 100 (2): 269-274
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