Stylet Mishap in a Patient with Known Difficult Airway

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Case

This is a case of a six-week old 3.3 kg male infant, born at 35 weeks gestation with multiple medical problems including dysmorphic features, micrognathia, arthogryposis, recently repaired coarcation of aorta and ligation of patent ductus arteriosus, vocal cord paralysis, tracheomalacia, maternal use of opioids and antipsychotic, and maternal exposure to hepatitis C and HSV. He presents to operating room with pyloric stenosis for a laparoscopic pyloromyotomy.

He is a known difficult airway. He is found in the NICU still intubated from the last emergent intubation. It is reported to be a “blind” intubation by ENT, after 7 attempts by the PICU team. The best view obtained was a Grade 3 with direct laryngoscopy using a Miller 1 blade and “limited vocal cord visualization with C-Mac Miller 1”. However, he has a 3.0 uncuffed endotracheal tube in place with a leak at 10 cm H_2O. He is reported to be an easy mask ventilation.

We had a discussion with the surgeon about the possibility of performing the procedure with an open approach, due to the significant leak that was present around the endotracheal tube, which we determined to be inadequate for the laparoscopic procedure. After evaluating the options, the decision is made to reintubate his airway with a cuffed endotracheal tube in the OR with ENT present. In a controlled fashion, following the path of the current endotracheal tube, a Grade 2 view of the larynx is obtained via direct laryngosccopy with a Miller 1 blade. The endotracheal tube is removed and a styletted cuffed 3.0 endotracheal tube is inserted past the vocal cords. The stylet is then removed with a lot of resistance. The tip of the stylet is noted to be unusual (see picture on the right). The blue coating of the stylet is thought to be stuck within the endotracheal tube lumen, and hopefully, not in the patient’s airway.

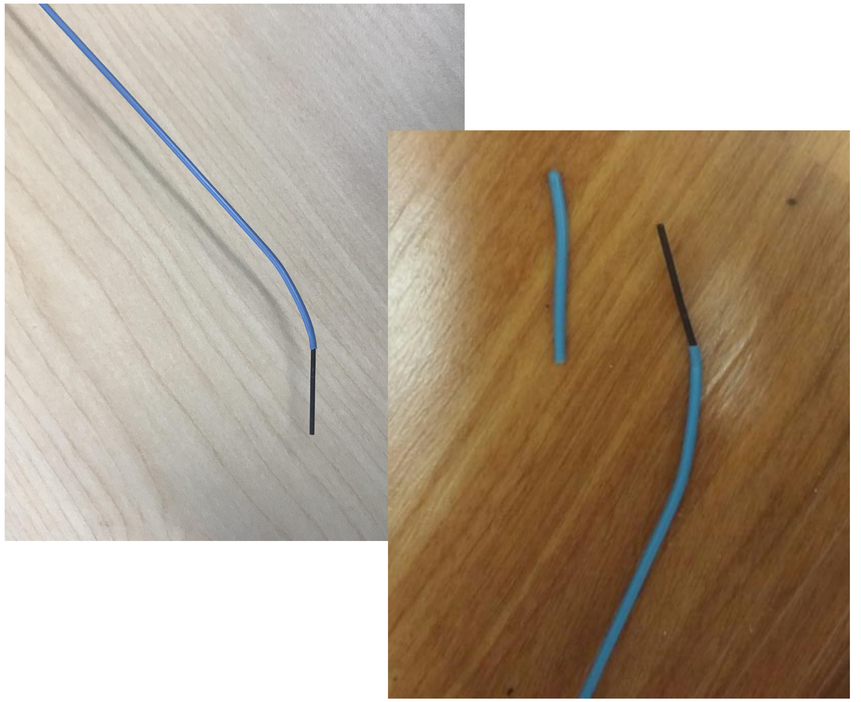
Case (continued)

Positive pressure ventilation through the endotracheal tube is not initiated. Instead, the endotracheal tube is removed and he is mask ventilated while a new endotracheal tube is styletted. The blue coating of the stylet is noted in its entirety in the lumen of the removed endotracheal tube. A new cuffed endotracheal tube is then inserted via direct laryngoscopy uneventfully.

Discussion

1. Difficult airway – communication, documentation
2. Decision to exchange ETT – difficult airway but laparoscopic procedure
3. Ways to exchange ETT
4. Having ENT available for back up
5. Timely recognition of equipment malfunction

This case reminds us the importance of recognizing patients with difficult airway, communicating and documenting it appropriately. The decision to exchange the ETT was a difficult one with the known history of difficult intubation in a small infant. In a laparoscopic case, it would be impossible to achieve adequate ventilation with a significant leak around an uncuffed ETT. We discussed alternative ways of exchanging the ETT without losing the airway, but there are not many options in a small airway, besides having ENT present as backup. Lastly, timely recognition of equipment malfunction is vital in this case. We were fortunate to have noticed the loss of coating of the stylet tip prior to PPV initiation. PPV could have forced the foreign body into the patient’s tracheobronchial tree, obstructing the airway, and further complicating this patient’s already complex history.



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