

Correspondence

Anesthesia for a child with a congenital antithrombin deficiency

To the Editor:

Congenital antithrombin (AT) deficiency is a rare syndrome in which thrombosis occurs readily during childhood as a result of a genetic defect in or the inactivation of AT. Although the occurrence of thrombosis and embolism in the operative and postoperative periods are listed as problems with AT deficiency in adults,^{1,2} the situation in children with this disease remains unclear. We report on a 12-yr-old boy with AT deficiency who was scheduled for surgery for an undescended testicle. Preoperatively, AT activity was 41% and 1500 U·day⁻¹ of AT were administered. No deep vein thrombosis was detected in the lower extremities prior to surgery. On the day of surgery, the child's extremities were wrapped with elastic bandages. Anesthesia was induced with propofol and vecuronium and maintained with O₂-N₂O-sevoflurane (2–3%). Surgery proceeded uneventfully. We continued to administer 1500 U·day⁻¹ AT until two days after the operation and the AT activity was 84%. No postoperative lung infarction secondary to thrombosis occurred.

In this case, we administered 1500 U·day⁻¹ AT and used elastic bandages perioperatively. Moreover, we encouraged mobilization the day after surgery. In adults, a filter has been placed in the inferior vena cava to prevent pulmonary embolism,² but this procedure would be difficult in children.

Anesthesiologists should be aware of the risk of thrombosis during and after anesthesia in patients with AT deficiency. In this patient, in addition to administering AT supplementation, the use of elastic bandages and active mobilization of the lower extremities appeared to be useful for the prevention of thrombosis and embolism.

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Intratracheal kinking of endotracheal tube

To the Editor:

Obstruction of the endotracheal tube (ETT) can occur in various forms while the patient is intubated.^{1–3} We would like to report a rare case of intratracheal kinking of the ETT during nasotracheal intubation.

A 20-yr-old man with right mandibular fracture was scheduled for internal fixation of the fracture. He was healthy without any systemic disease. Anesthesia was induced with fentanyl, thiopental, and succinylcholine. Nasotracheal intubation was attempted with an internal diameter (ID) of 7.0 mm ETT. The tube could not pass through the patient's nasal cavity even with force and was changed for an ID 6.5 mm ETT. After soaking the tube in warm water, it could barely pass through the nasal cavity. At laryngoscopy, the tube was inserted past the vocal cords. Manual ventilation showed a peak airway pressure

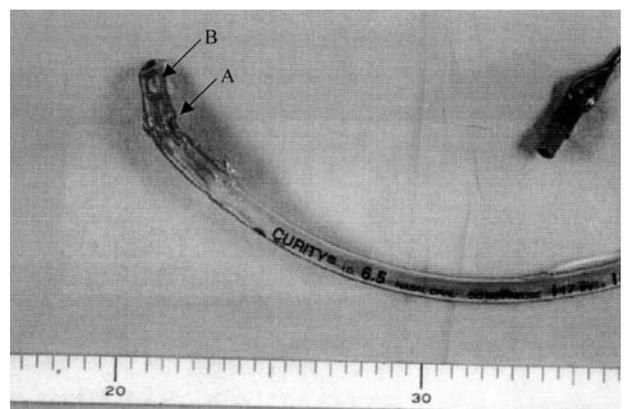


FIGURE The endotracheal tube removed from the patient. Arrow A indicates that kinking occurred at the site where the inflating lumen opens into the cuff. Arrow B points to the Murphy eye.

of 50 cm H₂O and no CO₂ waveform was observed. Auscultation revealed no breath sounds over both lung fields and no gurgling sounds over the epigastrium. The ventilation equipment was checked and found to be normal, so we withdrew the ETT into the oropharynx and reinserted the tube again. The tube was reinserted smoothly but manual ventilation was still difficult. After treatment for a suspected bronchospasm, breath sounds were still not heard and SpO₂ dropped from 99% to about 70%. We checked the tube a second time with a flexible fiberoptic bronchoscope, which, however, could not pass through the tube. Occlusion of the ETT was diagnosed and the tube was removed. We found a kink in the intracuff portion of the ETT (Figure). We then used an ID 6.0 mm ETT for nasotracheal intubation, which was inserted successfully without difficulty. The subsequent anesthetic course was uneventful.

Inspection of the ETT after it was removed from the patient demonstrated kinking occurred at the site where the inflating lumen opens into the cuff. Although the exact cause of this problem remains unclear, we assume that crushing of the ETT while it was forced through the narrow nasal passage may have weakened the tube and made it prone to kink.

It is important for us to consider both mechanical and pathologic factors when airway obstruction is encountered in an intubated patient. Kinking of the ETT inside the trachea is an uncommon problem but must be kept in mind as one of the differential diagnoses.

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Epidural analgesia for a laparotomy in a morbidly obese patient with a history of difficult intubation

To the Editor:

We describe the case of a morbidly obese male (61 yr, body mass index 54 kg·m⁻²), who presented with recurrent evisceration after gastric bypass surgery for emergency laparotomy. Examination yielded a dyspneic patient secondary to pneumonia. The airway was graded as Mallampati 2 with good neck extension. Co-morbidity included obstructive sleep apnea and mild asthma. The anesthesia chart prior to gastric bypass surgery recorded a difficult mask ventilation and a Cormack grade III view on laryngoscopy despite a Mallampati 1 airway. When presenting for the first wound dehiscence repair one week earlier the airway was classified as Mallampati 3 and an awake fiberoptic intubation was performed (S.B.). After this operation the patient remained intubated for eight days due to adult respiratory distress syndrome.

Taking into account the patient's co-morbidity, the ongoing pneumonia, the previous difficult intubation and prolonged weaning and considering the potential benefits of neuraxial blockade we (T.S. and K.L.) felt compelled to conduct the laparotomy under regional anesthesia.¹⁻³

A low thoracic epidural catheter was inserted. Sensory block to T3 was obtained by lidocaine (100 mg) and maintained during the three-hour-mesh-graft-insertion by bupivacaine (total 85 mg). While the patient did cough intermittently, boluses of midazolam (2 mg), ketamine (200 mg) and propofol (165 mg) provided acceptable surgical conditions. Oxygen was delivered by face mask resulting in a SaO₂ at 99%. Blood gases before and during surgery are presented in the Table. Postoperatively, we administered epidural bupivacaine 0.1% and fentanyl 3 µg·mL⁻¹ at 14 mL·hr⁻¹. The patient was pain free at rest and recovered uneventfully.

Eight days following discharge he again presented with wound dehiscence and evisceration. Given an elevated partial thromboplastin time (39.3 sec) and prothrombin time (INR 1.28) and the surgeon's wish for complete muscle paralysis a rapid sequence induction

TABLE Arterial blood gas analyses before and during surgery

	pH	Base excess	pCO ₂ (mmHg)	pO ₂ (mmHg)
Preoperative	7.41	2.6	42	101
Intraoperative	7.41	0.8	39	128