

## Tracheal tube kinking

To the Editor:

We would like to report an unusual cause of kinking of a PVC tracheal tube which occurred during nasal intubation.

A 24-yr-old man, ASA class I, was scheduled for intraoral surgery to excise a swelling of the lower jaw. His preoperative airway examination was unremarkable. After premedication with pentazocine and promethazine, anaesthesia was induced with glycopyrrolate, thiopentone followed by succinylcholine 100 mg. Laryngoscopy was performed and an 8 mm PVC cuffed tracheal tube was inserted through the right nostril. The tip of the tube was seen to enter the glottis when the laryngoscope was withdrawn and the tube was pushed in further without undue resistance. The cuff was inflated and the tube connected to the breathing circuit but the reservoir bag could not be deflated on squeezing. Instead, it kept inflating until the pressure limiting valve on the circuit opened. On repeat laryngoscopy, the tip of the tube was seen end-on with the inflated cuff pushing the epiglottis forward. The tube was taken out immediately and the trachea was re-intubated with another tube. Anaesthesia subsequently was uneventful.

Closer examination of the tube on removal showed a residual kink in the intracuff portion. On cutting open the cuff, a large transverse nick ( $6.3 \times 3.4$  mm) was seen at the site of the residual kink. Examination of 35 randomly chosen tubes of the same size revealed that the much smaller nicks ( $4.3 \pm 0.5 \times 3.02 \pm 0.5$  mm) which are probably made during manufacture, across the path of the inflating lumen to open into the cuff. We presume that kinking in our case occurred because the larger nick formed a weak point.

We suggest that the possibility of kinking in the region of nick should be kept in mind while inserting the nasal tube.

Baljit Singh MD  
K.K. Gombhar MD  
Balbir Chhabra DA MS  
Department of Anaesthesia  
Medical College and Hospital  
Rohtak 124 001  
India

## Oral midazolam and post-operative behaviour in children

To the Editor:

Children who resist or cry during anaesthetic induction may exhibit adverse behaviour changes postoperatively.<sup>1</sup> We conducted a small prospective double-blind, randomized study examining the impact of oral midazolam premedication on children's behaviour during the postoperative period. We sought to test the hypothesis that preoperative sedation might mitigate against adverse postoperative behaviour.

This study was approved by the institutional review board of our hospital. All subjects were outpatients and without history of behavioural problems. Following enrollment, subjects were given either oral midazolam  $0.5 \text{ mg} \cdot \text{kg}^{-1}$  (up to a maximum of 10 mg) or an equal volume of bitter tasting placebo. Approximately 15 to 20 min after ingestion of premedication, the child was anaesthetized in a parent's presence with halothane and nitrous oxide in oxygen via mask. Upon enrollment and at anaesthetic induction subjects were assessed for sedation using a visual analogue scale. Telephone follow-up was conducted at one and four weeks following surgery.

There were 22 children studied in the placebo group and 22 in the midazolam group. The mean age in the placebo group was 2.7 yr (range 1.1 to 6 yr). The mean age in the midazolam group was 3.6 yr (range 1.2 to 10 yr) (NS). The baseline evaluation scores for the two groups were not different. The midazolam group were more sedated at induction than were the placebo group ( $P < 0.01$ ). Four of the 22 placebo subjects (18%) experienced adverse behavioural sequelae during the first postoperative week; 11 of the 22 midazolam subjects (50%) experienced adverse behavioural sequelae during this period ( $P = 0.056$ ). Types of behaviour changes included nightmares, fearfulness, and food rejection. In both placebo and midazolam groups, the behaviour changes were resolved within 14 days following surgery in all children.

Our findings regarding postoperative behaviour were unexpected. The midazolam appeared to be associated with an increased incidence of adverse postoperative behaviour. This observation approached but did not achieve statistical significance using a two-tailed Fisher exact test. However, our population was too small and our evaluations too imprecise to conclude that oral midazolam premedication worsens postoperative behaviour. Larger studies performed in various anaesthetic settings are needed to explore this issue.

T. McGraw MD  
Children's Hospital  
Cincinnati, Ohio

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## Emergency airway management (1)

To the Editor:

Bogdonoff and Stone are to be commended on their prudent and practical review of the topic of airway management outside of the operating room.<sup>1</sup> However, the one conclusion that we did not find ourselves in agreement with the authors on concerned the management of the adult patient with epiglottitis. Bogdonoff and Stone seem to support routine intubation of the adult with epiglottitis. This differs from our management which has been one of selective intubation.<sup>2</sup>

It has been our institutional experience that adults with epiglottitis always present with severe sore throat and less commonly (29% of patients) is respiratory distress a presenting feature. It is our impression that adults usually come to hospital earlier in the course of the illness than do children, are more able to communicate their distress than are young children and are less likely to present with the dramatic airway compromise seen in the paediatric patient with epiglottitis. The diagnosis in the adult may be safely made with indirect (mirror) examination or with nasal fiberoptic laryngoscopy and, although this is well tolerated in the adult, direct examination of the paediatric airway in the emergency room is ill-advised. Adult patients without evidence of respiratory distress should be provided with supplemental humidified oxygen, intravenous antibiotics are started and they should be observed in a critical care setting. There must be the capability to intervene quickly to secure the airway should airway compromise occur. It is our opinion, shared by others, that "sudden respiratory arrest" usually occurs in patients presenting already *in extremis* or in those presenting in respiratory distress, who are then admitted to hospital without close observation.<sup>3</sup> Our experience, which is supported by a review of 812 cases from the otolaryngology literature, suggests that intubation, properly carried out in adult patients presenting with respiratory distress, will be required in about 20% of patients.<sup>2</sup> Mortality with an appropriately applied regimen of se-

lective intubation should be less than 1% and is most likely to occur in patients presenting *in extremis* or with respiratory arrest.

Edward T. Crosby MD FRCPC  
Dennis Reid MB ChB FRCPC  
Department of Anaesthesia  
Ottawa General Hospital  
University of Ottawa  
501 Smyth Road  
Ottawa, Ontario  
K1H 8L6

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## Emergency airway management (2)

To the Editor:

I would like to congratulate the authors Bogdonoff and Stone for their excellent review article on emergency airway management.<sup>1</sup> They correctly note that the fiberoptic bronchoscope is useful for confirming endotracheal placement of the ET tube. While they suggest that "visualization of tracheal rings and the bifurcation at the carina provides absolute proof ...". I would like to relate two cases from my experience that make the above visualization less than absolute proof of correct ET tube placement.

Both cases involved young adult men with acute upper cervical spine fractures. One had associated quadriplegia and required mechanical ventilation for respiratory failure. The other was being anaesthetized for cervical spine infusion. In both cases, the fractures produced a "bulge" in the posterior pharynx which deflected the ET tube anteriorly so that its tip caught on the anterior commissure of the vocal cords. The ET tube was in line with, but external to, the trachea. In one case the intubated patient was transported by air ambulance and mechanical ventilation was continued for a total of 24 hr with the ET tube external to the trachea.

Both cases survived their episodes of mechanical ventilation without mishap. I bring these cases to your attention because an ET tube caught on the anterior com-