

A novel method of fixation of endotracheal tube in a bearded patient

■ To the Editor:

Securing of the endotracheal tube in situ is essential for the conduction of safe anaesthesia during surgical procedures. In the operative setting, adhesive tape is commonly used to secure the endotracheal tube (ETT).¹ However, this technique may not adequately secure the ETT in patients with facial hair. In such patients, bandage may be tied around the neck to secure the tube. Tied bandage around the neck can cause obstruction of venous return, leading to complications such as raised intracranial pressure in susceptible patients, as well as compromised access to the internal or external jugular veins. Moreover this technique is not feasible in patients who are undergoing posterior fossa craniotomies or cervical spine surgery via the posterior approach.²

We describe a technique which is helpful in securing the ETT in patients with facial hair and which has not been described elsewhere in the literature. A 58-year-old Sikh male, who was booked for a cervical laminectomy in the prone position, refused to have his beard shaved preoperatively due to religious reasons. After intubation, securing of the endotracheal tube was a challenging task, as bandage which is normally used to fix the ETT in such patients could not be applied because of interference in the surgical field. In order to overcome this problem we innovated a new method for tube fixation. We cut a 35 x 35 cms "eye" into a steridrape (3M™), and applied it in such a way that it extended from the forehead to the patient's upper chest and covered all facial hair. The airway and ETT protruded through the "eye". We applied two strips of dynaplast onto the steridrape to secure the ETT and airway (Figure 1). Thus with this technique we could secure the airway without shaving off the beard, and without encroaching on the surgical field.

Various methods employed in fixing ETTs include adhesive tape,¹ bandage, facial hair,² discarded oxygen therapy tubing, umbilical tape³ and surgical sutures.⁴ All these methods have their own limitations. Khorsani and Bird used moustache hair (> 1 cm) to fix the ETT. However they do not recommend this technique for positions other than supine, and for surgery near the airway.² An endotracheal tube holder made from Velcro tape, elastic tape and a plastic hook has been designed for patients with facial hair.⁵ However, this needs to be tied around the nape of

Figure 1: Endotracheal tube fixed with steridrape in a bearded patient



the neck, and was thus not feasible in our case. For the same reason a tube fixation device constructed from oxygen tubing and umbilical tape also cannot be used.³ Other endotracheal tube holders available on the international market are costly and not easily accessible in the Indian market.

Fixing the endotracheal tube with the help of dynaplast and steridrape does not need any special equipment, can be used in patients allergic to adhesive tape and in positions other than supine, as was the case in our patient. Minimal inadvertent removal of facial hair can occur while removing it at the time of extubation; this can be minimized by wetting the undersurface of the steridrape with a piece of wet gauze.

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References

1. Patel N, Smith CE, Pin Chak AC, et al. Taping methods and tape types for securing oral endotracheal tubes. *Can J Anaesth* 1997; 44:330–336.
2. Khorsani A, Bird DJ. Facial hair and securing the endotracheal tube, a new method. *Anesth Analg* 1996;883–886.
3. Klein DS. An endotracheal tube fixation device constructed from discarded oxygen tubing and umbilical tape. *Anaesthesiology* 1984;60–76.
4. Jensen NF, Kealey GP. Securing an endotracheal tube in the presence of facial burns or instability. *Anesth Analg*. 1992 Oct;75(4):641–2.
5. Thakur S, Thakur J.R. Endotracheal tube holder: an innovation. *J Anaesth Clin Pharmacol* 2005;2(3):307–308.

Obstruction of the endotracheal tube by a broken plastic-coated stylet

■ To the Editor:

Plastic coated stylets form an integral part of the armamentarium of the anaesthesiologist when dealing with the airway. The plastic coating renders the stylet less traumatic and easier to remove from the endotracheal tube. But they are not without their drawbacks. Shearing of the plastic coating of stylets has been reported in the paediatric population.^{1,2} We report the breaking of a plastic coated stylet in an adult.

Case report

A 21-year old woman was booked to undergo endoscopic nasal surgery. After a routine intravenous induction, the trachea was intubated with an 8.0 mm endotracheal tube "stiffened" with a plastic coated stylet (PORTEX Large). After intubation the assistant removed the stylet with some difficulty. As there was some resistance, excessive force was used. The proximal part of the stylet broke off leaving the remainder within the endotracheal tube. The endotracheal tube was removed. The trachea was reintubated and anaesthesia proceeded uneventfully.

Discussion

Shearing of plastic coated stylets has been reported in the paediatric population particularly when used with metal endotracheal tubes. Similar occurrences in adults are rare, probably because of the loose fit of the stylet inside a larger tube, thereby offering less friction. In our case, the stylet snapped (both the metal wire and plastic coating) at the proximal end where it was bent to prevent forward migration of the stylet within the endotracheal tube. We attribute it to the excessive force used while removing the stylet, as well as weakening of the stylet due to repeated use. Linder suggested that plastic coated stylets should be coated with a tough plastic bonded to the stylet and should be used only once so that the coating is not weakened from repeated use.³ If stylets with unbonded coatings are used it is important to ensure a loose fit within the endotracheal tube, especially in the paediatric population. Other measures to be taken to avoid such an incident are to avoid a sharp bend in the stylet and to check the stylet for completeness once it has been removed from the endotracheal tube, particularly in cases where difficulty has been encountered during stylet removal.

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References

1. Cook WP, Schultetus R. Obstruction of an endotracheal tube by the plastic coating sheared from a stylet. *Anaesthesiology* 1985;62:803.
2. Zmyslowski WP, Kam D, Simpson GT. An unusual cause of endotracheal tube obstruction. *Anaesthesiology* 1989;70:883.
3. Linder GS. More on wire stylets. Letter to the editor. *Anesth Analg* 1977;56:325.

Inspissated secretions: an unusual cause of difficult airway

■ To the Editor:

I am describing a case of difficult intubation as a result of inspissated secretions. I am unaware that inspissated secretions as such have been reported as a cause of a difficult airway. A 17-year old, 48 kg male with no significant past history was admitted with head injury and fractured femur. The patient was planned for an interlocking nail for the fractured femur on post injury day 7. The Glasgow Coma Score was E4V1M5. His pre-anaesthetic evaluation (including gross airway assessment) was unremarkable. Preoperatively the patient had a respiratory rate of 28–30/minute, with a saturation of 94%. The chest was clear except for bilateral conducted sounds. After intravenous induction with fentanyl and propofol and confirming ventilation, rocuronium 30 mg was given intravenously. Direct laryngoscopy revealed very poor oral hygiene with a thick coating on the tongue, teeth and gums and his airway anatomy was grossly obscured by thick yellowish leathery secretions. Vocal cords and other periglottic structures could not be identified. A large amount of firm, gelatinous, yellowish material completely occluded the pharynx, encased the epiglottis, and almost covered the laryngeal inlet. Suction with a wide bore catheter attempted to remove it, but nothing could be aspirated. Significant amounts of thickened adherent secretions were taken out with the help of the Magill forceps with resultant little bleeding. It took at least two to three minutes to remove the secretions, bag and mask ventilation once in between, because the saturation dipped to 90%. Subsequently the airway anatomy became quite clear, and turned out to be Comark Lehan grade 1. An ETT of size 8.5 mm ID was passed and its position confirmed by bilateral auscultation and capnography.

The risk factors for the development of inspissated secretions include the use of a full face mask for ventilation, inadequate cough, depressed consciousness and inadequate humidification when receiving oxygen at a high rate for a long period of time.¹ In addition to the above factors, our patient had a nil by mouth status and reduced oropharyngeal motility contributing to poor oral hygiene. Airway obstruction with stridor due to nasal secretions has been reported previously; in that case too, poor oral hygiene was a contributing factor, as well as depression of the level of consciousness.² Histological examination of the removed mass should have been performed, as it is known that it may contain a number of different constituents with different physical and chemical properties, such as mucous, keratin, flattened epithelial cells and scattered inflammatory cells.² Despite this association, oral health care is often a low priority in patient care. Nursing care has an important role to play in such a scenario. We suggest that emergency airway providers should be aware of this rare cause of a difficult airway especially in patients with a depressed level of consciousness.

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References

1. Prahlow JA, Prahlow TJ, Rakow RJ, Prahlow ND. Case study: Asphyxia caused by inspissated oral and nasopharyngeal secretions. *Am J Nur.* 2009;109:38–43.
2. Dingle AF, Douglas-Jones AG. Airway obstruction with stridor due to nasal secretions. *The Journal of Laryngology and Otology* 1995;109:331–334.

MRI compatible airway adjuncts – Magill's forceps

■ To the Editor:

Anaesthetic management in the MRI suite is a challenge for any anaesthesiologist. Various MRI compatible gadgets required for anaesthetic management are available. Though we ensure the availability of sophisticated instruments like anaesthesia machines and monitoring devices, we often oversee the availability of MRI compatible airway adjuncts such as Magill's forceps, which can be life saving in emergencies.

A 5-year-old child was brought for an emergency MRI head. He had a history of a fall from a height,

followed by bleeding from the nose and oral cavity, seizures and unconsciousness. He was intubated and receiving oxygen via a T-piece.

Whilst positioning him on the MRI table, accidental extubation occurred. Immediately we performed a laryngoscopy for reintubation. On laryngoscopy, the oral cavity contained a lot of blood stained secretions which were suctioned. We also noticed a blood soaked piece of gauze near the posterior pharyngeal wall. We asked for a Magill's forceps to remove it. As soon as the assistant handed over the Magill's, it was attracted towards the MRI magnetic cabin. Since the patient was near the MRI magnets, it became very difficult to hold the Magill's and use it for removing the foreign body from the mouth. We then tried removing the foreign body using the suction catheter, and fortunately, the gauze stuck to the suction catheter and was removed safely. Tracheal intubation was performed, and since no fresh blood was observed in the oral cavity, the packing with gauze was avoided. The remainder of the procedure was uneventful.

Magill's forceps are considered to be one of the very useful tools for removing foreign bodies from the oral cavity.^{1,2} They are also required for the packing of the oral cavity after tracheal intubation with an uncuffed tube in order to protect the airway from blood or secretions. We reiterate that the anaesthesiologist involved with anaesthetic management in the MRI suite must ensure the availability of MRI compatible anaesthetic "tools". The airway adjuncts, especially those required for emergency management, must also be ensured in the MRI suite.

We wish to highlight about the need for MRI compatible airway adjuncts such as the Magill's forceps in the MRI suite, which can be life-saving.

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References

1. Rubio Quinones F, Munoz Saez M, Povatos Serrano EM, et al. Magill forceps: a vital forceps. *Pediatr Emerg Care* 1995;11:302–3.
2. Cetinkursun S. Safe removal of upper esophageal coins by using Magill Forceps: two centres' experience. *Clinical Pediatrics* 2006;45:71–73.