

## An unforeseen complication of suctioning an endotracheal tube having murphy's eye

Pratibha Jain shah, Ankit Ray, Samrat Verma  
Pt J N M Medical College, Raipur (C.G.)

### Address for correspondence:

Dr. Pratibha Jain shah,  
Arihant Hospital, Dubey Colony,  
Mova, Raipur (C.G.)-492010  
Email: prati\_jain@rediffmail.  
com

### ABSTRACT

Endotracheal Tube (ETT) suction is necessary to clear secretions, to maintain patency, to optimize oxygenation and ventilation in an intubated patient. The goal of ETT suctioning should be to maximize the amount of secretion removed with minimal adverse effects. We report an unusual case of suction catheter impaction while endotracheal suctioning.

**Key words:** Endotracheal tube, suction

### INTRODUCTION

Endotracheal Tube (ETT) suctioning as such is a life saving procedure to clear secretions and to optimize oxygenation-ventilation in an intubated patient but sometime this life-saving procedure may become life-threatening. Though unusual but there are many reports of suction catheter impaction in ETT, that requires instant removal of ETT along with impacted catheter and reintubation. Here, we report an unusual case of suction catheter impaction while endotracheal suctioning and discuss various strategies to prevent & manage this dreaded complication.

### CASE REPORT

A 58 year old, weighing 62 kgs of ASA Grade I-II male was scheduled for exploratory laprotomy for perforation peritonitis. Preoperatively, the laboratory investigations were within normal limits. Anaesthetic induction with Propofol, Fentanyl, and Succinylcholine followed by tracheal intubation with a 8.5-mm-Internal Diameter (ID) cuffed oral ETT was uneventful. Anaesthesia was maintained with O<sub>2</sub>:N<sub>2</sub>O (50:50), Isoflurane (0.6-1.2%) and Atracurarium for neuromuscular blockade. At the end of surgery, anaesthesia was reversed with i.v. neostigmine and glycopyrrolate. Just before extubation cracking sounds was heard from the ETT, which was confirmed on auscultation. A 14G suction catheter was introduced into the ETT. It went in without any difficulty, but resistance was encountered while withdrawing with inability to

either advance or withdraw the catheter. Further traction on the catheter failed to withdraw it. All our attempts to pull out proved futile. Before desaturation occurred the ETT cuff was deflated and the ETT was removed along with the suction catheter in-situ. (Figure 1).



**Figure 1.** Ryle's tube stuck into murphy's eye of endotracheal tube.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

**How to cite this article:** How to site the article: Shah PJ, Ray A, Verma S. An unforeseen complication of suctioning an endotracheal tube having murphy's eye Central Journal of ISA 2017;1(2):81-82.

On visual inspection, we found that the suction catheter was stuck into the murphy's eye of the ETT with the outer surface of the catheter sticking to the inner surface of ETT thereby preventing its removal. We were able to remove the suction catheter by applying pressure on the distal tip of catheter. Viscous secretions were also observed on the outer surface of suction catheter which were adhered to the inner surface of the ETT

Similar impaction has been attributed to an increase in surface tension due to small amounts of condensed secretions between the outer surface of suction catheter and inner surface of ETT.

## DISCUSSION

We would like to bring to the attention of our readers that though impaction of suction catheter in ETT is unusual but blockage of ETT can jeopardize ventilation and can be life threatening in patients with limited cardiopulmonary reserve or a difficult airway. Thus prompt recognition and management of this complication is essential. Objects like bougies, stylets can get stuck and get broken down in the ETT that require removal of the whole assembly resulting in unnecessary extubation<sup>[1,2]</sup>.

Endotracheal tube block due to various mechanical causes like blood, mucus, denture etc have been previously reported. There have been previous reports of nasogastric tube causing extraluminal ETT obstruction<sup>[3]</sup>. Takouri *et al* (2008) reported a case of suction catheter impaction with subsequent division into two pieces on vigorous pulling in preformed nasotracheal ETT in a paediatric dental patient<sup>[4]</sup>. Gupta A *et al* (2010) described a case of suction catheter impaction without any knotting inside an ETT<sup>[5]</sup>. Jagannathan *et al* (2009) also reported a case of ETT obstruction by suction catheter passing into the murphy's eye of the ETT and subsequent knotting inside ETT<sup>[6]</sup>. Raut SM *et al* (2016) reported similar case of suction catheter impaction but catheter didn't come out of the Murphy's eye<sup>[7]</sup>.

In regards to the prevention of this dreaded complication, especially, when multiple passes of suctioning are

anticipated and where use of glycopyrrolate makes secretions thick and viscous, it was recommended to use lubrication or spray when a larger diameter suction catheter is considered for suctioning and choose an appropriate size of suction catheter (i.e., less than 1½ times the ID of ETT)<sup>[5-7]</sup>. Avoiding manipulation (back and forth advancement and withdrawal) of the suction catheter within the lumen of the ETT can prevent the catheter tip from getting stuck into the murphy's eye and one should completely remove the suction catheter from the ETT and re-insert if needed for a subsequent pass<sup>[6]</sup>.

## CONCLUSION

We can finally conclude that following standard guidelines and protocols for ETT suctioning at all times is essential to avoid such complications. Even so if one comes across such complications during ETT suctioning, early recognition and prompt management is of utmost importance since a moment's delay may lead to potentially hazardous consequences.

## REFERENCES

1. Jackson GNB, Bartlett R, Yentis SM. Forces required to remove bougies from tracheal tubes. *Anaesthesia*. 2009; 64:320–2. <https://doi.org/10.1111/j.1365-2044.2008.05761.x> PMID:19302648.
2. Sharma PK, Khan RM, Kaul N. An unnoticed broken sheathed metallic stylet in an Endotracheal Tube. *SQU MED J*. 2010; 10:126–8.
3. Kubo K, Nakao S, Kawabata Y, Nishimae H, Masuko S, Shingu K. An unusual case of airway obstruction at the tip of an endotracheal-tube caused by insertion of a nasogastric tube. *J Anesth*. 2008; 22:52–4. <https://doi.org/10.1007/s00540-007-0563-5> PMID:18306014.
4. Takroui MS, Nafakh R, Abbas AA. Suction catheter impaction in preformed nasal endotracheal tube (PNETT) during pediatric dental anesthesia: hazard notice. *Internet J Anesth*. 2008; 22:1.
5. Gupta A, Mohta A, Kamal G, Bathla S. Impaction of suction catheter – Complication of endotracheal suctioning. *Indian J Crit Care Med*. 2010; 14:222. <https://doi.org/10.4103/0972-5229.76092> PMID:21572759 PMID:PMC3085229.
6. Jagannathan N, Pak TY. An unusual complication of endotracheal tube suctioning. *J Anesth*. 2009; 23:170–1. <https://doi.org/10.1007/s00540-008-0707-2> PMID:19234851.
7. Raut MS, Joshi S, Maheshwari A. Stuck suction catheter in endotracheal tube. *Indian J Crit Care Med*. 2015; 19:113–5. <https://doi.org/10.4103/0972-5229.151020> PMID:25722554 PMID:PMC4339896.
8. Dubey PK, Sanjeev OP. Impaction of suction catheter during paediatric anaesthesia. *Anaesthesia*. 2013; 68:102–18. <https://doi.org/10.1111/anae.12104> PMID:23231612.