

Doctors in Awe as Bougie Breaks the Law.

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ABSTRACT

Bougie is an important adjunct in the anaesthesiologist armoury for a difficult airway¹. Physical damage to bougie leading to airway trauma is rare but can be catastrophic. We report a case of an anticipated difficult extubation, where the bougie, used to extubate over the tube broke and migrated into the trachea indicating the need of a protocol for routine inspection of bougie which should be strictly adhered to.

Keywords: Difficult Airway, Broken bougie, Extubation.

INTRODUCTION

Bougies are an important adjunct in the anaesthesiologist armoury for a difficult airway.^[1] Physical damage to bougies leading to airway trauma is rare but can be catastrophic. We report a case of an anticipated difficult extubation, where the bougie, used to extubate over the tube broke and migrated into the trachea.

CASE REPORT

A 53 year old patient operated for cervical spine level 5-6 surgery for anterior decompression and fixation. Haematological investigations, ECG and Chest X-ray were normal. On Airway assessment patient had a MP score of 3, heavy jaw and neck mobility was not assessed due to cervical spine involvement.

Patient was induced with intravenous (i.v.) fentanyl, i.v. propofol and i.v. vecuronium given after confirming mask ventilation. The patients trachea was intubated with 8.5 cuffed endotracheal tube (ETT) using a video laryngoscope D blade anticipating difficult airway. Intubation was achieved in the third attempt by D blade of videolaryngoscope and revealed Cormack-Lehane grade 3a view of the vocal cords with external laryngeal manipulation. Anaesthesia was maintained with O₂/N₂O and isoflurane 1%. Analgesia was multimodal using Diclofenac,

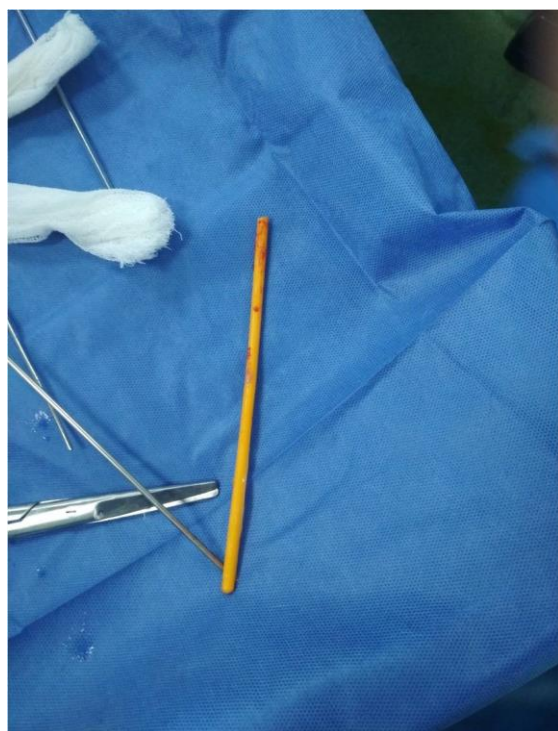
Morphine and Paracetamol. Intravenous fluids Normal saline was administered to maintain hydration. Hourly urine output and blood sugars were monitored. Surgery was uneventful and lasted for 2.5 hours. Towards the end of surgery, after effect of neuromuscular relaxant was over, reversal agent neostigmine with glycopyrrolate was administered. When patient had good and regular breathing attempts, in anticipation of extubating a difficult airway, a bougie was introduced through the ETT. Hansraj Nayyer™ single use 15 Fr 700 mm coude tip bougie was first introduced up to 25 cm mark, without eliciting tracheal click or hold up signs. Once the patient was conscious and responding to verbal commands ETT was removed over the bougie. Patient was asked to open his mouth for oropharyngeal suctioning and during this a broken part of bougie was visualised in the oropharynx. We tried to remove it immediately by turning his head towards one side and using a maggils forceps but failed to do so. Patient had some swallowing movements during this time and the bougie migrated further inside. At this point patient started developing difficulty in breathing and had to be ventilated after giving i.v. propofol and i.v. succinylcholine. We visualised the glottis by nasal fibreoptic bronchoscope and the broken bougie was found to be just within the glottic chink. Further attempts to reach the broken bougie were not possible due to unavailability of bronchoscopy forceps. An emergency ENT referral was done. In the mean time patient was ventilated inserting an I-Gel No 5 and anaesthesia maintained by O₂, N₂O and isoflurane and paralysis with i.v. vecuronium. The ENT team used a rigid bronchoscope to access

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the glottis and were successful to remove the broken piece using a bronchoscopy forceps.

Patient was intubated again with D blade of video laryngoscope with 7 cuffed ETT, sedated with i.v. morphine and paralysed with i.v. vecuronium and shifted to ICU for post op elective ventilation anticipating airway oedema. Patient was extubated the next day in ICU after visualising the airway with fiberoptic bronchoscope and ruling out any glottic oedema.



DISCUSSION

There are not many case reports available on bougie fracture.

In a case reported by Latta P,^[2] a bougie was used for intubation in a Cormack & Lehane grade 3 view. There was a fracture caused in the outer layer of the bougie at 12 cms from the tip, in an attempt to further angulate the distal segment for its insertion. The fracture was immediately apparent. The patient

was intubated using a new bougie after a failed attempt with the damaged bougie.

On evaluation of the damaged bougie, localised areas of weakness in the outer layer were found in the distal segment of the bougie. The proximal segment showed no such areas.

In 2 similar cases the outer layer of the bougie got fractured near the distal segment during intubation.^[3] Bougies vary considerably in their physical properties. According to Robbins PM³, bougies should be inspected before use and each bougie should be used up to five times and then discarded. But such a practice is not followed because there is no formal record kept of usage of this device and also it usually functions perfectly well for more than five times. So the indication for changing an old bougie is not clearly defined.

In a case reported by Gardner et al,^[4] where microlaryngoscopy was to be performed for a neck malignancy, a microlaryngeal tube was inserted initially by normal laryngoscopy. The tube got dislodged during the procedure and reintubation was performed with a gum elastic bougie due to bleeding from the lesion. On withdrawing the bougie, the tip was found to be broken and on inspection was found lodged above the bifurcation of trachea. After failed attempts to remove the tip using a forceps cardiothoracic unit was called for help. It was eventually removed using a flexible fibre-optic scope since the tip had migrated distally into the right middle lobe bronchus.

CONCLUSION

In conclusion, bougies should be periodically checked for loss of strength around the tip since the point at which bougie curves is a potential area of weakness.

A practice of routinely inspecting bougies before use should be in protocolised. Also users should check the rigidity of the bougie and that a spare bougie should be readily available.

REFERENCES

1. Smith T, Vaughan D. Extubation over a bougie in difficult airways: are we missing a trick?. <https://doi.org/10.1111/anae.12400>.
2. Latta P. Fracture of the outer varnish layer of a gum elastic bougie. *Anaesthesia*. 1999 May;54(5):497-8.
3. Robbins PM. Critical incident with gum elastic bougie. *Anaesthesia and Intensive Care* 1995; 23: 654.
4. Gardner M, Janowski S. Detachment of the tip of a gum-elastic bougie. *Anaesthesia*. 2002 Jan;57(1):88-9.

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