

CASE REPORT

UNUSUAL SITE OF OBSTRUCTION IN A FLEXOMETALLIC TUBE

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ABSTRACT: Maxillofacial procedure such as LeFort I osteotomy requires Transmyelohyoid Intubation. For that initial intubation is done with Flexometallic Endotracheal Tube so that this tube can be easily brought out through transmyelohyoid incision. Frequently Flexometallic tubes are reused after Ethylene Oxide Sterilisation because of high Cost. Here we present an obstruction to endotracheal tube at an unusual location, (Deformity of the tube at the level of Cuff, with intact cuff).

KEYWORDS: Flexometallic endotracheal tube, LeFort I Osteotomy, Submental Intubation, Obstruction, Ethylene oxide sterilization, Reused Tube.

INTRODUCTION: Flexometallic Endotracheal Tubes are commonly used in Surgeries of the face, head and neck, neurosurgery, craniofacial and maxillofacial surgeries. In these procedures Endotracheal tube, its connector and distal part of the breathing circuit are inside the drapes and surgeon may move the head in various direction. Anaesthesiologist cannot visualize these without disturbing the surgical drapes. Being kink resistant and noncompressible flexometallic tube has definite advantage in these situations over conventional endotracheal tubes. Transmyelohyoid intubation requires Flexometallic tubes because of its Flexibility. Being expensive these tubes are commonly reused after Ethylene Oxide Sterilization. One disadvantage of this tube is any deformity of the tube either by patient biting on the tube or by Ethylene Oxide Sterilization can permanently narrow the internal lumen to occlude the airway.

CASE REPORT: We report a case of 19 year old male patient was posted for LeFort I osteotomy under General Anaesthesia. Surgical Technique required Submental (Transmyelohyoid) Intubation. So Endotracheal tube selected was Flexometallic Endotracheal Tube, because this can be brought out through Transmyelohyoid incision easily without any kink. Ethylene Oxide sterilized 8 mm ID tube was selected and inspected for any deformity, Cuff was inflated and checked for integrity, stylet was pushed to facilitate the intubation. No obvious abnormality was detected.

General Anaesthesia was induced and Non depolarising relaxant was given and ventilated with Oxygen and Inhalation agent as per hospital protocol and intubated easily. Stylet removed and breathing circuit connected and cuff inflated. Bilateral air entry was equal but feeble and lot of resistance felt for ventilation which was not there during bag mask ventilation. Breathing system was checked for mechanical obstruction. Suction catheter could not be passed through endotracheal tube. So we suspected some problem with the Endotracheal tube and extubated and reintubated with new 7.5 mm ID Flexometallic tube and fixed after checking bilateral air entry. Ventilation was easy connected to Ventilator and peak airway pressure was 15 cm of

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water. Throat pack inserted and tube was brought out through transmyelohyoid incision. Surgery and postoperative period was uneventful.

On close inspection we were able to detect a deformity in the tube at the level of Cuff.

DISCUSSION: The flexometallic endotracheal tubes (spiral embedded, armoured, reinforced tube has a metal or nylon spiral wire reinforcing the tube internally and externally. These tubes have a shae memory and thus the tube is flexible, kink-resistant and retains patency despite the acute angle of the airway, particularly at the sub mental route.⁽¹⁾ In Orthognathic Surgeries Submental Intubation is preferred. The main advantage of the sub mental intubation is minimal intraoperative distortion of the nasolabial soft tissue. This allows accurate assessment and measurement of the changes in the soft tissue of the nose and upper lip as a result of maxillary movement.⁽²⁾ Bimaxillary Surgery with Rhinoplasty can be done with sub mental intubation.⁽³⁾ Because of cost factor Flexometallic endo tracheal tubes are reused after ethylene oxide sterilisation. Endo tracheal tubes can be sterilized effectively by Ethylene Oxide. Ethylene oxide sterilization caused little compliance change after two reprocessing's.⁽⁴⁾

There was no obvious deformity in the Endotracheal Tube used. Cuff was checked for Integrity. No leak was found. Stylet was passed without any difficulty (Picture 1).



Picture 1

Only after intubating and during ventilation we were able to detect obstruction to ventilation. Suction catheter was used to check patency of tube.⁽⁵⁾ We were not able to pass the suction catheter fully (Picture 2).



Picture 2

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The deformity was present in the tube at the place of cuff. This is unlikely caused by patient bite because it should have damaged the cuff (Picture 3).



Picture 3

Figure 1: This could be caused by Ethylene oxide Sterilisation. There are many reports of Obstruction to Flexometallic Tube because of various reasons such as patient bite.⁽⁶⁾ due to dislodgement of reinforcing spirals⁽⁷⁾ due to dissection of reinforced ETT internal wall.⁽⁸⁾ In our case deformity in the tube was unlikely caused by patient bite because cuff was not damaged. The deformity could be because of ethylene oxide sterilization.

CONCLUSION: We feel that it is better to use a new Flexometallic Endotracheal Tube in procedure where changing the tube during procedure is difficult such as sub mental intubation (picture 4).



Picture 4

Prone position surgeries, Maxillofacial Surgeries.

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