

Blind Nasal Intubation with the Miller straight blade as an adjunct- A Case Report

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Abstract: Securing of definite airway with limited resources is always a challenge. Patient with submucous fibrosis planned for cranioplasty and we don't have fiberoptic device that time. We planned for blind nasal intubation after inhalation induction and prevention of spontaneous respiration. During the procedure we failed to put tube in trachea, tried different measures as we all know but failed. We tried miller's straight blade to lower the tongue and maggilforcep to succeed. Successful endotracheal intubation and prevention of invasive tracheostomy in this case.

Keywords : Submucous fibrosis, Blind Nasal Intubation, Miller Blade.

I. Introduction

Presence of a difficult airway is one of the chief concerns for an anaesthesiologist. Its importance is exaggerated by the fact that complications related to control of airway can lead to hypoxic brain insult in 85% of the lawsuit cases¹. Hence this is the most frequent cause of law suits in anaesthesiology². The fiberoptic guided intubation has brought ease in the management of difficult airway but it has led to the dwindling of alternative practices in management of the same³. But, in situations where fiberoptic intubation is not possible either because of its non-availability or contra-indications, one of the alternative practice could be blind nasal intubation. We thus report a case of difficult airway with limited mouth opening with blind nasal intubation with the miller straight blade as an adjunct to blind nasal intubation.

II. Case Report

This was a 22 year old male who presented to our hospital with head injury and was subsequently diagnosed as left temporoparietal Extra Dural Hematoma (EDH) by CT scan. He had a history of tobacco chewing and airway assessment revealed restricted mouth opening of 1cm with MMPC IV due to submucous fibrosis. Airway was secured via tracheostomy at that point of time as the patient was to be operated for evacuation of the hematoma with craniotomy with removal of the bone flap in emergency. Two months later he was posted in elective operation room for cranioplasty. He had undergone physiotherapy for mouth opening but it had improved to only 1.2cm (Fig 1). The right nostril appeared to be more patent. Other airway examination parameters were normal & the tracheostomy had closed. An X-Ray neck- AP & lateral (Fig 2) were advised to look for evidence of tracheal stenosis but was found normal. Investigations including hemogram & biochemistry were within normal limits. The patient was taking phenytoin & ranitidine and had no other comorbidities.

An overall assessment of this patient suggested that he will be having difficulty in intubation only as per the difficult airway algorithm of the American Society of Anaesthesiologists. Difficult ventilation, tracheostomy & patient cooperation were not of concern. We planned for blind nasal intubation with inhalational induction with preservation of spontaneous ventilation in this patient and tracheostomy was our second plan if the former did not work out for which otorinolaryngologists were kept as standby. Though fiberoptic is the standard for airway securement in such cases, it was not available with us.

Inside the OR, monitors like pulse oximeter, ECG & NIBP were applied and baseline parameters noted. An intravenous line was secured with 18G cannula in the left forearm. Patient was given 0.2 mg of glycopyrrolate (im 30 MIN BEFORE), 1 mg of midazolam & 50 µg of fentanyl intravenously and nostrils were sprayed with xylometazoline. Patient was induced with sevoflurane till achievement of an adequate plane of anaesthesia. Nasal patency again checked and confirmed on table. A 7.5 mm ID cuffed endotracheal tube (ETT) was advanced into the left nostril, as it was more patent, under end tidal CO₂ (ETCO₂) guidance but this was unsuccessful. Other manoeuvres like graded inflation of the cuff with maximum 50 ml of air, head tilt towards left, cricoid pressure, passing a bougie into trachea with an attempt to rail road the tube over it were tried but all failed. Then miller's laryngoscope with blade size 1 was introduced into the mouth as macintosh laryngoscope would not have been able to be passed through the limited mouth opening, in a bid to find out the cause for non advancement of the ET tube. The orientation of the tube in relation to the oropharynx was visualized & the tip

of the epiglottis was visualized. The ETT was now centralised using magills forceps to bring it in central alignment with the hope that the patient end of the tube gets aligned with the glottis & eventually the tube was passed in the same line under ETCO₂ guidance into the trachea. The trachea was thus secured and it was confirmed by auscultation along with ETCO₂ monitoring.

Anaesthesia was maintained on oxygen (50%), nitrous oxide (50%) with sevoflurane titrated to achieve a MAC of 1.0 with IPPV. Muscle relaxation was achieved with rocuronium bromide 30 mg bolus followed by top ups of 5 mg as and when required. After the completion of the surgery, the neuromuscular blockade was reversed with 2.5 mg of neostigmine & 0.4 mg of glycopyrrolate and the trachea was successfully extubated when the patient was awake and responsive.

III. Discussion

Oral submucous fibrosis is a chronic disease characterised by subepithelial collagen deposition with formation of bands involving oral cavity and adjacent structures. It is caused by chewing betel quid and readymade products like paanmasala and gutka, something which our patient also had. It can distort airway anatomy and may lead to difficult intubation. Since our patients' mouth opening was restricted to 1 cm, it was an anticipated difficult intubation. Though fiberoptic guided intubation is the usual standard for intubation in these cases as of today, but other options must be sought when it is unavailable or access is difficult as was the scenario in our case. In such situations, blind nasal intubation can be considered as the next choice of securing the airway. It, though can fail and repeated attempts may injure structures and result in bleeding and obstruction⁴. We had no choice but to embark upon it as fiberoptic was not available with us and we had kept emergency tracheostomy as the next plan in case complications ensue. Since bag & mask ventilation was possible, it was decided to go for inhalational induction rather than awake. We did not plan for an awake intubation as we had no reason to believe that we would not be able to ventilate this patient in case the need arises. Moreover we had no plans of ablating the spontaneous ventilation of patient. Laryngeal mask airway would not have been an option with the limited mouth opening. After anaesthesia with sevoflurane, the advancement of ETT into the left nostril failed. Also, other manoeuvres like graded inflation of the cuff with maximum 50 ml of air, head tilt towards left, cricoid pressure, passing a bougie into trachea with an attempt to rail road the tube over it were tried but all failed. Then we used miller straight blade in a bid to search for a cause of failure of advancement of the tube. We found that the tube was not centralised and hence centralised it after which the placement was a success. According to us, we have not found any literature till date which has used the miller straight blade as an adjunct to blind nasal intubation. Also, the limited mouth opening of this patient allowed the miller straight blade size 1 to be introduced into the oral cavity, but not the curved macintosh blade. The failure of centralisation despite all the adjunct manoeuvres might have occurred due to the fact that we have limited experience with this technique. It is a well known fact that this technique is a dying art³. Technically speaking, this method adopted by us was not totally blind but then we also did not visualise the tube entering the glottic aperture. Other methods like fluoroscopic guided and using the beck airway airflow monitor (BAAM) to assist blind nasal intubation are also in the literature^{4,6}.

We thus want to conclude by saying that though it is being suggested that we should become proficient in the art of fiberoptic laryngoscopy⁷, which is definitely not incorrect, we must also be well versed with the other aids of airway management along with their adjuncts to increase the spectrum of managing diverse airway challenges like the one we had when fiberoptic was not available.

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