

NASOTRACHEAL INTUBATION USING LIGHTWAND IN A PATIENT WITH ANTICIPATED DIFFICULT LARYNGOSCOPY: A CASE REPORT

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ABSTRACT

Introduction: Oral cancer is sixth most common cancer worldwide and the most common cancer among males in India. Anaesthetic concerns during surgical treatment of which includes airway difficulty, mainly because of restricted mouth opening and less interincisor gap. **Case presentation:** Here we are reporting a successful nasotracheal intubation using light wand in a case of carcinoma of buccal mucosa (mallampatti grade 4 and mouth opening 1 finger breadth) posted for reconstructive surgery for removal of dead bone. **Conclusion:** The light wand is a durable, portable, atraumatic and cost-effective option for difficult tracheal intubation. Therefore, the teaching and practice of light wand intubation should be encouraged in learning period. It will be particularly useful in hospitals without adequate facilities of fibre-optic bronchoscope, video laryngoscope or Intubating LMA.

KEYWORDS: Light wand, Difficult airway, Nasotracheal intubation, Oral cancer.

INTRODUCTION

Oral cancer is sixth most common malignancy worldwide.^[1] It is the most common cancer among males in India. Anaesthetic concerns during surgical treatment of which includes airway difficulty, mainly because of restricted mouth opening and less interincisor gap. It has been previously reported about successful tracheal intubation on a patient with a difficult airway through the use of fiberoptic bronchoscope. However, if the use of a fiberoptic bronchoscope is not immediately available in a patient with difficult airway, tracheal intubation may be performed by using i-gel and a lightwand in a patient with difficult airway, allowing the safe induction of anaesthesia.^[2] Light wand is a safe, effective and rapid technique for oral as well as nasal intubation in patients with difficult airway and in patients in which minimal neck movements are desired, such as in patients with cervical spine injuries.^[3] The transillumination provided by lightwand is very bright and localized in trachea, which cannot be appreciated in oesophagus. The intensity of the glow is unaffected by the presence of an endotracheal tube in situ.^[3] Managing such cases properly during the perioperative period, can reduce chances of morbidity and mortality.

CASE PRESENTATION

A 38 year old male with a history of previous surgery for right carcinoma buccal mucosa, surgically repaired with radial forearm flap one year back, presented with a chief complain of inability to open mouth and food lodgement in right buccal vestibule. On examination there was exposure of ramus of mandible intraorally through buccal mucosa and presence of halitosis (Fig. 1). He needed reconstructive surgery for removal of dead bone and was planned for corrective surgery by the plastic surgeon.

During preanaesthetic evaluation, patients vitals were normal with airway examination showing mallampatti grade 4 and mouth opening 1 finger breadth. On investigations complete blood count, liver function, renal function, coagulation profile were in normal range. A Cone Beam CT scan (CBCT) Mandible showed multiple hyperdense material seen over right ramus body region of mandible, complete discontinuity of the right angle region and superior fragment displaced superiorly. Patient was posted for elective surgery. Standard monitoring started and patient was premedicated with Inj. Midazolam 1mg, Inj.

Glycopyrrolate

0.2mg, Inj. Ondansetron 4mg, Inj. Fentanyl 100µg followed by preoxygenation with 100% O₂. Induction done with Inj. Propofol 100mg along with sevoflurane inhalation. Once loss of reflexes and apnoea achieved, bag and mask ventilation started. Once bag and mask ventilation was achieved satisfactorily Inj. Succinylcholine 100mg was given. After adequate preoxygenation trial to perform direct laryngoscopy was done, but to our dismay, the blade could not be maneuvered once it was introduced into the oral cavity. Thereafter, we went for intubation using light wand. The operating room lights were dimmed and a well-lubricated 7.5 mm endotracheal tube mounted light wand was inserted in the nasal cavity. The usual technique of light

wand intubation was used and the patient was easily intubated in the first attempt (Fig. 2). The correct placement of the endotracheal tube was confirmed by chest auscultation. The entire process took forty-five seconds. The tube was fixed secured in position with the help of tape. The anaesthesia was maintained with 40:60 O₂: N₂O, inj. Vecuronium bromide and sevoflurane. The surgeons proceeded with the removal of dead bone by intraoral approach along with surgical screw and plates from the previous surgery. Patient was extubated after gaining all reflexes, alertness and following verbal command. Post extubation, patient was oxygenated for 10 min and observed for another 30 min in recovery room. Patient was shifted to postoperative ward and discharged after 48 hours without any complications.



Fig. 1. Restricted mouth opening and dead bone



Fig. 2. Transillumination during endotracheal intubation by Lightwand.



Fig. 3: Lightwand mounted with endotracheal tube.

DISCUSSION

Patients with distorted anatomy, maxillofacial trauma, haemorrhage, oedema, and presence of foreign bodies gives a challenging task for anaesthetist to secure the airway. There are various supraglottic and fibreoptic devices are available to manage such difficult airway like LMA, Glidescope, fibreoptic laryngoscopes that are

helpful to manage such conditions. Nasotracheal intubation is preferred over oropharyngeal intubation for airway management during oropharyngeal surgeries. Fibreoptic nasal intubation can be done, but restricted use is due to non-availability of device at various centres.

Light wand is a safe, effective and rapid technique for oral as well as nasal intubation in patients with difficult

airway and in patients in which minimal neck movements are desired, such as in patients with cervical spine injuries.^[3] In present case, we used lightwand for nasal intubation due to restricted mouth opening with dead bone. It has orotracheal power handle with detachable lighted stylet (Fig. 3). Moreover, we kept fibreoptic bronchoscope aside as first alternative, since in most cases of anticipated difficult intubation, awake intubation using fibreoptic bronchoscope can be considered.

Various advantages are there for preferring lightwand over other intubating devices. First, use of the lightwand is associated with a similar success rate on the first intubation attempt and in a shorter period of time in patients with anticipated difficult airway, compared with video laryngoscope.^[4,5] Second, using a lightwand may be less traumatic compared with other intubation devices because it enters base of tongue and may cause less damage to pharyngeal wall or soft tissues.^[4] Third, lightwand intubation tends to cause less haemodynamic instability compared with direct laryngoscopy.^[5,6] Finally, unlike the fibreoptic bronchoscope with high maintenance costs, the lightwand is efficient, easy to manage, and is relatively inexpensive.^[7,8]

Lightwand is a first-line option for intubation in fasted patients who can be ventilated by facemask, where direct laryngoscopy has been failed. It is cost-effective, portable; compared to other devices used for difficult intubation and also compared to direct laryngoscopic intubation; intubation by lightwand reduces the incidence and severity of post-operative dysphagia, hoarseness and sore throat. It is easy to learn and shown to have a high intubation success rate even when performed by anaesthetists with little experience.

Lightwand intubation has proved to be successful in patients with severe neck abnormalities, maxillofacial fractures or pharyngeal fibrosis. It is important that patients are adequately anaesthetised to facilitate lightwand intubation. Succinylcholine or other appropriate neuromuscular blocking agents can also be used to facilitate intubation. It is also important that patients are adequately positioned to facilitate lightwand intubation.

CONCLUSION

To conclude, the lightwand is a portable, user-friendly, atraumatic and cost-effective option for difficult tracheal intubation. Therefore, the teaching and practice of lightwand intubation should be encouraged in learning period. It will be particularly useful in hospitals without adequate facilities of fibre-optic bronchoscope, video laryngoscope or Intubating LMA. So, life-saving tracheal intubations can be performed smoothly and rapidly in emergency situations like maxillofacial trauma, haemorrhage, oedema.

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