The document discusses an innovative lighted stylet designed to facilitate nasal intubation in cases of temporomandibular joint (TMJ) ankylosis surgery. The conventional lighted stylet is inadequate due to its short length, whereas the innovative stylet successfully supports RAE intubation. The stylet is simple to make and can be assembled from materials commonly available in the operating room.

**Introduction**

Nasal intubation is an obvious choice for temporomandibular joint (TMJ) ankylosis surgery. Adequate surgical access and better fixation make RAE (Ring-Adair-Elwin) nasal tube a preferred choice. Conventional lighted stylet does not support RAE intubation due to short length of its stylet. Our innovative lighted stylet can easily help in RAE tube insertion in these cases. It is simple to make and can be easily assembled from materials commonly available in the operating room.

**Fig. 1**
Orthopentomogram (panorex view) showing TMJ ankylosis

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Case Report

A 22 year old female was admitted to our hospital with temporomandibular joint (TMJ) ankylosis and was posted for gap arthroplasty (Fig. 1).

Preoperative investigations revealed hemoglobin 11.3 gm%, total leucocyte count (TLC) 9500/ cmm, differential leucocyte count (DLC) P82 L17 E1, blood sugar 110mg%, blood urea 35mg/dl, ECG and chest x-ray were normal.

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On the day of surgery, patient was premedicated with glycopyrollate 0.2 mg i.v., midazolam 2.0 mg i.v., and butorphanol 2.0 mg i.v. For securing airway, awake nasotracheal intubation with RAE (Ring-Adair-Elwin) nasal tube was planned with innovative lighted stylet as conventional lighted stylet had failed to reach the tip of RAE tube (Fig. 2, Fig. 3). Patient was thus prepared for awake nasal intubation. After explaining procedure to the patient, upper airway was anesthetized using 10% xylocaine spray. Bilateral superior laryngeal nerve block and intratracheal instillation of xylocaine was done for anesthetizing lower airway. After proper lubrication, RAE tube with innovative lighted stylet was put through right nostril and using light glow as guide, we succeeded in performing nasotracheal intubation in first attempt. Confirmation of correct tube placement was done by auscultation of bilateral breath sounds and using a capnograph. Inj. propofol 2.0mg/kg i.v. was given to induce anesthesia and maintained using inj. vecuronium bromide 0.08mg/kg, oxygen, nitrous oxide and isoflurane. At the end of surgery, patient was extubated after reversal using inj. neostigmine 2.5 mg and inj. glycopyrollate 0.4 mg i.v. Postoperative period remained uneventful.
Discussion

Difficult airway is always a challenge for the anesthesiologist. To overcome these difficulties, various gadgets and equipments have been developed.

Our patient had TMJ ankylosis because of which she had no mouth opening making direct laryngoscopy unfeasible. Under this tight situation the options open for securing airway were: fiberoptic bronchoscopy (FOB), blind nasal intubation, tracheostomy, and intubation using lighted stylet.

Although FOB is a gold standard for securing airway in these patients, this instrument was not available in our Institution. Lighted stylet intubation is especially useful in situations where FOB is unavailable or difficult to perform because of secretions or blood in airway or when patient’s head cannot be flexed or extended.

Compared with blind nasal intubation, nasal intubation with lighted stylet has been shown to require less time and fewer attempts. Blind intubation has got high failure rates and there are also high chances of airway trauma.

Although tracheostomy was a feasible option, however, considering the postoperative morbidity associated with this technique, this option was kept only for emergent situation.

Lighted stylet aided intubation was the option selected. This technique uses a bright glow which guides the tube into trachea and can be used for nasal or oral intubation in patients whose larynx cannot be visualised by direct laryngoscopy.

Preformed tube (RAE) was chosen to secure airway over conventional endotracheal tube, as it is non kinkable, does not come into the surgical field and has better fixation which reduces the risk of unintended extubation. However, when conventional light wand was inserted into RAE tube, it could not reach the tip of tube because of its short length (Fig. 2). Hence, we innovatively used the lighted stylet which could reach the tip of RAE tube (Fig. 3) and were able to intubate the patient without encountering any difficulty.

In conclusion, intubation of trachea using lighted stylet is easy, safe, effective and rapid alternative method of airway management. Our innovative lighted stylet has an added advantage that it can be used to intubate trachea with RAE tube where conventional lighted stylet fails.
References