

# Lightwand Intubation For Difficult Airway Patients

O Bamgbade

## Citation

O Bamgbade. *Lightwand Intubation For Difficult Airway Patients*. The Internet Journal of Anesthesiology. 2006 Volume 11 Number 2.

## Abstract

Failed laryngoscopy and intubation is associated with potentially severe morbidity. Although there are many alternative tracheal intubation aids, the intubating lightwand has been recommended as a first option in patients with failed or difficult intubation. This report highlights successful lightwand intubation in a case series of patients with known difficult airway.

## INTRODUCTION

Failed laryngoscopy and tracheal intubation is uncommon, but associated with significant morbidity [1]. This is a clinical report of successful lightwand intubation in a case series of six patients with known difficult intubation and limited choice of airway management.

The first patient underwent neck dissection, had a history of grade IV laryngoscopic view, airway score of Mallampati 3, obese neck, dentures, 2cm mouth opening, 4cm thyromental distance, BMI of 35.9 and sleep apnoea. The second patient underwent femoral exploration, had a history of grade IV laryngoscopic view, airway score of Mallampati 4, ankylosing spondylitis, cervical spine immobility, obese neck, 4cm thyromental distance, and dementia. The third and fourth patients underwent cervical spine fusion, had cervical immobility, were in halo brace and confused. The fifth and sixth patients underwent laryngeal biopsy, had airway fibrosis and cervical immobility.

All the patients had previously been successfully ventilated by facemask under anaesthesia, which implied that attempting intubation under general anaesthesia was appropriate. Physiologic monitoring of the patients included electrocardiography, non-invasive blood pressure, capnography, pulse oximetry, and analysis of inspired and expired gas. After pre-oxygenation, they were anaesthetized with IV Etomidate 0.3mg/kg and Succinylcholine 1mg/kg. The lightwand with mounted 7-mm endotracheal tube was inserted into the pharynx and positioned in the midline to produce a central transilluminating glow in the neck. This was advanced gently with subtle antero-posterior angle movements until an optimal transilluminating glow was observed at the cricothyroid membrane and streaking down

to the suprasternal notch. The cuffed tracheal tube was threaded over the lightwand into the trachea. Intubation was achieved at the first attempt and within 10seconds.

Anaesthesia and surgery were uneventful. The patients were extubated fully awake. At 48 hour follow-up, none of the patients reported sore throat, hoarseness or dysphagia.

## DISCUSSION

The reported incidence of failed intubation is 0.04% to 0.43%; with associated morbidity including dental/airway injury, intraoperative cardiac event, and aspiration [1]. It may lead to cancellation of surgery. Although the commonly used alternative airway devices are the fiberoptic bronchoscope, Bullard laryngoscope and intubating laryngeal mask (ILM), the intubating lightwand has been recommended as the first option in patients with failed laryngoscopic intubation who can be ventilated by facemask [2]. The lightwand is relatively cheap, costing \$69 for a durable kit (Anesthesia Associates Inc, San Marcos, CA), compared to hundreds of dollars for other devices available for difficult intubation. Compared to laryngoscopic intubation, lightwand intubation reduces the incidence and severity of postoperative dysphagia, hoarseness and sore throat [3]. It is also better than the ILM for intubation in patients with cervical spine disorders; in terms of safety, rapidity and reliability [4]. However, the lightwand is not recommended for intubation during rapid sequence induction and cricoid pressure application.

Successful lightwand intubation depends on the anesthesiologist's skill, the bent angle of the lightwand and the bent length. The suggested angle of bent is 70-90 degrees and suggested bent length is 6.5cm or the distance between the patient's thyroid cartilage and mandibular angle [5]. The ease of lightwand intubation is not affected significantly by

abnormality or variations of airway anatomy. This clinical report highlights the usefulness of lightwand intubation in patients with difficult airway and limited choice of airway management modalities. All the patients were intubated easily, rapidly and safely. In conclusion, the lightwand is a valuable, portable, atraumatic and cheap option for difficult intubation. The teaching and practice of lightwand intubation should be revisited and encouraged.

### **References**

1. Burkle CM, Walsh MT, Harrison BA, et al. Airway management after failure to intubate by direct laryngoscopy: outcomes in a large teaching hospital. *Canadian Journal of Anesthesia* 2005; 52: 634-40.
2. Hung OR, Pytko S, Morris I, et al. Clinical trial of a new lightwand device (Trachlight) to intubate the trachea. *Anesthesiology* 1995; 83: 509-14.
3. Friedman PG, Rosenberg MK, Lebenbom-Mansour M. A comparison of lightwand and suspension laryngoscopic intubation techniques in outpatients. *Anesthesia & Analgesia* 1997; 85: 578-82.
4. Inoue Y, Koga K, Shigematsu A. A comparison of two tracheal intubation techniques with Trachlight and Fastrach in patients with cervical spine disorders. *Anesthesia & Analgesia* 2002; 94: 667-71.
5. Chen T, Tsai S, Lin C, et al. Does the suggested lightwand bent length fit every patient? The relation between bent length and patient's thyroid prominence-to-mandibular angle distance. *Anesthesiology* 2003; 98: 1070-6.

**Author Information**

**Olumuyiwa Akinwumi Bamgbade, MD, MS, FRCA**

Clinical Instructor, Department of Anesthesiology, University of Michigan Hospital