

Case of Difficult Intubation Overcome by the Laryngeal Mask Airway

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A case of difficult intubation is described in which the problem was overcome by use of the laryngeal mask airway (LMA). The patient had difficulty in mouth opening due to severe burn scar contracture around the mouth and limited access prevented tracheal intubation. The use of LMA is shown to have obviated the need for tracheal intubation in the case of a patient whose injuries would have made this technique difficult.

Key Words: *Difficult Intubation, Laryngeal Mask Airway*

INTRODUCTION

The Laryngeal Mask Airway (LMA) is a new airway adjunct which can be inserted blindly into the pharynx provides an airway for anaesthesia¹⁾. It consists of a tube opening at one end into the lumen of a miniature mask and forms a low-pressure seal around the laryngeal inlet. It has been used in a wide variety of anaesthetic situations, including routine abdominal, reconstructive vascular, orthopaedic, ophthalmic, dental, ear, nose and throat surgery and so on. The device provides a clear airway which permits gentle positive pressure ventilation. The design avoids the dangers of lung barotrauma, laryngeal trauma, accidental one-lung occlusion and esophageal misplacement²⁾. It has been shown to be a safe and useful airway capable of solving a number of common anaesthetic problems.

Brain³⁾ also suggested some years ago that his laryngeal mask could be used as an emergency airway and compared his device favourably with the esophageal obturator airway which was designed for emergency use by paramedics. The laryngeal mask airway was used to resuscitate a patient in whom direct and fiberoptic laryngoscopy were impossible because of cervical pathology and pulmonary edema⁴⁾.

The laryngeal mask airway is inserted orally into the hypopharynx with or more commonly, without the aid of an introducer, laryngoscopy or muscle relaxants, in a few seconds in the majority of patients.

The seal pressure may be increased by means of an inflatable cuff which runs along the perimeter of the mask. When in position the laryngeal mask airway allows spontaneous or intermittent positive pressure ventilation of the lungs⁵⁾.

The laryngeal mask airway may be of particular value if there is difficulty with tracheal intubation, as the following case shows.

CASE REPORT

A 43-year-old woman weighing 54Kg was admitted to hospital for release of scar contracture on her face. Last year previously she had thickness burns involving her face, head, and right upper arm, and she had had one skin grafting procedure carried out under general anaesthesia. Thereafter she had difficulty in mouth opening due to severe scar contracture around her mouth causing severe limitation of mouth opening to a maximum of 2 cm between the incisors and preventing insertion of the laryngoscope. But there was no limitation of flexion, extension and rotation of the neck to both sides. Nasal access was limited by scarring of the remaining nasal alae which precluded blind nasal tracheal intubation. Consequently a very difficult tracheal intubation was anticipated. It was decided to try insertion of a laryngeal mask airway.

Premedication consisted of atropine sulfate 0.01mg/Kg and tramadol 2mg/Kg was given intramuscularly one hour before anaesthesia. Anaesthesia was induced with pentothal sodium 5mg/Kg intravenously and the patient continued to breathe spontaneously with no upper respiratory tract obstruction. A size 3 laryngeal mask airway was inserted through the incisors of the mouth and manipulated to a mid-

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die position after preoxygenation without introducer and muscular relaxation, and the cuff was inflated with approximately 15ml of air. Thereafter controlled ventilation of the lung was possible.

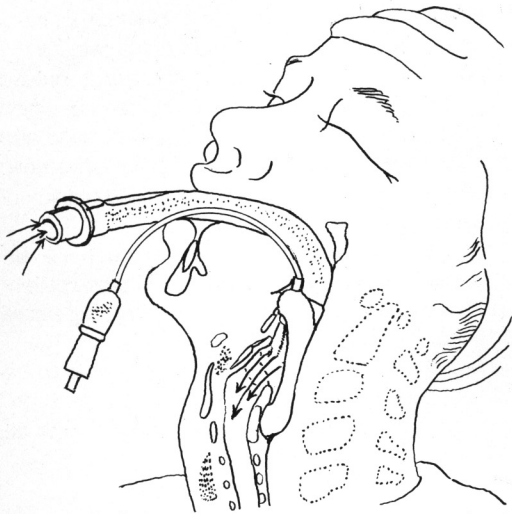


Fig. 1. The laryngeal mask airway



Fig. 3. The laryngeal mask airway inserted state



Fig. 2. The preoperative scar contracture and reduced mouth opening

There were no changes in blood pressure or pulse rate during these procedure using an automatic blood pressure measuring system.

Anaesthesia was continued with enflurane 1.5 ~ 2.5% in 50:50 ratio of nitrous oxide and oxygen and pancuronium bromide 0.1mg/Kg was given intravenously for controlled ventilation, and tramadol 3mg/Kg was administered for added analgesia. Blood pressure, electrocardiogram, end-tidal CO₂ and arterial oxygen saturation were monitored continuously throughout the procedure.

Measurement of expired tidal and minute gas volumes throughout anaesthesia confirmed that there was no gas leak around the mask. The whole procedure lasted about 180 minutes and the operation concluded with the laryngeal mask airway in place. Anaesthesia was discontinued and residual neuromuscular blockade was reversed with anticholinesterase. At this point swallowing was noticed and the patient responded to the command to open the her eyes. Therefore the laryngeal mask airway was removed with no difficulty while normal respiration continued virtually uninterrupted. She had no sore throat or hoarseness attributable to the use of the laryngeal mask airway. She discharged from the hospital on the postoperative tenth day able to open her mouth up to 4cm.

DISCUSSION

When difficult intubation is anticipated, the problem is more simple than when it is unexpected. Unexpected difficult intubation is more life threatening. Whenever intubation attempts have failed, a rational, stepwise course of action can usually prevent the situation from becoming disastrous. The clinician must know which alternative techniques to try, in what order that should be attempted and when to stop.

In cases such as the one described here, however, intubation of the trachea can be made impossible by severe limitation of mouth opening, and blind nasal intubation is hampered by injuries to the nose. To facili-

tate tracheal intubation in such cases, the technique of fiberoptic orotracheal intubation was developed⁹. This technique is of great value in many cases of difficult intubation but relies to a great extent upon the skill of a practised operator using costly and complex equipment.

In contrast, the use of the laryngeal mask airway as an alternative mean was proved to be a safe and simple technique requiring only a minimum of training and experience to be carried out proficiently.

Once in place the laryngeal mask airway proved to be a safe, reliable and unobstructive mean by which the airway could be managed, kept in position and a gas-tight seal around the larynx maintained despite movement of the head and extension and rotation of the neck during the operation.

Our case has shown that the laryngeal mask airway can be a valuable device in maintenance of ventilation without the need for expertise or expensive additional equipment.

The authors consider that this technique could be routinely practised on anaesthetized patients to develop confidence before a difficult intubation is attempted.

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