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Placement of Proseal LMA in the Prone Position after Accidental Extubation during Laminectomy

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ABSTRACT: Patients in the prone position are at the risk of extubation during surgery and provide a major challenge for airway management during surgery. We report the case of a 35 year old male posted for Laminectomy L2-3 who had an accidental extubation during the procedure and how his airway was again secured with the help of a Proseal LMA without changing his position, and surgery proceeded under general anesthesia.
Key words: Laryngeal mask, prone position.

I. INTRODUCTION

Since the introduction of the laryngeal mask by Brian, who described in his article a pilot study with 23 patients in spontaneous ventilation or positive pressure ventilation, and proposed its use as a safe alternative to endotracheal intubation or facial mask ventilation, this supraglottic instrument became very popular for normal, as well as difficult airway management in patients undergoing general anesthesia, as well as in emergency departments and intensive care units. It has a steep learning curve due to its ease of placement.

Currently there is a wide variety of laryngeal masks that have been introduced over time, and novel designs and indications for use have surfaced.

Faced with so many and such varied indications, safety in diverse clinical scenarios has been questioned, such as in the case of obese patients undergoing bariatric procedures, renal transplant patients, oral surgery patients and patients with gastroparesis, among others. Other reported practices, or those known in our medium, include such applications as during ophthalmologic procedures, otorhinolaryngologic procedures, neurosurgery, laparoscopic cholecystectomy and gynecologic laparoscopy.

The different models of laryngeal masks are placed with the patient in the dorsal position, though some articles have been published referring to the possibility of placing a laryngeal mask in the prone position, whether the technique was planned or became a necessary improvisation in special circumstances.

The object of this article is to describe the case of a patient in whom a Proseal laryngeal mask was placed while in prone position after accidental extubation during surgery.

II. CASE DESCRIPTION

A 37 year old male, secondary diabetes mellitus. On physical exam the patient had a BP of 120/70, HR 78/min, respirations 14/min, height 156 cm, weight 78 kg and blood oxygenation 99% on room air.

Mallampati was 2, with a thyromental distance of 5 cm. The rest of the physical exam gave no relevant details. Patient was scheduled for Laminectomy L_{2-3}. He was premedicated with oral clonidine 0.1 mg 15 minutes prior to anesthesia. After shifting the patient into the theatre he was induced with Propofol 100mg mixed with 20 mg lidocaine to reduce the possibility of pain and Fentanyl 150mcg and after checking for ability to ventilate paralysed with vecuronium 7mg.He was intubated with 8.0 cuffed endotracheal and the tube was fixed at 21 after checking for bilateral air entry.he was then turned to Prone position and surgical procedure began. Anesthesia maintained with 66% N_2O, 33% O_2 and Isoflurane 0.6.He was then connected to ventilator.After 45 min of uneventful procedure he had sudden drop in saturation and we found the tube had slipped out of the trachea. We rotated his head discretely to the left. He was immediately mask ventilated with 100% 0_2 and a Proseal laryngeal mask was inserted without difficulty, inflating it with 35 mL air.

Anesthesia was maintained with a Isoflurane-Nitrous Oxide-oxygen mixture without incident. When surgery was complete the patient was placed in the dorsal position, Isoflurane was stopped and the Proseal laryngeal mask was removed. Postanesthetic evolution was normal, and the patient had complete amnesia with respect to the application of the proseal laryngeal mask.

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III. DISCUSSION

The use of laryngeal masks has been accepted in fields in which it initially was not accepted, making it a part of the management algorithm in difficult airway access and/or when endotracheal intubation fails. In anaesthesiology the laryngeal mask is used in many clinical scenarios since it is easy to manage, it characteristically reduces the hemodynamic response to endotracheal intubation, it has a lower incidence of infection compared to endotracheal intubation and it is adaptable to many other situations, such as an aid to inserting a fiber optic laryngoscope as well as other intubation techniques.

The approach to airway management in a patient already undergoing a surgical procedure in the prone position is an infrequent challenge faced by the anesthesiologist. Insertion of the laryngeal mask was easy,and has been previously recommended.

Few prospective studies have been designed regarding the insertion of a laryngeal mask while the patient is in the ventral decubitus position, which is a valid technique that has been demonstrated to save both time and personnel, as it avoids the need to first anesthetize the patient in the normal dorsal position and then rotate the anesthetized patient into the prone position required by some surgeries.

There have been several reports of patients in whom the airway has become unsecured during surgery for diverse reasons, and a laryngeal mask was successfully placed without needing to change the patient from the prone position, allowing successful completion of the surgery. Dingeman[7] Reported the case of an infant with Type 1 Arnold-Chiari malformation who was accidentally extubated while in the prone position during neurosurgery, and a laryngeal mask was successfully inserted without having to place the child in the dorsal position.

In a letter to the editor, Brimacombe and Keller[8] described an obese patient in whom the endotracheal tube became dysfunctional while in the prone position during surgery; the tube was easily replaced with a ProSeal® laryngeal mask and the anesthesia continued without incident. Airway pressure was maintained at 25 cm H20. Another case was published by Agrawal et. Al[13] who managed a woman with extensive back injuries and fractured pelvis who required surgical intervention in the prone position. The authors were able to place a laryngeal mask while the patient remained in the ventral decubitus position. Another patient was accidentally extubated during spinal column surgery while in the prone position and the airway was managed with a laryngeal mask, without changing the patient's position.

In the prone position it is advisable to not exceed an airway pressure of 25 to 30 cm H2O to avoid progressive inflation of the stomach and esophagus. When a laryngeal mask cannot be placed, or is contraindicated in the ventral decubitus position, a published alternative (while still in the prone position) is fiber optic assisted intubation, a technique which requires trained personnel, as well as more time and expensive equipment.

In conclusion, we report the case of a patient in whom accidental extubation occured while the patient was in the prone position, and how he was successfully managed with the placement of Proseal laryngeal mask while still in the prone position

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