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Case Report

LMA Gastro™: A Saviour Airway Device in Distorted and Difficult Airways for Gastro Endoscopic Procedures

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Abstract

Minimal invasive Endoscopic gastroenterology procedures are commonly practised day care procedures done under monitored anaesthesia care (MAC). A need for airway control while performing endoscopic procedure and continuing with assisted respiration has always been felt both for patient's safety as well as Endoscopist's comfort. The requirement becomes more specific in distorted and difficult oral cavity and airway especially in cases of oral carcinoma post radiotherapy and surgery.

In view of above two requirements, LMA® Gastro™ airway device was developed specifically for gastrointestinal endoscopy and interventions. The advantage of this device being provision of well-defined conduit for passing endoscope as well as controlled ventilation with minimal intraoperative complications and less postoperative adverse events.

This article provides a case report of patient with distorted and difficult airway for PEG insertion under sedation, whose airway was well controlled with Gastro LMA airway device.

Keywords: *Supraglottic Airway Device; Gastroendoscopic Procedures; Ventilation; Difficult Airway; Oral Carcinoma*

Introduction

Minimal invasive Endoscopic gastroenterology procedures are commonly practised day care procedures done under monitored anaesthesia care (MAC). A need for airway control while performing endoscopic procedure and continuing with assisted respiration has always been felt both for patient's safety as well as Endoscopist's comfort.

In the present day health care facilities, the numbers of patients with severe comorbidities presenting for upper gastrointestinal endoscopic interventions are rising, and so is rise in the need for a less invasive yet safe and easy to use airway device which also allows for

assisted respiration for patients safety and at the same time ease of performing procedure to the endoscopist. The requirement becomes more specific in distorted and difficult oral cavity and airway especially in cases of oral carcinoma post radiotherapy and surgery [1,2].

Depression of consciousness with sedatives is required to relieve patient's anxiety and pain in order to improve the examination's out- come and the patient's compliance [3,4]. These complex procedures require sedation or general anaesthesia (GA) because of the high risk profile of the patients, who are old and frail, with poor nutrition and depressed airway reflexes. The risk increases in distorted and difficult oral cavity and airway especially in cases of oral carcinoma post radiotherapy and surgery. There is an added risk of endoscope passing into a false passage and causing tissue perforation.

Level of sedation is a continuum and potentially risk such unprotected airway to respiratory compromise [5]. Lesser depth of sedation is associated with patient discomfort, pain and high failure rates, [6] whereas patients undergoing ERCP with deep sedation require monitoring and care of the highest standards, akin to that required for GA [7]. Endotracheal intubation requires the use of neuromuscular blocking drugs which prolongs the recovery, failing the concept of day care anaesthesia. Hence, it is prudent to choose an airway device that prevents hypoxia-induced cardiorespiratory complications, gives a safe conduit for the endoscope and at the same time which is safe and ensures faster recovery. LMA® Gastro™ airway device was developed specifically for conducting gastrointestinal endoscopy and interventions safely. The advantage of this device are provision of separate conduit for endoscope and a separate channel for well controlled ventilation with minimal intraoperative complications as well as less postoperative adverse events.

Here we present a case of carcinoma oral cavity for PEG insertion, conducted successfully under sedation and airway control achieved with LMA® Gastro™ airway device.

Case Report

62 years old male, (height 175 cm; weight 43 kg; body mass index 14.04 kg/m^2) poorly built, undernourished, known case of carcinoma Rt tonsillar fossa and carcinoma lateral border of tongue was planned for PEG insertion for maintaining enteral nutrition. Airway examination revealed that though the mouth opening was adequate (Mallampatti score class II), but the patient's airway was difficult due to restricted neck extension due to post surgery status of oral cavity. Radiotherapy had caused skin changes over neck area and distorted the oropharynx (Figure 1A). A false passage was also created in the hard palate due to muscle flap, which was a potential risk for perforation in case endoscope passed through it.

Taking these potential risk factors into consideration, we decided to take the airway control with LMA Gastro device as it fulfilled our requirement of provision of safe airway as well as conduit for the endoscope, in the current scenario.

After taking the written informed consent for the procedure, the patient was premedicated with an antisialagogue (Inj Glycopyrrolate), antiemetic (Inj Ondansetron), analgesic opioid (Inj Fentanyl) in standard dosage as per the body weight. Airway control was achieved with a Size #3 LMA® Gastro™, which was carefully inserted after covering the palate defect with a gauze piece (Figure 1B). Patient was induced with total Intravenous anaesthesia (TIVA) using Inj Ketamine @ 1 mg/Kg body weight and maintained with Inj Dexmedetomidine infusion as per the standard dosage. Patient was kept on spontaneous ventilation with 6 litre/min Oxygen support (Figure 1C).

The procedure was conducted smoothly wherein the patient remained hemodynamically stable intraoperatively (Figure 1D). As no muscle relaxant was used, patient was extubated shortly after the procedure with no adverse event post operatively.

Figure 1: *Placement of Gastro LMA & conduct of procedure*

Discussion

Upper GI (UGI) endoscopy is commonly performed and carries a low risk of adverse events.

Major adverse events related to diagnostic UGI endoscopy are cardiopulmonary adverse events, perforation, apnea and respiratory depression [9,10].

In the present day health care facilities, the numbers of patients with severe comorbidities presenting for upper gastrointestinal endoscopic interventions are rising, and so is rise in the need for a less invasive yet safe and easy to use airway device which also allows for assisted respiration for patients safety and at the same time ease of performing procedure to the endoscopist.

The LMA® Gastro™ Airway has dedicated independent channels for both endoscope insertion (16 mm internal diameter) and oxygenation. It also has an integrated bite block, and an adjustable holder to secure the device (Figure 2). It is available in three sizes: #3 (30 - 50 kg), #4 (50 - 70 kg), and #5 (70 - 100 kg) depending upon the weight of the patient. The advantages of this LMA being improved airway patency, familiarity and ease of insertion. It has got dynamic flexibility allowing the device to remain in place with head movement and placement is possible in lateral or prone position. It also has inbuilt cuff pressure monitoring pilot balloon [11,12]. Its design features include a channel for esophageal endoscopic access, a separate channel with a terminal cuff for lung ventilation. Its unique design has the advantage that the endoscope is automatically guided directly towards the upper oesophageal entrance leaving the airway unobstructed

and an easy way to assist ventilation, if the need arises, without altering the ventilatory parameters, especially peak airway pressures. The channel for endoscope allows easy gliding motion of the endoscope and thus provide excellent working conditions for the endoscopist allowing for easy rotation and manipulation of the endoscope (Figure 2). Since the device is made up of silicon, it acts like a cushion and prevents perforation of scarred tissue and denies entry of the scope into any false passage.

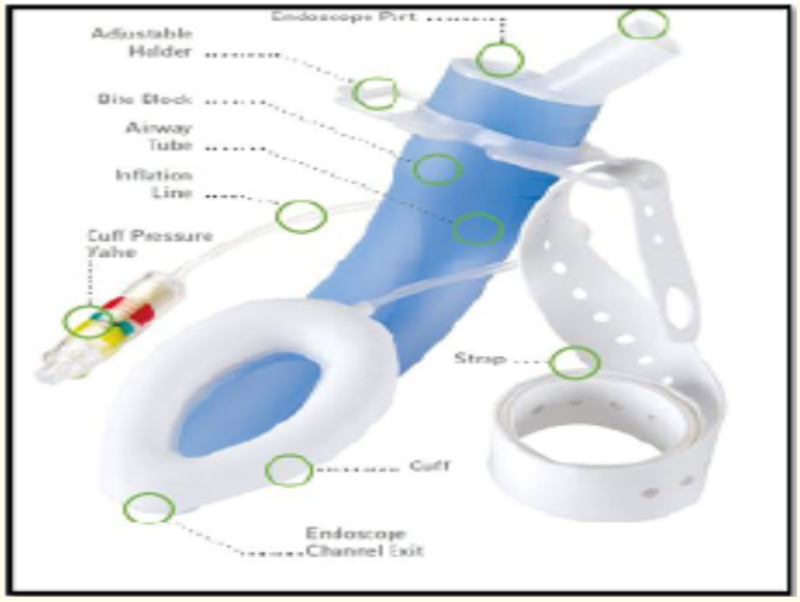

Figure 2: *LMA gastro (Courtesy: Product catalogue).*

Conclusion

A need for airway control while performing minimal invasive gastroendoscopic procedure is the requirement of modern health setups, both for patient's safety as well as Endoscopist's comfort as the general profile of these high risk patients is frail, old and associated with various co morbidities. The requirement becomes more specific in distorted and difficult oral cavity and airway especially in cases of oral carcinoma post radiotherapy and surgery as there is an inherent risk of complications of passing scope through false passage leading to perforation of scarred tissue and apnea. At the same time, since these procedures are generally day care procedures, there is an inbuilt requirement of device which can offer an early recovery without compromising the patients safety.

Gastro LMA is a saviour airway device which has resulted in positive outcomes as related to airway control and reduced the complications related to every gastrointestinal endoscopic procedure without compromising the safety of the patients even in difficult airway scenarios and have assisted the endoscopist to give a safe and easy conduit for doing the procedure.

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