

BROKEN PIECE OF LMA-PROSEAL INTRODUCER: AN UNUSUAL CAUSE OF AIRWAY OBSTRUCTION

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Dear Editor,

Proseal laryngeal mask airway (PLMA) is now standard of care in many institutions due to lower risk of aspiration and better capability of ventilation^{1,2}. We report a case where broken tip of silicon coating of the metal introducer of PLMA caused airway obstruction in an anesthetized patient.

A twenty-four year old male patient was scheduled for varicose vein stripping of left lower limb under general anesthesia. Pre-anesthetic evaluation was insignificant. General anesthesia was induced with propofol (2.5 mg.kg⁻¹) and fentanyl (2 mcg.kg⁻¹). After achieving adequate plane of anesthesia, a size four PLMA mounted on a standard introducer (which comes along with the PLMA) was inserted. After an initial failed attempt by a resident, LMA could be successfully inserted by the consultant anesthesiologist. Adequate placement was checked with acceptable chest rise with manual ventilation, bilateral equal breath sound on auscultation and appearance of regular end tidal capnogram on monitor. Patient was kept in spontaneous respiration and adequate depth of anesthesia was maintained with oxygen in 60% nitrous oxide and sevoflurane. Under strict asepsis, femoral, obturator and popliteal nerve blocks were performed with 0.25% bupivacaine under combined nerve stimulator and ultrasound guidance.

After about 15 minutes, patient's breathing became noisy and stridulous. Suspecting the anesthetic plane to be inadequate, anesthesia was deepened by increasing sevoflurane concentration. But, it did not solve the problem and he became more tachypneic with low tidal volume and end tidal carbon dioxide increased to 55 mmHg. The problem continued even after repositioning the PLMA by gentle manipulation, deflating and inflating the cuff, manually assisting the ventilation. It was decided to change the PLMA under direct laryngoscopy by bougie guided technique³ as the patient desaturated from 99% to 94%. PLMA was removed without delay. While suctioning the oral cavity under direct laryngoscopy a blue colored foreign body was found in the oropharynx, which was removed by Magill's forceps. After mask ventilation with 100% oxygen and deepening the plane of anesthesia with additional bolus of propofol, a new size four PLMA was successfully placed with the help of a bougie. Correct positioning of PLMA was confirmed as before. Rest of the procedure including the post-anesthesia recovery was uneventful. The blue colored piece was found to be the broken part of the tip of silicon coating of the metal introducer of PLMA (Fig. 1).

Fig. 1

Broken Proseal LMA introducer and an intact introducer for comparison

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Partial airway obstruction with PLMA can be due to various reasons such as malposition, folding of distal part of the cuff, backfolding of epiglottis, infolding of aryepiglottic fold, cuff herniation, excessive cuff inflation, obstruction of laryngeal opening by cuff, infolding of the bowl of PLMA, faulty PLMA, presence of foreign body, laryngospasm, stridor^{1,2,4-6}. Although soap bubble test helps in detection of malposition, best possible way to differentiate between the causes is passing a fiberoptic through PLMA which is not always practicable^{2-5,6}. Therefore, the exact cause often remains obscure and various techniques such as gentle reposition, inflation and deflation of cuff and finally removal and reinsertion of PLMA are used to achieve proper position and adequate ventilation²⁻⁶.

Although LMA supreme, the disposable version of PLMA, is available in market, its use is not widespread enough to replace the reusable version⁷. Breakage of the parts of LMA leading to airway problems has been reported before particularly if the LMA is used beyond its life span^{6,8-10}. But, in our case, the problem was the silicon coating of the introducer, which broke apart at the tip. Potential complications can be airway obstruction, injury, esophageal and tracheal aspiration, all of which can be fatal. Trying to reposition the PLMA in this case can push the foreign body into trachea and may pose real threat to patient's life.

Best management is prevention of this complication. Most hospitals, including us, are very careful in tracking the number of use of reusable PLMA and limit it to a maximum of 40 times so as to prevent any

mishap¹⁰. The protocol should be valid for the silicon coating of PLMA introducer as well. However, this may not be true for every PLMA introducer as the silicon coating may be weakened and damaged during multiple insertion attempts as it usually comes in contact with the teeth of the lower jaw. This complication can easily be prevented by being little attentive towards the integrity of not only the PLMA but also the introducer properly before and after use.

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