ProSeal laryngeal mask airway for cardiac surgery after airway rescue

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failed due to oesophageal placement of the tracheal tube. Face mask ventilation prior to the second attempt was more difficult and the second attempt at intubation failed due to oesophageal placement of a tracheal tube guide. Face mask ventilation after the second attempt was impossible with the peripheral oxygen saturation rapidly falling to 50%. The tracheal tube guide was reinserted into the oesophagus under laryngoscope guidance and a ProSeal LMA™ size 5 railroaded into position along the drain tube (6). The cuff was inflated with air to an intra-cuff pressure of 60 cm H2O. Ventilation was easy with tidal volumes greater than 500 ml and a normal capnographic wave was obtained. The tracheal tube guide was removed. There was no air leak up the drain tube during ventilation and the mid-portion of the bite block was between the teeth. A gastric tube was easily inserted along the drain tube. Oropharyngeal leak pressure was > 40 cm H2O. Anaesthesia was maintained with propofol 5 mg.kg⁻¹.hr⁻¹ and alfentanil 70 µg.kg⁻¹.hr⁻¹ and sevoflurane 0.2-1%. The patient underwent positive pressure ventilation with tidal volumes of 600 ml, peak airway pressures of 25 cm H2O, an inspiratory :expiratory ratio of 1:1 and a frequency of 16 min⁻¹. A decision was made to use the ProSeal LMA™ for the procedure, as gas exchange was normal and the airway was protected. Furthermore, waking the patient or exchanging the ProSeal LMA™ for a tracheal tube was considered more hazardous.

The off-pump coronary artery bypass surgery lasted 80 minutes and was uneventful with no evidence of cardiac ischaemia. Residual neuromuscular blockade was reversed with neostigmine and atropine. A total of 140 ml gastric fluid was suctioned from the stomach. The patient underwent positive pressure ventilation with tidal volumes of 600 ml, peak airway pressures of 25 cm H2O, an inspiratory :expiratory ratio of 1:1 and a frequency of 16 min⁻¹. A decision was made to use the ProSeal LMA™ for the procedure, as gas exchange was normal and the airway was protected. Furthermore, waking the patient or exchanging the ProSeal LMA™ for a tracheal tube was considered more hazardous.

The off-pump coronary artery bypass surgery lasted 80 minutes and was uneventful with no evidence of cardiac ischaemia. Residual neuromuscular blockade was reversed with neostigmine and atropine. A total of 140 ml gastric fluid was suctioned from the stomach. The patient was transferred to the high dependency unit where she breathed spontaneously on 50% oxygen for two hours. The ProSeal LMA™ was removed uneventfully when the arterial blood gases were normal and was able to respond to commands. The chest drain was removed four days after surgery. There was no evidence of aspiration. The patient was discharged home six days after surgery. There were no further sequelae.

**DISCUSSION**

Management of a difficult airway is challenging, and severe obesity adds to these difficulties. Cardiac surgery normally is performed using an endotracheal tube and positive pressure ventilation. Many anesthesiologists would object using a laryngeal mask in coronary artery bypass grafting although the stress response to tracheal intubation in patients undergoing coronary artery surgery is less with the laryngeal mask airway (7). Recently reports on successful prolonged use of the ProSeal LMA™ in postoperative mechanically ventilated patients on the ICU, was demonstrated (8-9).

It is our normal practice too to use an endotracheal tube in cardiac surgery, and it is certainly not our intention to encourage the routine use of the ProSeal LMA™ in cardiac surgery but as a ProSeal LMA™ was readily available in the room, while the difficult intubation trolley was not, we inserted the laryngeal mask as an excellent airway ‘rescue’ device to buy some time for other options. We preferred the ProSeal LMA™ above a classic laryngeal mask for its better features (high seal cuff, gastric access). As subsequently the airway was satisfactory, with a good laryngeal seal, and given the fact that a short off-pump cardiac intervention was planned, we decided to proceed with the ProSeal LMA™. However, necessary steps were taken to proceed to a definitive airway if such need would arise. The ProSeal LMA™ could even provide a suitable airway for percutaneous tracheotomy if this was required. It is obvious that other options (10) in similar situations also can provide an effective airway (e.g. the intubating laryngeal mask, fibreoptic intubation) and that the lesson to be learned is that the difficult intubation trolley should always be available in the room whenever there is a patient with a possible difficult airway.

**CONCLUSION**

This case illustrates the successful guided insertion of the ProSeal LMA™ as an airway rescue for cardiac surgery and postoperative respiratory support.

**References**

4. Brimacombe J., Keller C., Pullekrug B., Agrò F., Rosenblatt W., Dierdorf S. F., García de Lucas E.,
Capdevilla X., Brimacombe N., A multicenter study comparing the ProSeal with the Classic laryngeal mask airway in anesthetized, nonparalyzed patients, Anesthesiology, 96, 289-295, 2002.


