

I-gel Plus as a Rescue Device after Failure to Manage Airway: A Case Series

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ABSTRACT

In anesthesia, airway management during the perioperative period is crucial for patient safety. While endotracheal intubation has traditionally been a standard practice, supraglottic airway devices (SADs) have significantly expanded the options available to anesthesiologists. Supraglottic airway devices offer a balance between effectiveness, ease of use, and potential advantages over endotracheal tubes. They are useful in various circumstances. The i-gel Plus is a modification of the widely used i-gel. This case series describes three cases where the i-gel Plus was used for airway management when other methods failed.

These cases highlight the effectiveness of the i-gel Plus in challenging airway management scenarios, emphasizing its potential as a reliable tool in the anesthesiologist's arsenal. The current evidence on the i-gel Plus, including studies on cadavers and large patient cohorts, suggests high success rates and ease of use. However, further research is needed to validate its benefits across diverse clinical situations.

Keywords: Airway extubation, Airway management, General anesthesia, Intensive care unit, Perioperative period, Thoracic surgery.

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INTRODUCTION

In the field of anesthesia, the management of the airway during the perioperative period remains a cornerstone of patient safety. While endotracheal intubation has traditionally been a standard practice, supraglottic airway devices (SADs) have significantly expanded the options available to anesthesiologists.¹ Supraglottic airway devices offer a balance between effectiveness, ease of use, and potential advantages over endotracheal tubes. They are useful in various circumstances, including routine airway management, difficult airway, obesity, trauma, non-supine positions, extubation, and intensive care unit (ICU).²⁻⁵

I-gel Plus (Intersurgical Ltd., Berkshire, UK) is a modification of i-gel. I-gel is one of the most commonly used devices, known for its anatomical fit and ease of insertion.⁶ New features of i-gel Plus include a longer cuff tip, which improves the esophageal seal and prevents regurgitation of gastric contents in the pharynx. The inner aspect of the cuff contains an intubation ramp to aid endotracheal intubation through the device. Other features include a wider gastric access channel and a supplementary oxygen port. We describe three cases in which i-gel was used for airway management when other methods failed.

CASE DESCRIPTION

Case 1

A 45-year-old male patient underwent decortication under general anesthesia for chronic empyema of the right lung and was shifted to our ICU. He was planned for extubation the next day. The next day, his hemodynamic, oxygenation, and ventilation parameters were within normal range. The sedative drugs were discontinued, and after regaining consciousness, the endotracheal tube was removed. The patient was given oxygen using a Hudson mask. The patient became tachypneic 10 minutes after extubation. He was placed on non-invasive ventilation. However, the patient remained tachypneic on non-invasive ventilation. It was decided to reintubate the patient

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and put him on invasive ventilation. The patient was administered intravenous fentanyl, propofol, and vecuronium. The initial attempt to intubate the patient using direct laryngoscopy failed. Two more attempts to intubate the patient also failed. After mask ventilation, Laryngeal mask airway (LMA) Classic was inserted. However, the ventilation was inadequate due to excessive air leaks. The placement of LMA Supreme was attempted, but it also failed. A third attempt was made with i-gel Plus. This was successful, and the patient was placed on mechanical ventilation using i-gel Plus. The patient was intubated through the SAD without a flexible bronchoscope. The patient was extubated the next day and then transferred back to the surgical department.

Case 2

A 30-year-old female patient presented for elective laparoscopic hernia repair. She had no other significant medical history. She had a BMI of 26.5 kg/m². Her preoperative airway assessment, including modified Mallampati classification, thyromental distance, neck mobility, and mouth opening, did not indicate an anticipated difficult airway. After administering intravenous fentanyl, propofol,

and vecuronium, endotracheal intubation was attempted using a standard Macintosh laryngoscope. A Cormack and Lehane grade IV view was obtained with a laryngoscopy. Despite multiple attempts (using a different blade size and video-laryngoscope) and optimization maneuvers (e.g., positioning and external laryngeal manipulation), intubation was unsuccessful due to poor visualization of the glottis. The patient was ventilated with a bag mask, and ventilation was successful. This was followed by attempts to insert two different second-generation SADs. The patient's oxygen saturation began to drop and ventilation with a face mask was now inadequate. An i-gel Plus insertion was attempted and was successful. The ventilation through the device was adequate. The SAD was kept in place till the patient regained consciousness and resumed spontaneous breathing, after which the device was removed. The surgery was postponed. The next day, awake fiberoptic intubation was used for perioperative airway management.

Case 3

A 51-year-old male with a BMI of 32 kg/m² presented to the emergency department with severe abdominal pain, vomiting, and distension. He had a history of hypertension, type 2 diabetes, and obstructive sleep apnea, which he managed with a continuous positive airway pressure device at home. He was diagnosed with large-bowel ischemia. An emergency laparotomy was planned with general anesthesia as an anesthetic technique. A modified rapid sequence induction was carried out using propofol and rocuronium. Direct laryngoscopy using a Macintosh blade was attempted, but only the epiglottis was visible. Changing the laryngoscope blade, modifying positioning, and using adjuncts could not result in successful intubation. Laryngeal mask airway ProSeal placement attempts failed. Attempts at mask ventilation failed, and the patient had decreasing arterial oxygen saturation. I-gel Plus placement was successful with an increase in oxygen saturation. After this, the patient was tracheostomized, and the surgery was started.

DISCUSSION

The advent of SADs has dramatically increased the options available to anesthesiologists, offering a reliable alternative to traditional endotracheal intubation.^{1,2} The i-gel Plus, an advanced version of the widely used i-gel, has emerged as a valuable tool in challenging airway management scenarios.^{6,7} This case series highlights the effectiveness of i-gel Plus as a rescue device in situations where many conventional methods of airway management failed. In all three cases, traditional intubation methods, including direct laryngoscopy and other SADs, were unsuccessful in securing the airway. The insertion of the i-gel Plus in each scenario successfully restored adequate ventilation and oxygenation, demonstrating its efficacy in managing challenging airways. The use of the i-gel

Plus in these cases reflects its potential as a valuable tool in the anesthesiologist's arsenal.

The current evidence on the use of i-gel Plus is limited. Chaki et al. compared the insertion of an endotracheal tube through i-gel and i-gel Plus in cadavers.⁸ They found that endotracheal tube insertion was easier and faster through i-gel Plus. Moreover, the need for upward flexion of the bronchoscope tip to visualize full glottis was lesser for i-gel Plus. In an unpublished study by Werner et al. on 1,000 patients, the overall insertion success rate was 98.6%.⁹ The oropharyngeal leak pressure was 32 ± 7 cm H₂O. The ease of device insertion was at least easy for more than 80% of patients. Complications included desaturation, laryngospasm, and blood on SAD. The rate of complications was low.

CONCLUSION

I-gel Plus is a newly launched SAD with a promising design and features that may be useful in airway management. More research is needed to validate its usefulness in a variety of clinical situations.

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