Case report: Severe laryngeal hemorrhage after withdrawal of a size 5 I-gel in elective surgery

G. DANGELSER (*), A. S. DINCQ (*), G. LAWSON (**) and E. COLLARD (*)

Abstract: Purpose: Report a case of a patient, who benefitted from the I-gel, during an elective urological surgery and who presented severe laryngeal hemorrhage at the time of its withdrawal.
Clinical features: A 71-year-old male patient had been admitted in the operating room for the insertion of a ureteral stent. He had a history of usual interstitial pneumonia (UIP) requiring long-term corticosteroids use (methylprednisolone 12 mg/day), oxygen therapy (3 l/min – 24 hours/day) and a severe obstructive sleep apnea syndrome treated with nasal continuous positive airway pressure (NCPAP). After intravenous induction of anesthesia, a size 5 I-gel (Intersurgical, Wokingham, UK) was easily inserted in the first attempt. Anesthesia was maintained with sevoflurane. As soon as the procedure ended, the I-Gel was removed. After two minutes, the patient presented a respiratory distress and started spitting significant quantity of blood. Oropharyngeal fiberoscopy was performed in emergency and highlighted active bleeding of the left aryepiglottic fold. Hemostasis was obtained by local compression. The patient was transferred to the intensive care unit. He was extubated the following day without complications. No additional procedure was necessary to stop the bleeding.
Conclusion: Authors reported the first severe complication associated with the use of size 5 I-gel. Additional studies have to be carried out to specify the advantages and risks associated with the use of this recent material.

INTRODUCTION

The I-gel is a new supraglottic airway device launched in the market and its peculiarity lies in its composition made from elastomer, which is perfectly adapted to anatomical relief of the glottis.
We present a case of a patient, who benefitted from this new device during an elective urological surgery and who presented severe laryngeal hemorrhage at the time of its withdrawal. This is the first major complication described in the literature associated with the use of I-gel.

CASE REPORT

A 71-year-old male patient with a BMI of 31.8 (weight 94 kilos, height 172 cm) was admitted to the hospital for insertion of a right ureteral stent. He had a previous history of usual interstitial pneumonia (UIP) requiring long-term corticosteroids use (methylprednisolone 12 mg/day), oxygen therapy (3 l/min – 24 hours/day) and a severe obstructive sleep apnea syndrome treated with nasal continuous positive airway pressure (NCPAP).
He was transferred to the operating room where standard monitoring was applied. General anesthesia was induced after 3 minutes of pre-oxygenation with 100% O2, with sufentanil (15 µg), propofol (60 mg) intravenous (IV) and adjunct of sevoflurane during manual ventilation.
A size 5 I-gel (Intersurgical, Wokingham, UK) was easily inserted in the first attempt. Anesthesia was maintained with sevoflurane and the patient was manually ventilated post-induction until spontaneous respiration returned.

After an uneventful surgical procedure of 40 min duration, the volatile agent was discontinued and the I-gel removed when the patient was awake.

After two minutes, the patient presented a respiratory distress. He was put in an upright position and started spitting significant quantity of blood. The blood loss was estimated at about 500 cc.
An ENT surgeon was called out in emergency. Nasal followed by oropharyngeal fibrescopy highlighted active bleeding.

To facilitate the examination of the upper airway and to reduce blood aspiration, the patient underwent an awake orotracheal fibroptic intubation with a 7 mm diameter endotracheal tube.

After intubation, fibrescopy showed active bleeding on the left aryepiglottic fold. Haemostasis was obtained by local compression.

The 5 size I-gel was examined and significant amount of blood was detected at the distal tip of the device.

The patient was kept intubated and sent to the intensive care unit under sedation for overnight surveillance.

The patient was extubated the next day after fibrescopic control of the upper airway which did not showed any sign of bleeding. No additional procedure was required.

**DISCUSSION**

The I-gel is a new supraglottic device, manufactured from a flexible gel type thermoplastic elastomer. It was designed to create a real anatomic seal without inflatable cuff. It closely adapts to the laryngeal rim. It passes into the piriform sinus and posterior grooves merging with the shape of the epilaryngeal contour (epiglottis, aryepiglottic fold, posterior sides of the arytenoids and the cricoid) (1) (Figs. 1, 2).

Insertion of the I-gel is reported to be easy (97% success in the first attempt) as well as its removal. It has a low morbidity rate (2).

This device was used in 71, ASA 1-2 women who had undergone gynecological surgery. Richelz observed only two minor complications: one episode of cough and one transitory case of sore throat. No trace of blood was reported upon removal (2).

On the other hand, blood stains were described in the literature at the time of removing the disposable laryngeal mask. Lopez et al. had compared 4 other types of laryngeal masks, including Soft Seal (3); the latter was responsible for blood stains...
in 38% of the cases at the time of its removal. According to the authors, these blood stains are due to mucosal traumatism.

In 100 patients who had undergone elective surgery, Genzwuerker et al. also described blood stains during the use of LMA ProSeal and LTS (Laryngeal Tube Suction) II in 3 out of 50 patients and 2 out of 50 patients respectively (4).

Gattward et al. evaluated the size 4 I-gel on 100 non-paralysed patients (5). They describe a low rate of mucosal oropharyngeal lesions to the tune of 1% at the time of removing the device.

In a correspondence to the EJA, Bamgbade et al. suggest that I-gel is responsible for few traumatisms and neurovascular compressions (6). They evaluated the I-gel on a series of 300 adult patients with a BMI ranging between 20 and 40 admitted for elective surgery. Only 2 patients presented blood while removing the device but none of the patients presented post-operative complications of the upper airways.

A recent case report has described minor hemorrhage due to tongue trauma, but no significant hemorrhage such as we have described has previously been reported (7). In a number of case series published so far, only minor blood staining has been associated with the device (2-8).

Our clinical case shows that the 5 I-gel was responsible for the mucosal lesion causing a severe hemorrhage at the level of the aryepiglottic fold. This is the first described major complication case while removing this device. The lesion was perfectly localised and suggests that the shape of the I-gel is responsible for the lesion of the laryngeal mucosa.

The fact that bleeding stopped with local compression once the device was removed is an argument suggesting that the lesion was induced by the friction of the I-gel against the aryepiglottic folds.

We used this device during an elective urological surgery in a patient with a history of severe pulmonary fibrosis treated with oxygen therapy at home and long term corticotherapy. In the long run, this treatment may be responsible for mucosal dryness and fragility.

The question arises of the indication of this device in patients having a congenital or acquired cutaneous and mucosal fragility as is the case with cortico-dependent patients or patients treated with oral anticoagulants.

**Conclusion**

Authors report the first described case in literature of severe hemorrhage of epilaryngeal contour after the use of a size 5 I-gel.

Additional prospective studies are necessary to specify the advantages and risks associated with the use of this recent device. Some patients are perhaps not eligible in specific conditions for the use of this device.

**Références**