

## LETTERS TO THE EDITOR

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## I-gel® airway for advanced uses: a case of successful utilization of this second-generation supraglottic airway device for controlled ventilation during general anesthesia in lateral decubitus position

Dear Editor,

I report a case where i-gel® supraglottic airway management device (Intersurgical, Wokingham, UK) was used for delivering successful controlled ventilation during general anaesthesia in lateral decubitus position. The case is presented with the patient's and the Hospital Ethics Committee's written consent.

A 39-year-old male was admitted with the diagnosis of benign lipomatous neoplasm in the dorsal region (ICD-10 D17.1) and scheduled for elective exeresis of it. His height and weight were 91 kg and 178 cm, respectively; moreover, his physical condition was class 2 according to ASA Physical Status Classification.

The evaluation of the airway showed a class II according to modified Mallampati classification by Samsoon and Young. In addition, the following parameters were within normal limits: sternomental distance, interincisor distance, length of upper incisors, mandibular prognathism test and neck range of motion. However, even though the patient could touch top of chin to his chest, he had a short neck, a thyromental distance of 5 cm and a cervical diameter of 43.5 cm.

The intravenous induction of balanced general anesthesia was performed with the patient in supine position with a combination of propofol, fentanyl and rocuronium at usual doses. However, a difficult direct laryngoscopy was presented, since a laryngeal view corresponding to grade three in the classification of Cormack and Lehane was obtained, which did not improve with the BURP maneuver on the thyroid cartilage. Likewise, tracheal intubation was attempted on two occasions with a stylet for intubation and also with a pillow under the patient's head, but it was not successful, even in one of the attempts there was an esophageal intubation. A third attempt was not carried out because of the possibility of trauma in the tissues of the airway. At that time, the possibility to suspend the sur-

gery was confronted because of difficulty for ensuring the airway with an effective ventilation of the patient's lungs and the fact that my institution does not have any type of video-assisted laryngoscope; however, I decided to use a second-generation supraglottic airway management device, an i-gel airway number four. Nonetheless, there was doubt that it may provide appropriate ventilation with the patient in lateral decubitus position, as this indication was not included in the manufacturer's manual.<sup>1</sup>

The device was placed in supine position previously lubricated with lidocaine 2% gel and then the patient was positioned in right lateral decubitus position. Equal breath sounds were auscultated bilaterally over the chest wall and adequate chest rise was observed. General anesthesia was maintained with sevoflurane 3% and 100% oxygen. Volume-controlled ventilation delivered a tidal volume of 500 mL, obtaining a leak between 15 and 42 mL. The respiratory rate was set in 12 breaths per minute with an inspiration: expiration rate of 1:2. In every moment the head and neck were kept in neutral position, without allowing movement to avoid an alteration in the effectiveness of the ventilation and leak of the tidal volume.<sup>2</sup> The measured peak airway pressure was between 11 and 12 mmHg and the mean pressure was between 4 and 5 mmHg. The end-tidal carbon dioxide and pulse oximetry were 42 mmHg and 99%, respectively. No auscultation signs of respiratory obstruction or gastric dilatation at any moment were observed. After 90 minutes, the surgical procedure ended and the patient was placed in supine position again to remove the i-gel® airway. There was no evidence of trauma or pharyngeal inflammation in the patient's airway in the postoperative examination.

This second-generation device was chosen for the higher scores in the quality of ventilation and the sealing of the airway compared to first-generation devices available at my institution (classic laryngeal masks),<sup>3</sup> key features in the context of this patient because he remained in lateral decubitus position. Also, the decision was influenced by the fact that it has already been reported the successful insertion of the i-gel® airway with the patient in supine position before being placed in prone position<sup>4</sup> as well as the insertion of the same device with the patient in prone position.<sup>5</sup>

A problem in the management of this patient was the use of an inspired oxygen fraction ( $F_{iO_2}$ ) of 1, since he did not present intraoperative hypoxemia. Levels of  $F_{iO_2}$  higher than 0.8, increase the risk of oxygen toxicity and atelectasis.<sup>6</sup> Nevertheless, as many Peruvian public hospitals, my institution does not have air cylinders or air pipeline supply for obtaining an inspired oxygen fraction lower than 1.

This case shows that i-gel® airway management device may provide safe and effective ventilation even with the patient in lateral decubitus position under bal-

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anced general anesthesia and controlled ventilation; because these devices are highly likely to be safer and more suited to advanced uses,<sup>3</sup> as in the context of this patient. Nonetheless, more cases are needed to make conclusions about efficacy and safety in lateral position.

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**Conflicts of interest.**—The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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## The use of ultrasound guidance in intrathecal pump refill

Dear Editor,

The placement and management of the intrathecal pump (IP) used for the delivery of drugs into the Cere-

brospinal Fluid is a common requirement of pain management clinics.

Sometimes the procedures related to these devices can be challenging and lead to complications such as the injection of the drug outside the pump reservoir or unnecessary pain and discomfort for the patient if the procedure takes a longer time than is needed.

In particular, the refill of these device when inserted into a subcutaneous pocket can be difficult as the position of the device can change because of pocket rotation as well as changes in the patient's body itself (such as increase of the body fat, scars around the reservoir, soft tissue oedema, presence of seroma etc.).<sup>1-3</sup>

The reservoir of the IP is made of titanium which reflects ultrasound (US), but the refill port and the catheter access port have a central non-metallic anechoic area for accessing the reservoir, therefore it can be more easily identified. Even if some experience supports the use of US to perform IP refill because this approach is easier and safer, usually the IP port is located by palpation or using commercially available template.<sup>1,4,5</sup>

We report our experience using two different methods on the same group of 16 patients. These patients had an IP delivering morphine located in their iliac region. For each patient we recorded the time required to refill their IP by palpating the skin to identify the port which we have always done as routine practice (group B) and, 2 months later, with the US guidance (group US). Each procedure was performed by the same pain specialist.

We also recorded the Numerical Rating Score (NRS) of the pain perceived during the procedure by the patient and the number of skin punctures needed with and without US guidance. We used a standard 20 gauge non-core Huber needle (Smiths Medical, Latina, USA) for the procedure and ultrasonography (Figure 1) was performed with a linear transducer (13-6 MHz, Mylab One, Esaote, Genoa, Italy).

The time recorded (refill time) started after sterile field set up at initial patient skin contact either by palpation (group B) or with the US transducer (group US)

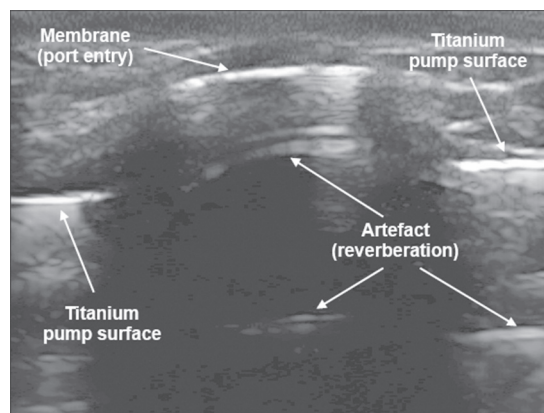


Figure 1.—This picture shows the injection port of intrathecal pump reservoir. You can see the titanium pump surface as well as the refill port membrane.