

## The i-gel™ - A promising airway device for magnetic resonance imaging suite

Sir,

Anesthesia for magnetic resonance imaging (MRI) in pediatric patients is a challenging task. Most children require deep sedation as the procedure is lengthy, requires precise positioning, and patients' cooperation. These patients may require general anesthesia and securing of airway with endotracheal tube or supraglottic device. Various supraglottic devices have been described for use in MRI. The classic laryngeal mask (LMA-C™) is a helpful device in maintaining an adequate airway during MRI.<sup>[1,2]</sup> With the exception of MRI-safe laryngeal mask airway (LMA), all LMAs have a variable quantity of ferromagnetic material that could reduce image quality. Recently, i-gel™ (Intersurgical, Workingham, UK), a new supraglottic airway device with noninflatable cuff, was introduced in pediatric sizes 1, 1.5, 2, and 2.5. We describe the use of i-gel™ in MRI suite in two children undergoing MRI for brain.

A 4-kg, 3-month-old child with seizures was scheduled to undergo MRI brain. His preoperative examination and investigations were unremarkable. Inhalational induction was done with sevoflurane and intravenous line secured with 24G cannula. After induction, i-gel™ of size 1 was introduced in single attempt. Anesthesia was maintained with sevoflurane, fentanyl, and atracurium. The lungs were ventilated with Jackson-Rees breathing circuit and the ventilation was ascertained by square wave capnography and adequate tidal volume. The second child was 12 kg, 3½-year-old, and was scheduled to undergo MRI brain for a workup of delayed milestones. His Mallampati grading was class II. Intravenous line was already in place with 22G cannula. General anesthesia was induced with propofol, fentanyl, and atracurium. After induction of anesthesia, i-gel™ of size 2 was inserted. Nasogastric tube was not passed in the two patients.

Monitoring in both the patients was done by MRI compatible equipment that included continuous electrocardiography, pulse oximetry, and capnography. Hemodynamic parameters were stable throughout the procedure and ventilation adequate in both patients without any episode of desaturation. In both the cases, the procedure was completed uneventfully with a good image quality without artifacts. Neuromuscular blockade were reversed and i-gel was removed uneventfully after the children were fully awake.

Tracheal tubes or LMAs have been standard of care for the cases that need general anesthesia. The radiologists are usually familiar with the effect on imaging interpretations produced by the metallic spring in the pilot balloon or anatomic distortions induced by the LMAs, although there are some reports of misdiagnosis as a result of the LMAs.<sup>[1,2]</sup> Any magnetic material can reduce the image quality depending on the quantity of magnetic material within the field, the pulse sequence that is used, and if the area of interest is in the region of the LMA. When the MRI is done in close proximity to LMA-Flexible, LMA-ProSeal, LMA-Fastrach or tracheal tube, is distortion of the image due to the wire component of the airway tube and heating.<sup>[3]</sup>

i-gel™ is a unique, single use, supraglottic airway management device. It is made from a medical grade thermoplastic elastomer and has been designed to create a noninflatable, anatomical seal of the pharyngeal, laryngeal, and perilaryngeal structures. This offers the potential for easier insertion, reduced tissue compression, and increased stability after insertion.<sup>[4]</sup> Avoidance of tracheal intubation in a child is less traumatic and the risk of adverse reflex reaction or laryngospasm during intubation or extubation is greatly reduced.<sup>[5]</sup> Although we used muscle relaxant to place the device, i-gel™ can be placed in spontaneously breathing patients, which may be safer during MRI. The presence of a gastric tube adds to the safety of supraglottic devices in such settings.

There are concerns regarding displacement of supraglottic devices during change in position of the patient. This is particularly true in MRI suites. With i-gel™, it is possible to move the child in complete safety without getting the device displaced. It also means that intubation is not required as often.<sup>[6]</sup>

i-gel™ is a useful device for MRI in children. It offers many advantages such as ease of insertion, availability of all pediatric sizes, stability of device once *in situ*, avoidance of tracheal intubation, and has minimum adverse effects after removal of the device. Furthermore, the presence of gastric tube adds to safety of i-gel especially in spontaneously breathing patients. However, large sample-size studies are needed to confirm the usefulness of i-gel in MRI suite.

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