Suction catheter coiling in i-gel

Sir,

Second-generation supraglottic airway devices (SADs) are routinely used nowadays to perform laparoscopic cholecystectomy as they have a gastric channel to clear the gastric content and prevent obscurement of the surgical view close to the gall bladder bed.

A 45-year-old male patient of body weight 71 kg, height 167 cm, and American Society of Anesthesiologists grade I, was posted for laparoscopic cholecystectomy for chronic calculous cholecystitis. Patient was induced with fentanyl 2 μg/kg, propofol 2 mg/kg and

vecuronium 0.1 mg/kg. The airway was managed with a second-generation SAD, LMA Supreme™ (Laryngeal Mask Company, San Diego, CA) no. 4, and a 10 FG nasogastric (NG) tube was introduced through its gastric channel to decompress the stomach. The end-tidal capnogram was square-shaped, and there was no audible or palpable leak. We did not measure the sealing pressures, though. The patient was put on the volume control mode of ventilation with tidal volume 500 ml, respiratory rate (RR)-12/min, Pi-30, and inspiratory-expiratory ratio (I: E)-1:2. Maintenance of anaesthesia was done with isoflurane [minimum alveolar concentration (MAC) 1], and air and oxygen (1:1). After placement of the laparoscopic ports, we noted distension of the stomach. Attempts to correct this distension by suctioning failed. After multiple repeated tries and manoeuvring of the NG tube, the decision to change the LMA Supreme™ with i-gel (Intersurgical, Wokingham, Berkshire, UK) no. 4, another SAD, was made. To our surprise, the NG tube negotiated through the gastric channel of the i-gel failed to relieve the distension again. We decided to replace the NG tube with a 10-Fr suction catheter hoping that it could pass easily, being stiffer and straighter than an NG tube. However, it did not serve our purpose. As the i-gel had a minimal leak and a sealing pressure of 31 mmHg, we decided to continue the surgery with i-gel *in situ* despite an inflated stomach inconvenience. There was no rise in airway pressure or change in end-tidal carbon dioxide ($ETCO_2$) tracing. On removal, we noted that the suction catheter had coiled within the i-gel [Figure 1]. Although there is no direct evidence, it could well be possible that previously introduced NG tubes had also coiled after placement.

At times, we can pass the NG tube but are unable to aspirate the gastric contents, as in our case. Some poorly understood anatomical aberrations cannot be ruled out in such a situation. It is also known that the piriform sinus and arytenoid cartilages are the most common points to offer resistance to the passage of the NG tube to the hypopharynx.[1] Any obstruction to the passage of a NG tube in the upper oesophageal sphincter region would encourage the NG tube to follow a track of low resistance, resulting in coiling. There is one report where an NG tube passed through i-gel was found to form a knot.[2]

It is not expected that the NG tube would coil when passed through the i-gel because its gastric channel

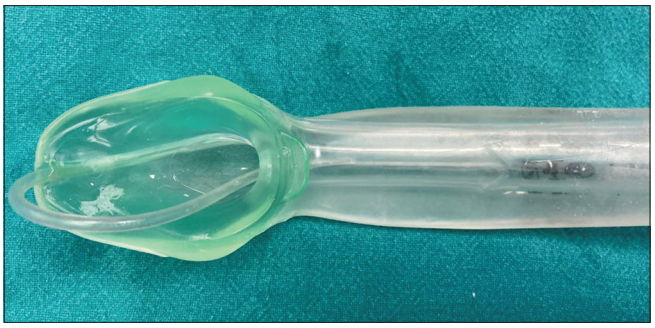

Figure 1: Suction catheter coiling in i-gel

prevents the tube from bending and facilitates its entry into the oesophagus. Risk factors for the NG tube's coiling in a supraglottic device are the NG tube of a smaller diameter and repetitive pushing or pulling of the NGT after it has been placed.[3,4]

In advanced machines which measure the leak fraction, manipulation is done so that the leak fraction is brought down to a minimum, after which airway sealing pressures are assessed. Troubleshooting manoeuvres include pulling back the device and ensuring a better seal. In our case, probably a fibreoptic assessment would have helped. Correct placement of the NG tube should also be evaluated by conventional auscultation method.[5]

This case alerts us to a real possibility of NG tube coiling within the SADs which can be prevented by using the biggest possible size NG tube, avoiding repeated insertion attempts which could soften the tube, and if the option is available, using an NG tube made of a stiffer material and avoiding NG tube insertion deeper than that optimum for that size.

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Conflicts of interest
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