

## Airway challenge in repaired tracheo-esophageal fistula patient

Dear Editor,

An 8-year-old male child (wt 16 kg), follow-up case of repaired esophageal atresia (EA) and TEF presented for colostomy closure. The patient had associated anorectal malformation (ARM), vertebral, ribs anomalies, hypospadias, dextrocardia with atrial septal defect (ASD), and patent ductus arteriosus (PDA).

In the past, the child had undergone multiple surgeries for TEF and ARM, which included high sigmoid loop colostomy, thoracotomy with primary repair of EA/TEF and retrosternal gastric pull-up.

At 6 years of age, the child had been scheduled for PSARP, but after induction of anesthesia bag-mask ventilation was difficult and subsequently, the child developed bradycardia and cardiac arrest was resuscitated with return of spontaneous circulation (ROSC), but surgery was deferred and cardiac evaluation was done which was found to be normal. One year later, he was again taken up for PSARP. General anesthesia with rapid sequence intubation (RSI) was conducted with succinylcholine. There was difficulty in bag-mask ventilation, which improved after Ryle's tube suctioning and endotracheal intubation was successful in the first attempt. The rest of the operative course was uneventful.

The child was now posted for colostomy closure at 8 years of age. Pre-induction Ryle's tube was inserted and withdrawn with continuous suction, thereby suctioning the stomach, esophagus, and oral cavity. Ryle's tube suctioning was done prior to bag-mask ventilation as the reconstructed pouch has a difference in peristalsis compared to normal esophageal musculature. Modified RSI was done, Inj. fentanyl 30 µg, Inj. propofol 80 mg, and succinylcholine 30 mg was given intravenously and gentle positive pressure ventilation with positive end-expiratory pressure (PEEP) of 5 cm H<sub>2</sub>O was applied with a face mask. Bag-mask ventilation could be performed without difficulty. Following laryngoscopy, the trachea was intubated with a cuffed oral endotracheal tube 5.5 mm ID and later changed to cuffed oral endotracheal tube 5.5 mm ID in view of a leak

around the tube. Anesthesia was maintained with oxygen, air, isoflurane, and intermittent boluses of atracurium. Surgery was uneventful, neuromuscular block was reversed, the patient's trachea was extubated, and the child was shifted to recovery when fully awake.

Patients with repaired TEF and gastric pull up have been described to have progressive difficulty in bag-mask ventilation after induction of anesthesia. This can be due to distension of the esophageal pouch during positive pressure ventilation leading to tracheal and lung compression and owing to poor oxygen reserve in these patients, which can lead to quick desaturation and even cardiac arrest. Tracheomalacia, which is also a common finding in patients with repaired EA-TEF, may result in dynamic airway collapse during expiration when intrathoracic pressure physiologically exceeds the intraluminal tracheal pressure and interfere in the ventilation.<sup>[1]</sup> The reconstructed esophagus differs from the normal esophagus as peristalsis is absent and food is conducted by gravity predisposing the patient to reflux and recurrent aspiration.<sup>[2]</sup> Abnormal development of Auerbach plexus has been attributed to dysphagia, GERD, and delayed gastric emptying in patients with EA-TEF.<sup>[3]</sup>

A simple maneuver like suctioning of Ryle's tube should be done prior to the induction of anesthesia in patients with repaired TEF.

**Financial support and sponsorship**  
Nil.

**Conflicts of interest**

There are no conflicts of interest.

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Access this article online	
Quick Response Code:	Website: www.joacp.org
	DOI: 10.4103/joacp.JOACP_139_19

**How to cite this article:** Kayina CA, Kaur M, Subramaniam R. Airway challenge in repaired tracheo-esophageal fistula patient. *J Anaesthesiol Clin Pharmacol* 2020;36:563-4.

**Submitted:** 06-May-2019

**Revised:** 02-Sep-2019

**Accepted:** 20-Mar-2020

**Published:** 18-Jan-2021

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