

# Anesthetic Consideration for Thoracoscopic Assisted Gastric Pull up Surgery in Paediatric Patients

Frazer CS Rodrigues\*

Department of General Surgery, Goa Medical College, Bambolim, Goa 403202, India.

\*Corresponding Author: Frazer CS Rodrigues, Department of General Surgery, Goa Medical College, Bambolim, Goa 403202, India.

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## Case Report

A 1 year and 9 months old boy weighing 11kgs presented for a gastric pull up surgery. The child was diagnosed with a Tracheoesophageal fistula and a thoracotomy with oesophagostomy and gastrostomy was done on the 2<sup>nd</sup> postnatal day. Preoperative evaluation revealed nothing significant. Investigations and 2D ECHO were within normal limits. The patient was premedicated with oral Midazolam 5mg, IV Ondansetron 1mg, IV Glycopyrrolate 0.1mg and taken into the operating theatre. Under standard anaesthesia monitoring (electrocardiogram, peripheral oxygen saturation, non-invasive blood pressure, capnography) and with pre-oxygenation, the child was induced with intravenous propofol 2mg/kg, fentanyl 2 µg/kg, and atracurium 0.5 mg/kg and was intubated with a number 4.5 uncuffed single lumen endotracheal tube (ETT) due to the unavailability of adequate sized double lumen tubes in this age group and endobronchial blocking devices. Anaesthesia was maintained on Oxygen, air and sevoflurane. Analgesia was maintained using an epidural catheter passed in the caudal space. The left radial artery was cannulated and transduced for invasive blood pressure monitoring and repeated arterial blood gas sampling.

He underwent a thoracoscopic oesophageal mobilization, laparoscopic creation of gastric conduit, pyloroplasty, and esophagogastric anastomosis. A right thoracotomy was necessary to negotiate the conduit safely up to the neck. Intermittent episodes of hypercarbia and desaturation were observed during oesophageal mobilization, which were resolved by temporarily stopping the surgery, releasing the intrathoracic pressure and hyperventilating the patient. The surgery was resumed once the oxygen and end tidal carbon dioxide levels improved. Intraoperative bradycardia was also noted during handling of the mediastinal structures which improved on notifying the surgeons and briefly pausing the surgery. The rest of the surgery was uneventful and the patient was shifted postoperatively to the Paediatric Intensive Care Unit for gradual weaning and extubation.

## Discussion

Hypoxia and hypercarbia are more common in infants and younger children because of ventilation perfusion mismatch. During thoracoscopy the patient is placed in lateral decubitus position where in the dependent lung is less ventilated because of compression, more compliant rib cage and reduced functional residual capacity [2] In a similar case done by K R Chandrakala et al, an uncuffed ETT was used for One lung ventilation (OLV) because of non-availability of OLV airway devices. Left endobronchial intubation was achieved. In spite of this, the child had repeated episodes of desaturation and bradycardia intraoperatively, and they resorted to ventilating both the lungs. [3] Hence in this case an endotracheal intubation was done and both lungs were ventilated. This necessitated an increase in intrathoracic pressure in order to achieve adequate access to the surgical field, resulting in episodes of hypoxia and subsequent bradycardia. Repeated arterial blood sampling was used to guide ventilation. The arterial waveform was used to indicate hemodynamic stability. Not only does this case stress on the importance of intraoperative monitoring and vigilance but it highlights the importance of good communication between the surgical and anaesthetist teams.

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