

Anaesthetic management of tracheoesophageal fistula with accidental ingestion of button battery cell

Sir,

Oesophageal foreign body, especially button battery cell, is a potentially serious cause of morbidity and mortality in children. The clinical course depends on the location, duration of mucosal or skin exposure, remaining voltage in the battery and chemical composition of the battery.^[1]

The manufacturers tend to use large-diameter disk batteries (20–25 mm versus less than 15 mm) and more powerful ones (lithium cells) because the batteries are more likely to get impacted in the paediatric oesophagus.^[2]

A 1 year 6 months old boy weighing 9.6 kg was brought by his parents with history of button battery cell ingestion 4 days before presenting to our institute. The child had fever, respiratory distress and SpO₂ of 82% on room air. The parents brought an X-ray chest (anteroposterior view) done elsewhere which showed a foreign body in the oesophagus [Figure 1]. After obtaining written informed consent, the child was immediately shifted to the operation theatre in view of respiratory distress. He was nil by mouth for 2 days for solids and 2 h for liquids. He was preoxygenated with 100% oxygen (O₂) and the SpO₂ increased to 92%–94%.



Figure 1: X-Ray Chest AP View Showing Foreign Body in Esophagus

The child was premedicated with 0.04 mg of glycopyrrolate intravenously and anaesthesia was induced with 20 mg of propofol. About 20 mg of succinylcholine was given to facilitate oesophagoscopy. The battery was removed from the upper oesophagus using an optical forceps. Tracheal intubation was done with 5-mm uncuffed endotracheal tube (ETT) and ventilation was started with 100% O₂ using a Jackson Rees circuit. The oxygen saturation deteriorated (60%) and distension of stomach was seen. Check bronchoscopy was done, and trachea-oesophageal fistula (TOF) was identified about 2 cm above carina. The trachea was reintubated and the tip of the ETT was positioned below the fistula.

It was decided to repair the TOF by thoracotomy with thoracic oesophagectomy and cervical oesophagostomy. A feeding gastrostomy was performed. Anaesthesia was maintained with sevoflurane and relaxation maintained with vecuronium. Analgesia was provided by 20 µg of fentanyl. Blood loss was about 25 mL. Fluid replacement of 400 mL of Ringer's lactate was done. Residual neuromuscular blockade was reversed with 0.5 mg of neostigmine and 0.1 mg of glycopyrrolate. Awake extubation was performed after adequate spontaneous ventilatory efforts and the patient was shifted to paediatric intensive care unit for further management. The duration of surgery was 4 h 30 min. Postoperative hospital stay was uneventful and the patient was discharged after 14 days.

Children commonly place objects in their mouths. This often results in accidental swallowing of foreign objects. The male-to-female ratio in young children is 1:1, but in older children males are more commonly affected than females.^[3] Foreign body ingestion is a potentially serious problem that peaks in children between 6 months and 3 years of age. In our case, the battery was extracted 4 days after ingestion. Some damage to the oesophageal and tracheal walls must have occurred due to the long-standing battery cell which resulted in a TOF. Thus, early diagnosis and extraction of the battery are very important. Since the patient came with respiratory distress, priority was given for emergency oesophagoscopy with the aim to remove battery cell and to explore any damage caused by it. TOF was detected and repaired with successful anaesthetic management.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the

patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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.ijaweb.org
	DOI: 10.4103/ija.IJA_516_18

How to cite this article: Ladi SD, Kokari AR, Swami S. Anaesthetic management of tracheoesophageal fistula with accidental ingestion of button battery cell. *Indian J Anaesth* 2019;63:64-5.

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