Letters to Editor

Foregut reduplication cyst: Anaesthetic implications of the rare anomaly

Sir,

Congenital duplications can occur anywhere in the gastrointestinal tract and one-third of all duplications are foregut duplications.[1]

A 6-month-old male child weighing 4 kg was admitted in our hospital with the history of recurrent productive cough with intermittent fever for 4 months. He was born full term by normal vaginal delivery. The child was apparently well till 2 months of age after which he started developing repeated episodes of cough and cold with fever.

Child was febrile (102° F), lethargic with respiratory rate of 28–30/min. Breath sounds were markedly decreased on the right side of the chest. X-ray chest showed a homogenous opacity in mid-thoracic region compressing the right lung. The computed tomography [Figure 1] scan of chest revealed a large cystic mass (7 cm × 4 cm × 4 cm) in posterior mediastinum extending from the lung apex to base and reaching the opposite mediastinum posterior to oesophagus causing displacement of oesophagus and bronchus anteriorly. It also showed mild pleural effusion on the right side. A provisional diagnosis of foregut duplication cyst was made, and cyst excision via right thoracotomy was planned.

His pre-operative blood investigations were all normal. Once the patient arrived, monitors including electrocardiography (ECG), oxygen saturation (SpO_2) and non-invasive blood pressure were placed. No sedative premedication was given. After pre-oxygenation, anaesthesia was induced with sevoflurane in graded concentration and an intravenous line secured. Intubation was performed under sevoflurane with a 4 mm uncuffed flexometallic endotracheal tube. Injection fentanyl 10 μg and injection vecuronium 0.4 mg were then given, and anaesthesia maintained with isoflurane and O_2/N_2O (50:50). Right internal jugular and right radial arterial cannulation were performed. Intraoperative monitoring included ECG, intra-arterial blood pressure, SpO_2, nasopharyngeal temperature, end-tidal carbon dioxide, airway pressures, urine output, central venous pressure and intermittent arterial blood gas (ABG) analysis. The cyst was removed after mobilization that took 3 h. Warming mattress and radiant warmer were used to maintain normothermia. The estimated blood loss was around 300 ml, which was replaced with packed cells. Intercostal block was given with 6 ml of injection bupivacaine 0.125% and rectal suppository of paracetamol 80 mg inserted for post-operative analgesia. The patient was extubated uneventfully in the end and shifted to post-operative care unit. The post-extubation ABG was normal with pH - 7.4; pCO_2-38 mmHg; HCO_3-20 mmol/L; PaO_2-98 mm Hg and SpO_2-97% on oxygen by mask at 4 L/min. The post-operative course was uneventful, and the child was discharged after 15 days. The biopsy report later confirmed the diagnosis.

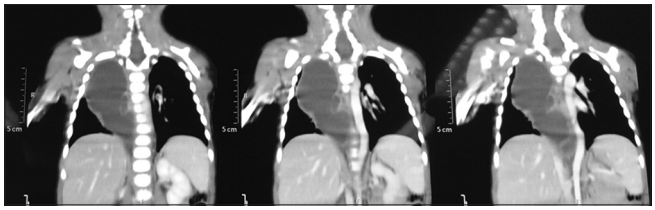

Figure 1: Computed tomography scan of the thorax showing the cyst

Foregut malformation cysts are the second most common cause of posterior mediastinal mass after the neural tumours.[2] An embryonic defect in vacuolization of the oesophagus results in duplication and normally occurs in the 6th week of gestation.[1] The fusion anomalies of cervical and upper thoracic vertebral bodies are encountered in 80% of these cases due to the defect in their embryological development.[2] Although the mean age of onset of symptoms was 49.4 months in a study by Cohen *et al*., it ranges from 1 month to 18 years.[2] Most cases present with respiratory distress, which may be present from birth. Sometimes the symptoms may be delayed with sudden onset cough, wheeze or recurrent respiratory infections. In rare cases the cyst may perforate into the bronchial tree.[1] Extension of the cyst into the infradiaphragmatic area may cause gastrointestinal symptoms and extension into the neural canal can cause signs of spinal cord compression.[3] Cysts require total excision, to prevent cancer development or recurrence of symptoms.[2]

The incidence of complications with the induction of anaesthesia in patients with mediastinal masses has been reported to be 7–18% including refractory cardio-respiratory collapse.[4,5] Inhalational induction with sevoflurane was chosen with a hope that the

spontaneous ventilation will preserve the diaphragmatic movements in a caudal direction, and a normal transpleural pressure gradient will be maintained preventing airway collapse. Intubation was also carried out without muscle relaxants with a flexometallic tube to cause splinting of the trachea beyond the obstruction.[6,7] Successful use of femoro-femoral cardiopulmonary bypass (CPB) has been described in patients with mediastinal masses to restore the oxygenation in the event of severe life-threatening hypoxia.[4] Tempe *et al*. have recommended femoral vessel cannulation under local anaesthesia and CPB circuit primed and kept ready before induction of GA in symptomatic patients with a mediastinal mass.[8] Invasive haemodynamic monitoring is mandatory in these cases as severe cardiorespiratory embarrassments are noted. Good post-operative analgesia is a must after thoracotomy to hasten recovery. We used intercostal block, and rectal acetaminophen as thoracic epidural in infants is not a technique that is commonly practiced in our institution. We could successfully extubate the patient on the table after end of surgery, and he had an uneventful recovery.

Nita Hazarika, Neerja Banerjee, Rajesh Sood
Department of Anaesthesia and Critical Care, PGIMER and Dr. Ram Manohar Lohia Hospital, New Delhi, India

Address for correspondence:
Dr. Nita Hazarika,
R-712, New Rajinder Nagar, New Delhi - 110 010, India.
E-mail: nita.hazarika@yahoo.in

Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/0019-5049.151381

REFERENCES

1. Hammoud A, Hourani M, Akoum M, Rajab M. Foregut duplication cyst: An unusual presentation during childhood. N Am J Med Sci 2012;4:287-9.
2. Bharti N, Arora AK. Anaesthetic management of foregut duplication cyst causing respiratory distress in a child – Case report. Indian J Anaesth 2002;46:486-8.
3. Carachi R, Burgner DP. Thoracic foregut duplications. Arch Dis Child 1994;71:395-6.
4. Dutt V, Tempe DK. Airway management in patients with mediastinal mass. Indian J Anaesth 2005;49:344-52.
5. Levin H, Bursztein S, Heifetz M. Cardiac arrest in a child with an anterior mediastinal mass. Anesth Analg 1985;64:1129-30.
6. Pelton JJ, Ratner IA. A technique of airway management in children with obstructed airway due to tumor. Ann Thorac Surg 1989;48:301-2.
7. Monrigal JP, Grawry JC, Rezzadori G, Jeudy C, Delhumeau A. Preanesthetic management in children with tracheal compression due to mediastinal tumours. Anesthesiology 1992;77:A1202.
8. Tempe DK, Arya R, Dubey S, Khanna S, Tomar AS, Grover V, *et al.* Mediastinal mass resection: Femorofemoral cardiopulmonary bypass before induction of anesthesia in the management of airway obstruction. J Cardiothorac Vasc Anesth 2001;15:233-6.