

AN ATYPICAL PRESENTATION OF SPONTANEOUS ESOPHAGEAL PERFORATION IN CHILDREN

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Introduction

Oesophageal perforation is a rare condition, especially in the paediatric population. Spontaneous oesophageal perforation (Boerhaave's syndrome) is rarer still and may present differently in children compared to adults. We report a case of oesophageal perforation mimicking the presentation of an empyema thoracis

Case Summary

A 2-year-old boy presented with one week history of cough and unwell, followed by fever for 3 days, with dyspnea, reduced appetite and lethargy for 1 day. He had an episode of post-tussive vomiting which was not forceful. He had history of General Practitioner (GP) visit 5 days prior to admission which he completed 5 days of oral antibiotics, however symptoms persisted. There are no history of trauma, choking or foreign body ingestion.

On clinical examination, patient was tachypneic with nasal flaring, subcostal and intercostal recessions. His vital signs were Temperature 37.5°C, Blood Pressure 94/48mmHg, Heart Rate 155 beats per minute, Respiratory Rate 40 breaths/min, SPO2 90% under room air. There was reduced air entry at the right chest wall with dullness on percussion.

Blood investigation showed his haemoglobin level was 7.3g/dL, total white cell 22.7x10⁹/L, platelet 445 x10⁹/L. His renal profile showed Urea 3.2 mmol/L, Creatinine 28 umol/L, Sodium 137 mmol/L and Potassium 3.8 mmol/L. CRP was 189 and ESR was 84. Chest x-ray on admission shows hydropneumothorax over the whole right lung with tracheal deviation. Lateral decubitus chest-x-ray showed right hydropneumothorax with massive air fluid level. Ultrasound of the thorax demonstrated large right hydropneumothorax with thick moving echogenic debris. A chest computerized tomography showed right huge pleural empyema with air fluid level.

Patient was diagnosed with empyema thoracis and managed with right chest drain, IV antibiotics and intrapleural urokinase. Due to no clinical improvement, oesophageal perforation was suspected and confirmed via esophagogram. Right thoracotomy was performed, with decortication and primary repair of the oesophageal perforation. Post-op esophagogram showed no anastomotic leak and the patient was extubated a week post-op. He was discharged 3 weeks post-op being able to feed with no fever or dyspnoea. The patient remained well on follow-up in clinic.



Figure 1: Chest X-ray showed right massive pleural effusion

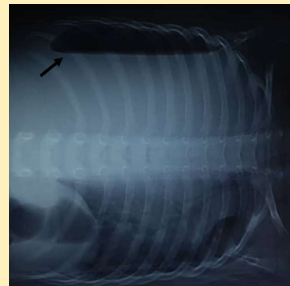


Figure 2: Lateral Decubitus chest X-ray showing air fluid level (arrow)

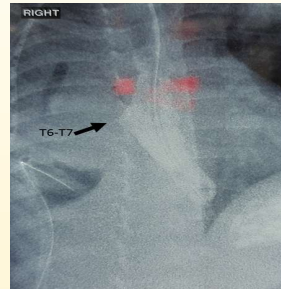


Figure 3: Esophagogram showed contrast leak at distal esophagus level T6-T7 (arrow)

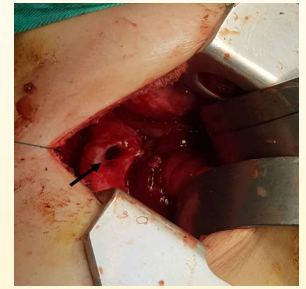


Figure 4: Thoracotomy showing site of esophageal perforation (arrow)

Discussion

Oesophageal perforation in children includes foreign body ingestion (e.g., button battery, coin), iatrogenic (e.g., nasogastric tube insertion, endotracheal intubation and stricture dilatation) and spontaneous oesophageal perforation or Boerhaave's syndrome.⁽⁵⁾ Spontaneous oesophageal perforation is a rare condition and one of the most lethal gastrointestinal tract disorders⁽²⁾. Spontaneous oesophageal perforation is caused by sudden raised intraoesophageal pressure due to forceful emesis. This occurs 50% in children due to raised oesophageal intraluminal pressure due to uncoordinated movements of the oesophagus during vomiting.

Oesophageal perforation in children predisposed to pneumothorax or hydrothorax in right thorax compared to adult, usually in left thorax. This is likely due to protection of aorta in children that adheres more closely to the oesophagus^(1,8).

Compared to adult, children have a better prognosis with modern investigations and treatment. In adults, early diagnosis of oesophageal perforation is important^(2,6).

This can be managed conservatively^(3,5). Conservative approach may be applied to perforation with small defects, contamination limited to mediastinum, and late diagnosis. However, operative intervention with primary closure is the main treatment of choice^(4,7). This should be accompanied by debridement and cleansing of thoracic cavity to avoid empyema, oesophagocutaneous fistula and sepsis⁽²⁾.

Conclusion

Presentation of oesophageal perforation in children is different compared to adults. The diagnosis needs to be considered as a differential diagnosis in children with empyema thoracis with massive hydropneumothorax. Lateral decubitus chest x-ray and esophagogram is useful for diagnosis. Primary repair of the perforated oesophagus is a feasible option of management of this condition.

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