Acute gastric distension: a lesson from the classics

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Acute gastrothorax may masquerade as a tension pneumothorax. Once the diagnosis is suspected, a nasogastric tube should be passed to release the gastric distension and confirm the diagnosis (Fein et al, 1993). This article describes a case where, despite having made the correct diagnosis, the authors were unable to pass a nasogastric tube in a child who was rapidly deteriorating.

CASE REPORT

A 5-year-old girl presented with the clinical and chest X-ray features of a pneumothorax on the left side. The history of minor abdominal trauma several days before admission and the absence of a gastric air bubble on closer inspection of the chest X-ray suggested a gastrothorax. An attempt to pass a nasogastric tube failed. The diagnosis of a gastrothorax was confirmed by computed tomography.

While being prepared for an upper gastrointestinal endoscopy to decompress the stomach, she rapidly deteriorated on the ward, with worsening respiratory distress and hypotension, suggesting increasing gastric distension. She was urgently transferred to the operating theatre, with an anaesthetic escort. On arrival in theatre, she was semi-conscious, with marked respiratory distress and absent peripheral pulses.

The dilemma was how to release the intrathoracic tension from the distended stomach. The options were:

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1. A further attempt to pass a nasogastric tube to release the intragastric pressure
2. An upper gastrointestinal (GI) endoscopy with sedation, possibly ketamine
3. Rapid sequence induction using ketamine and suxamethonium, followed by an upper GI endoscopy
4. Percutaneous needle drainage of the stomach, through the chest wall, under local anaesthesia.

Option 1 was discarded as it had failed before and might waste valuable time. Option 2 was discarded because the patient was in extremis and the sedation might worsen her already compromised respiratory function. Also, the patient's airway was unprotected and the intragastric contents were under pressure. She would be at risk of aspiration when the oesophageal end of the obstruction was released. Option 3 would have protected her airway but she was in extremis and it was felt she might deteriorate further with induction of anaesthesia.

Option 4 was carried out as a last resort. The skin over the left second intercostal space, midclavicular line, was identified and cleaned. After infiltration with 1% plain lignocaine, a 16 G intravenous cannula was inserted into the chest. A large volume of gas was released followed by gastric fluid under pressure. Further fluid was then aspirated using a syringe. A total of 700 ml of fluid were removed. There was an immediate improvement in the patient. Once stabilized, anaesthesia was induced with ketamine and suxamethonium, using a rapid sequence technique. At operation, she was found to have a congenital diaphragmatic hernia, with the stomach in her chest. There was a volvulus of the stomach, which explained the inability to pass a nasogastric tube and the failure of the stomach to empty normally. The hernia was repaired and she was transferred to the intensive care unit for postoperative care. She developed a pneumothorax on day five, which required chest drainage. She was discharged home on day 11.

DISCUSSION

The ideal procedure would have been to decompress the stomach via a nasogastric tube and then repair the congenital diaphragmatic hernia. Passage of a nasogastric tube produces immediate relief and it reduces the risk of regurgitation during induction of anaesthesia. In this case, this was not possible.

Attempted percutaneous drainage of a gastrothorax has been reported when it has been mistaken for a pneumothorax. This may result in the development of an empyema from pleural contamination, or a pneumothorax from lung trauma (Coren et al, 1997). We were therefore reluctant to drain it percutaneously. We were, however, reminded of Thomas Hardy's description of the percutaneous release of acute gastric distension in sheep, who had 'blasted themselves' on young clover (Hardy, 1874). As with our case, it was also life saving. HM

Coren ME, Rosenthal M, Bush A (1997) Congenital diaphragmatic hernia misdiagnosed as tension pneumothorax. *Pediatr Pulmonol* **24:** 119–21

Fein JA, Loiselle J, Eberlein S, Wiley JF, Bell LM (1993) Diaphragmatic hernia masquerading as pneumothorax in two toddlers. *Ann Emerg Med* **22:** 1221–4

Hardy T (1874) *Far from the Madding Crowd.* Penguin, London (reprinted 2000)

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