

Boerhaave syndrome

Fatt Yang Chew MD, Su-Tso Yang MD PhD

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A 46-year-old man presented to the emergency department having had 2 large, nonbloody vomits and abdominal pain over the preceding 3 hours. He had no history of gastroesophageal reflux disease or other relevant medical conditions. He had a 20-year history of drinking 10–15 cans of beer a week. On examination, his abdomen was rigid and tender in the left upper quadrant. Laboratory results showed elevated leukocytes at 13.8 (normal 4.5 – 11.5) $\times 10^9/L$ with 77.8% neutrophils and high sensitivity C-reactive protein of <0.02 (normal <0.80) mg/dL. A chest radiograph showed pneumomediastinum (Figure 1A), and a subsequent computed tomography scan of the patient's chest also showed pneumomediastinum and left hydropneumothorax (Figure 1B). We diagnosed Boerhaave syndrome, perforation of the esophagus.

The patient underwent esophageal repair and decortication of the pleura, with placement of a drainage gastrostomy and a feeding jejunostomy. During surgery, a 1.5 cm laceration was found at the lower thoracic esophagus (Appendix 1, available at www.cmaj.ca/lookup/doi/10.1503/cmaj.202893/tab-related-content). Sixteen days after his operation, we stopped jejunostomy feeds when evaluation by esophagography showed no contrast leakage from the repair site. Two months later, he had made a full recovery.

Epidemiological data regarding esophageal perforation are sparse. A nationwide study in Iceland reported an annual incidence of 3.1 per million people.¹ A careful history and examination may help determine the cause and site of perforation. A systematic review reported that the most common causes of oesophageal perforation are iatrogenic (46.5%), spontaneous (38%) and foreign body (6%).² More than 70% of perforations are thoracic, such as with our patient, and typical symptoms include acute epigastric and substernal chest pain, shortness of breath and subcutaneous emphysema, after forceful vomiting.^{2–4}

Boerhaave syndrome is a transmural perforation of the esophagus that differs from a Mallory–Weiss tear, which is a nonpenetrating mucosal laceration of the distal esophagus near the gastroesophageal junction.⁵ Both are more common in men who consume excessive

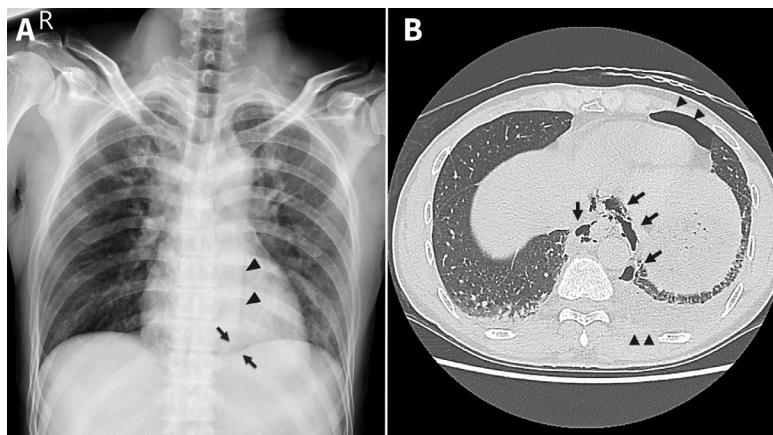


Figure 1: Boerhaave syndrome in a 46-year-old man. (A) Chest radiograph showing Naclerio's V sign, which is the presence of air outlining the left, lower, lateral mediastinal border (arrows), with periaortic air streaks lateral to the descending aorta and above the left diaphragm (arrowheads). Naclerio's V sign confirms pneumomediastinum. (B) Chest computed tomography scan showing pneumomediastinum (arrows) and left hydropneumothorax (arrowheads) suggestive of esophageal rupture.

alcohol and are linked to barotrauma of the esophagus; however, hematemesis is common in Mallory–Weiss, but not Boerhaave, syndrome.⁵ Treatment depends on the severity of the perforation, and case reports have described recovery after conservative, endoscopic and surgical intervention.³ The risk of death is about 13%.²

References

1. Vidarsdottir H, Blondal S, Alfredsson H, et al. Oesophageal perforations in Iceland: a whole population study on incidence, aetiology and surgical outcome. *Thorac Cardiovasc Surg* 2010;58:476–80.
2. Sdralis EIK, Petousis S, Rashid F, et al. Epidemiology, diagnosis, and management of esophageal perforations: systematic review. *Dis Esophagus* 2017;30:1–6.
3. de Schipper JP, Pull ter Gunne AF, Oostvogel HJM, et al. Spontaneous rupture of the oesophagus: Boerhaave's syndrome in 2008. Literature review and treatment algorithm. *Dig Surg* 2009;26:1–6.
4. Sancheti MS, Fernandez FG. Surgical management of esophageal perforation. *Oper Tech Thorac Cardiovasc Surg* 2016;20:234–50.
5. Cuccì M, Caputo F, Fraternali Orcioni G, et al. Transition of a Mallory–Weiss syndrome to a Boerhaave syndrome confirmed by anamnestic, necroscopic, and autopsy data: a case report. *Medicine (Baltimore)* 2018;97:e13191.

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Affiliations: Department of Medical Imaging (Chew, Yang), China Medical University Hospital and School of Chinese Medicine (Yang), College of Chinese Medicine, Taichung, Taiwan

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Correspondence to: Fatt Yang Chew, c_fyang@hotmail.com