

## Boerhaave's Syndrome

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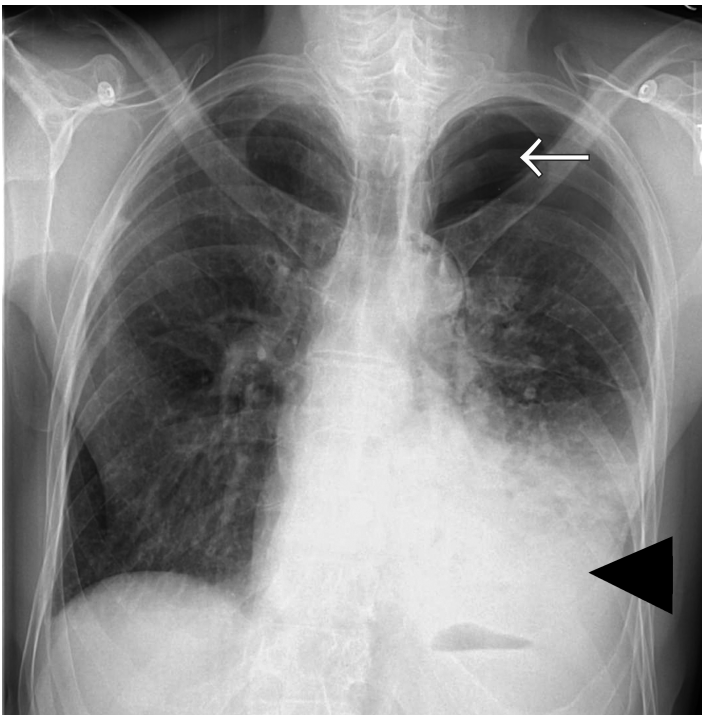
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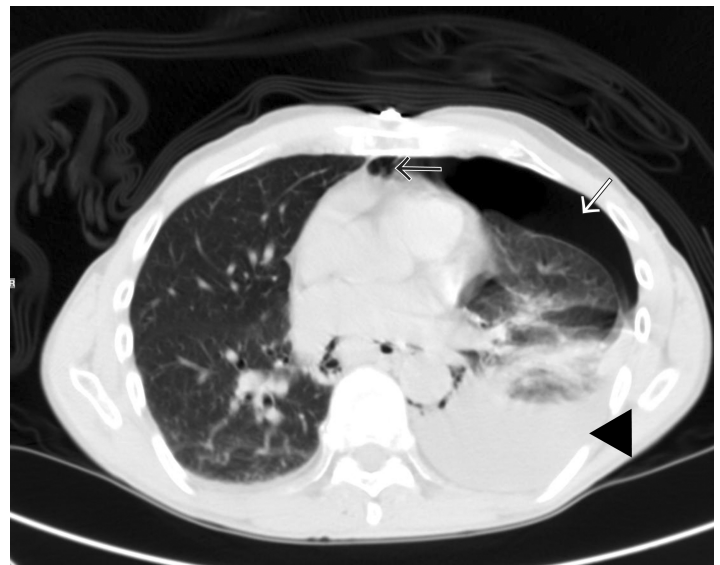
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**Figure 1.** Radiograph of left-sided pneumo-hydrothorax, where the black arrowhead indicates the hydrothorax and the white arrow indicates the pneumothorax.

A 66-year-old Caucasian male with no past medical history presented to the emergency department (ED) complaining of severe retrosternal pain, which began immediately prior to arrival following an episode of vomiting. The patient had symptoms including nausea, vomiting and generalized abdominal discomfort for three days prior. The patient had been evaluated by a primary care physician earlier the day of presentation and was diagnosed with gastroenteritis and possible early small bowel obstruction per computed tomography (CT) scan of the abdomen and pelvis. The patient was released home with anti-emetics. On presentation to the ED the patient was in moderate distress secondary to pain and hemodynamically stable. Physical exam was remarkable for absent breath sounds over the left hemithorax. Chest



**Figure 2.** Computed tomography of the chest with pneumo-hydrothorax and mediastinal air, where the black arrowhead indicates the hydrothorax, the white arrow indicates the pneumothorax, and the black arrow indicates the mediastinal air.

radiography revealed a left-sided pneumo-hydrothorax (Figure 1). Subsequent CT of the chest also demonstrated pneumo-hydrothorax, as well as mediastinal air (Figure 2). Laboratory studies showed normal comprehensive metabolic panel and coagulation profile; however, the CK-MB was elevated at 6.70 ng/ml (3.60-5.00), and a leukocytosis of 11.9 TH/ul (4.0-9.0). Electrocardiograph showed normal sinus rhythm with a ventricular rate of 87. A 28 French chest tube was inserted, draining 600 mL of dark blood-tinged fluid. Based on radiographic findings and clinical presentation, esophageal rupture was the primary diagnosis. The patient was transferred to a tertiary center where Boerhaave's was confirmed with a barium esophagram. Surgical repair was successfully performed.

Patients classically present with chest pain, vomiting and subcutaneous emphysema. Pain may radiate to the neck, arm or back and is aggravated by deep breathing or swallowing. A myriad of other findings may be present, including hoarseness,

JVD, and cyanosis. The Hamman crunch may be auscultated. A distinctive sound corresponding with each heartbeat is indicative of pneumomediastinum.<sup>1</sup> As time progresses, the clinical picture can be clouded by sepsis syndrome. Chest radiography is the preferred initial study and is most often abnormal, showing mediastinal or free peritoneal air. CT scan may reveal periesophageal fluid with possible air bubbles, pneumo-hydrothorax, esophageal wall edema, or widened mediastinum. Water-soluble esophagram is performed to confirm rupture; if negative, one should pursue a barium study treatment based on the location of the perforation. Thoracic esophageal perforations require surgical intervention within the first 24 hours involving mediastinal and chest drainage and esophageal repair. Cervical esophageal perforations can often be managed non-surgically.<sup>2</sup> Underlying esophageal disease may also influence the type of therapy, such that the treatment of the underlying process is included in the repair of the perforation. In one study morbidity and mortality of patients with underlying esophageal pathology were similar to patients without prior disease.<sup>3</sup> Concomitant therapies

include antibiotics, acid suppression, nasogastric suction and supplementation, such as total parenteral nutrition or enteral feeding.

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