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Spontaneous esophageal perforation presenting as pneumothorax: A Case Report

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Abstract

We describe a case of spontaneous esophageal perforation (Boerhaave's syndrome) that was admitted at our department with acute clinical symptoms: dyspnea, thoracic pain and vomit after episode of alcohol abuse. Pneumothorax was suspected: early chest X-rays revealed left sided pleural effusion with complete collapse of the omolateral lung and pneumomediastinum. Successive esophagoscopy showed a 1-cm longitudinal perforation on the left side of the lower esophagus. Perforation was repaired by direct suture and reinforced with endoprosthesis. Patient was discharged on the 45th postoperative day without complications occurred after 1-year period.

INTRODUCTION

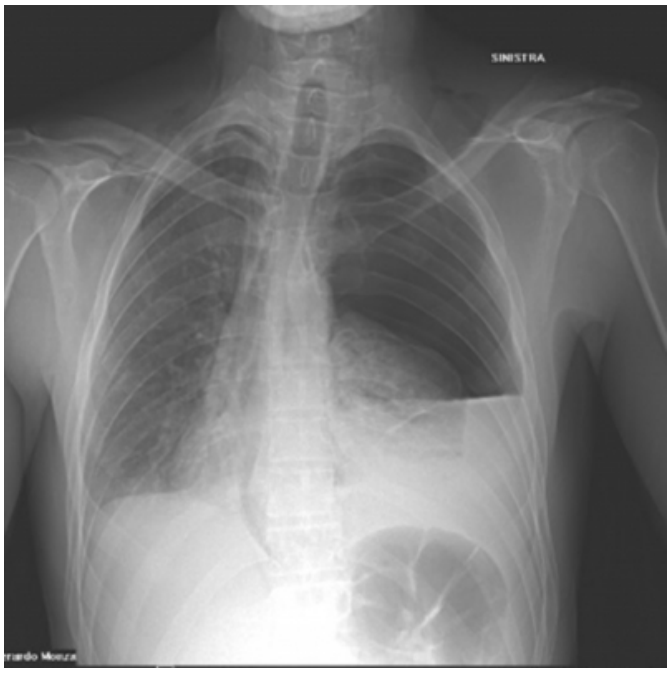
Spontaneous esophageal perforations are still potentially life-threatening associated with considerable mortality and morbidity. Surgical primary closure, with or without associated procedure of reinforce, represents the standard treatment option in the management of esophageal perforation and can reduce complications and morbidity[$_1$]. This case report represents a description of spontaneous esophageal perforation due to alcohol abuse, treated with primary surgical repair of the tear in combination with use of a removable stent.

CLINICAL SUMMARY

A 36-year-old man was admitted because of acute thoracic pain, dyspnea and vomiting followed by alcohol consumption. He had a 2-year history of alcohol abuse and hard smoking. On admission, he had tachycardia and fever (39.2°C) with 90/60 mmHg of blood pressure related to a septic shock. Haematological evaluations showed a white blood cell count of 18.500/mm³; hematocrit, 30.3%; haemoglobin, 10.6 g/dL and C-reactive protein, 10.52 mg/dL. Physical examination detected no ventilation on the left hemithorax. Chest roentgenogram uncovered left pneumothorax with complete collapse of the lung parenchyma, omolateral pleural effusion, pneumomediastinum and bilateral subcutaneous emphysema in the neck and right axillary region (Fig. 1).

Figure 1

Figure 1: Chest x-ray showing left pneumothorax with pleural effusion.

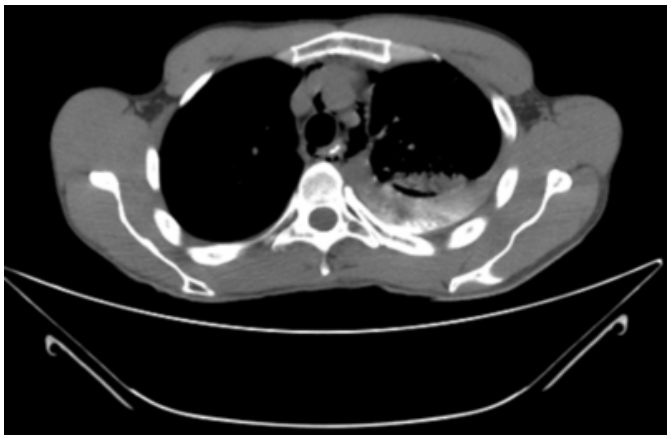


CT-scan executed with oral assumption of contrast medium revealed large extravasation of contrast into the left pleural cavity with evidence of severe esophageal perforation at the lower part on the left lateral side. It confirmed presence of air in the upper mediastinum, left pneumothorax and atelectasia of the inferior left pulmonary lobe and widespread bilateral subcutaneous emphysema suggesting an

esophageal perforation (Fig. 2).

Figure 2

Figure 2: CT-scan showing large extravasation of contrast into the left pleural cavity, esophageal perforation and oolateral pneumthorax.



Esophagoscopy confirmed the diagnosis: 1-cm longitudinal left-sided rupture was seen at the lower level of esophagus.

After obtaining a prompt and complete diagnosis, the patient was managed immediately in the operating room with a transthoracic primary closure of the perforation with insertion of an endoprosthesis and drainage of the septic effusion. Left thoracotomy approach was performed and remarkable mediastinitis with contamination of the pleural cavity were found. The perforation was clearly exposed and primary healing with preservation of the native esophagus was obtained by direct suture with separate stitches in reabsorbable 2-0 monolayer. Under videoendoscopic and radioscopy guidance a reinforcement of the area of leakage with an endoprosthesis was obtained. Mediastinum and pleural cavity were debrided, then irrigated with betadine and physiological solutions. Closure of the chest with two drainage tubes was provided, and esophagoscopy in the operating-room was executed to demonstrate no signs of fistula. Simultaneously, another surgeon operated a left minilaparotomy packaging a nutritional jejunostomy.

Time from injury to surgical primary repair was 12 hours. The operation time was about 3 hours. No complications occurred during procedure. Discharge from drainage tubes and fever decreased within the next 32 h with contemporary improvement of laboratory data: WBC count of 6.580/mm^3; hematocrit, 35.0%; hemoglobin, 12.5 g/dL and C-reactive protein, 5.8 mg/dL.

Thirty-seven days later esophagogram showed no finding of recurrence of perforation or infectious signs. Esophageal stent was easily removed and oral alimentation was restored. Patient was discharged on the 45 th postoperative day and no complications occurred after 1-year period.

COMMENT

Since Boerhaave first described esophageal perforation in 1724, it has remained a challenge for thoracic surgeons [2]. Spontaneous esophageal rupture is an uncommon and catastrophic thoracic event associated with significant mortality and morbidity that requires early diagnosis because it rapidly extendes to cause fatal mediastinitis and septic shock [3,4]. It continues to represent a diagnostic and therapeutic challenge despite decades of clinical experience and innovation in surgical technique [4]. The majority of spontaneous longitudinal tears in the esophagus are encountered most commonly in persons who have history of alcoholism, attributed to episodes of vomiting or gastroesophageal reflux in the onset of an alcoholic stupor [6]. Patients often present with non-specific complaints and subtle physical findings, making diagnosis difficult so that the problem frequently goes unrecognized until late in the clinical course [7].

When diagnosis is accurate, an aggressive surgical approach with primary closure of the lesion and drainage of the periesophageal space is the treatment of choice [8]. Prognosis depends essentially on the promptness of the diagnosis and on the type of first-line treatment. Delays in diagnosis and treatment are associated with increased morbidity and mortality [7,9].

Most of the time surgery procedure remains the preferential choice. Management of esophageal perforations has received considerable attention in the surgical literature but remains a highly controversial topic. Areas of controversy include (1) the role of nonoperative treatment versus surgical therapy; (2) the management of patients with delayed presentation; and (3) the type of surgical therapy to be performed, particularly whether drainage alone is adequate treatment. As described by other authors, we use a primary closure of esophagus even if it is more than 24h since perforations [10]. Although we managed our patient within 6h after onset, we inserted an endoprosthesis after performing a primary closure of the perforation because the esophageal tissue seemed to be edematous and too friable to only suture and the patient's condition was poor for septic disease. Contemporary use of endoprosthesis was performed in order to have a safe closure of the perforation and to achieve a rapid oral alimentation.

Primary repair and stent placement can represent a therapeutic optimal strategy in patients with poor general condition, in which the simple direct suture can't guarantee the safe reconstruction of the esophagus even if some doubts remain about the early displacement of the endoprothesis especially in case of difficult anchorage.

The combination of aggressive surgery and advances in critical care and antibiotics may explain the improved outcome, but morbidity remains high in patients whose treatment is delayed for over 24h [2].

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