

Case Report

Laparoscopic surgery by spontaneous rupture of the esophagus, a case report of treatment Boerhaave syndrome

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ABSTRACT

Spontaneous rupture of the esophagus, Boerhaave syndrome, is a rare pathology and emergency condition for the patient. Patient, 63-year-old, on the 6th day of the disease falls into the clinic, where a Boerhaave syndrome was diagnosed. Laparoscopic surgery was performed. Sanitation and drainage of the mediastinum, suturing of the perforation hole were performed. After the operation, a positive response to treatment was observed. A group of authors believes that a minimally invasive approach to the treatment of spontaneous esophageal rupture is the alternative method for patients with severe somatic status and a small perforated opening of the esophagus.

Keywords: Boerhaave syndrome, Laparoscopic fundoplication, Esophageal rupture

INTRODUCTION

Spontaneous rupture of the esophagus (Boerhaave syndrome) is quite a rare and severe pathology. This condition makes up about 15% of all esophagus rupture causes.¹ With the rapid development of mediastinitis and pleural empyema, early diagnosis of this pathology will play a decisive role in the possibility of saving the patient.

CASE REPORT

Patient, 63 years old, admitted to the intensive care unit of state clinic at 10.30 PM 14.03.2018 (DD.MM.YYYY) due to the severity of his condition.

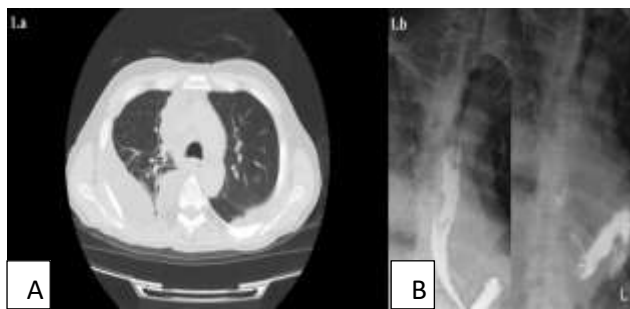
Considers himself ill since 09.03.2018, when complaints of vomiting and chest pain manifested. At 10.03.2018, the patient visited a general practitioner (GP), who

prescribed paracetamol. Despite of the drug treatment, the chest pain increased, dyspnea also manifested, the patient called the ambulance. The patient was taken to hospital, where the first incipient paroxysm of atrial fibrillation occurred. Chest computerized tomography (CT) showed the hydrothorax and a delimited pneumothorax on the right side (Figure 1A). In the intensive care unit, comprehensive detoxification and antibacterial therapy has been started. The chest X-ray and a contrast study of the esophagus confirmed hydrothorax on the right, mediastinitis caused by Boerhaave syndrome was suspected, although there was no leakage of contrast behind the contours of the esophagus (Figure 1B).

Esophagoscopy performed 15.03.2018 at 15:45, showed a deep linear defect in the mucosa of the cardio esophageal transition without signs of bleeding was revealed. Due to the uncertainty of clinical symptoms, as well as the

increasing abdominal pain, a decision was made on the advisability of diagnostic laparoscopy.

During revision of the abdominal cavity, effusion was not detected. The esophageal opening of the diaphragm and retroesophageal space were isolated, sagittal diaphragmotomy, revision of the mediastinum, in which inflammatory tissue infiltration, fibrin overlap was detected, were performed. After rehabilitation of the mediastinum (Figure 2A), a linear gap of up to 1.0 cm confirmed by intraoperative esophagoscopy (Figure 2B) was revealed in the lower third of the esophagus along the posterior wall. Esophageal perforation was sutured with an intracorporeal nodal suture (Figure 2C), and a circular high fundoplication cuff was formed to cover the suture line (Figure 2D). After additional debridement, two double-lumen drainages were installed to the upper chest aperture, brought out through the esophageal opening of the diaphragm to the anterior abdominal wall for active aspiration and debridement, as well as abdominal drainage. The patient was treated in the intensive care unit until stabilization, using extracorporeal detoxification, antibiotic therapy.



**Figure 1: (A) Chest CT before surgery.
(B) Contrast study of the esophagus before surgery.**

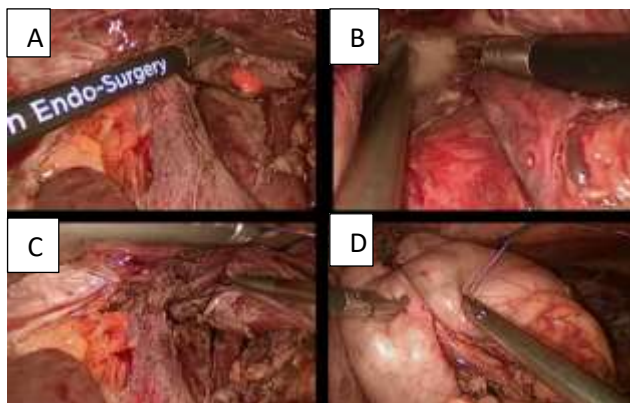


Figure 2: Intraoperative picture, (A) linear rupture of the posterior wall of the lower third part of the esophagus with diaphanoscopy with esophagoscopy, (B) evacuation of pus from the mediastinum, (C) suturing perforation of the esophagus, (D) Nissen cuff shaping.

During the treatment patient's physical status improved rapidly. On 4th December 2018, due to positive dynamics, the patient was discharged in satisfactory condition.

DISCUSSION

According to the articles, the lethality of this condition varies from 10-50%.¹ The high lethality is caused by the untimely diagnostic of the disease: the patients with such symptoms often admit to hospital with suspected acute coronary syndrome, pulmonary thromboembolism, lesion of the thoracic aortic aneurysm, pneumothorax and gastroduodenal ulcer perforation. Pate et al illustrated a 50% rate of wrong and late diagnostics of this condition.²

The majority of authors call that symptoms, including Macler's triad-vomiting, subcutaneous emphysema and severe chest pain, are not always present in patients with this pathology.¹

The main diagnostic tool is contrast enhanced esophagography using water soluble contrast agent, such as sodium amidotrizoate. This method is able to demonstrate the extravasation of the contrast agent around the lesion point. Endoscopic diagnostics should be used carefully because of the further esophagus perforation risk.

The surgical intervention, perforation suturing and the mediastinum rehabilitation is a duck of choice for Boerhaave syndrome treatment. The most used surgical techniques of treatment are thoracotomy or laparotomy, but it is important that thoracotomy can be fatal in patients with severe status. Depending on the location of perforation, laparoscopy can be used effectively in the distal esophagus, and thoracoscopy can be used effectively in other places.

Mikami et al reported the successful laparoscopic hand-assisted suturing of a perforated opening of the lower third of the esophagus on the left in 2016.³ In 2017, Cayci et al successfully rehabilitated and drained the paraesophageal space using the laparoscopic method, the perforated opening was closed endoscopically using a self-expanding stent.⁴ Elliott et al reported the results of minimally invasive surgical treatment of 10 patients with spontaneous rupture of the esophagus with 1 lethal outcome in 2018.⁵

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