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Case Report

Effort Rupture of Esophagus: One Case

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ABSTRACT

Effort rupture of the esophagus (Boerhaave's syndrome) is a spontaneous perforation of the esophagus that is most commonly results from a sudden increase in intra-esophageal pressure combined with negative intra-thoracic pressure caused by several causes. The patient was a 42 years old man with a major complaint of epigastric pain and fever after drinking 500 mL of 25% alcohol. An emergency laparotomy was performed under the diagnosis of gastric perforation, but the abdomen was immediately closed because of the absence of abnormalities. A fever of 38.6℃ and a dyspnea was found after 18 hr of lapse, a pleural drainage tube was performed after the test puncture, which showed the black-brown sticking pus. This patient was resuscitated by conservative treatment such as infusion, blood transfusion, and gastrostomy.

Keywords: Effort ruptures of the esophagus, Boerhaave's syndrome, Conservative treatment, Conventional treatment.

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INTRODUCTION

The effort rupture of esophagus means the esophageal pressure increases rapidly for several reasons, resulting in the perforation of the esophagus. This disease has so far been called Boerhaave's syndrome since it was first reported by Boerhaave in 1724. If the upper esophageal sphincter is not open or when there is spastic contraction in the upper esophagus, vomiting results in a rapid increase in intra-esophageal pressure, causing rupture of the esophageal whole layer. This is a very rare disease. Hence, it is easy to misdiagnose if you do not observe esophageal rupture in mind from the beginning, and it is often diagnosed during the treatment of other diseases, including the pyothorax.

Effort rupture of esophagus should be distinguished with thoracic disease (pyothorax, pneumothorax, pleurisy, pneumonia, myocardial infarction, and angina pectoris), acute abdomen (gastric and duodenal perforation, hemorrhagic gastric ulcer, chololithiasis, acute pancreatitis, perforation of the cardia-carcinoma) and so on. The absence of specific clinical symptoms is characterized by the delay of diagnosis and poor prognosis. We treat this disease in a conservative way and introduce our experience.

CASE REPORT

The patient was a 42-years-old man with a major complaint of epigastric pain and fever, when admitted to the emergency department with nausea and vomiting 6 hr after drinking 500 mL of 25% alcohol on August 6, 2020. An emergency laparotomy was performed under the diagnosis of gastric perforation, but the abdomen was immediately closed because of the absence of abnormalities, and after 18 hr, the left chest pain and hyperthermia caused a painful stinking discharge after the test puncture, done by the department of thoracic surgery. He had no history of hepatitis and tuberculosis. The vital signs at that time were blood pressure; 90/60 mmHg, pulse; 122/min, body temperature; 38.6°C, and respiratory rate; 24/min. The visual chest was normal, and there was upper abdominal surgical incision, with epigastric tenderness on palpation. On percussion, a tympanitic dullness was found in the left thorax. The presence of air-fluid level was found at the left pleural cavity 4 intercostal level on X-ray, the thoracic ultrasonography revealed a pleural thick fluid in the left pleural cavity at 4 intercostal level and the sinus tachycardia was noted on electrocardiography, with RBC-3.1*10^{12}/L, WBC-21*10^{9}/L(Differential Cell Count: eosinophil-2%, juvenile neutrophil-2%, band-neutrophil-18%, segmental neutrophil-48% and lymphocyte-30%), ESR-42mm/h in the laboratory test. The thoracostomy was performed at the left posterior axillary line 7th intercostal space, discharging 350 mL/d of black-brown sticking pus. Contrast radiography revealed contrast-leakage from the lower esophageal region to the left, confirming esophageal rupture (Figure 1). Esophageal endoscopy

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Figure 1: Contrast radiography shows contrast outflow from the lower esophageal region to the left.

showed 4 cm esophageal rupture in the 13-h direction of the callus.

Procedure

Nasogastric sonde insertion, Gastrostomy, Intravenous fluid (GIK), antibiotic use (penicillin 12 million IU/d, gentamicin 160 mg/d), acid-base balance and oxygen inhalation 5 L/min after diagnosis. On day 3, redness and enlargement was found in the peri-drainage chest wall, and there was hypothermia, tachycardia, toxinosis and nuclear shift to the left on laboratory test and one drain tube was added at 8 intercostal space on the posterior axillary line and oxygen infusion was increased by 8 L/min. Treatment was performed with conventional treatment, followed by infusion of plasma, blood transfusion (type O) and so on, discharging on day 28.

DISCUSSION

The effort rupture of esophagus (Boerhaave's syndrome) is a rare disease that occurs when lower esophageal pressure and intrathoracic negative pressure increase by excessive drinking or vomiting (83.6%),[1-3] and may be misdiagnosed, causing delayed treatment, and poor prognosis. Other causes include caustic esophagitis, Barrett esophagitis, and ulcers. Besides, constipation, delivery, epileptic seizures, etc. are also attracted. Usually, when a person vomits, the whole esophagus opens, and the contents in the stomach rapidly come up into the mouth. The pressure causing esophageal rupture is estimated to be 1.33-4.4 kPa/cm^2 (10-33 mmHg/cm^2) and an average of 2.58 kPa/cm^2 (19.27 mmHg/cm^2). The incidence of esophageal rupture is 92.5% in men and 7.5% in women, overwhelmingly high for men. The site of rupture is most frequently at the lower thoracic esophagus right above the diaphragm with 89%, left esophageal wall rupture with 63.6%, somewhat more than the right. The length of the esophageal rupture is 2-13 cm, mostly 2-4 cm in common, and the rupture direction spans linearly along the esophageal major axis. Due to the lack of specific clinical symptoms, it may be contribute to a delay in diagnosis and a poor outcome.[4] The effort rupture of esophagus is a rare disease, which has not yet been standardized,[5,6] and conservative therapy has been widely applied.[7] In the present case, an emergency laparotomy was performed under the diagnosis of gastric perforation, but the abdomen was immediately closed because of the absence of abnormalities. A fever of 38.6°C and a dyspnea was found after 18 hr of lapse, a pleural drainage tube was performed after the test puncture, which showed the black-brown sticking pus. This patient was resuscitated by conservative treatment such as infusion, blood transfusion, and gastrostomy.

CONCLUSION

Spontaneous effort rupture of esophagus can be treated, even with conventional treatment, and that it can only be effective when actively treated.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

ETHICAL APPROVAL

All procedures performed in this study were in accordance with the ethical standards of the Ministry of Public Health, DPRK.

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Nil

ABBREVIATIONS

Nil

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