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Successful primary repair in a late presentation of Boerhaave's syndrome.

Case report

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Successful primary repair in a late presentation of Boerhaave's syndrome. Case report

We present a case of Boerhaave's syndrome successfully managed by open transabdominal approach 48 h after the acute event. A 55-year-old female presented with hydropneumothorax, chest pain, dyspnea, vomiting and fever. The urgent radiologic (X-ray, CT) and endoscopic study revealed the large defect of left posterolateral wall of esophagus with extrusion of fluid and gastric contents into the mediastinum and left chest. Emergency intercostal drainage insertion was performed and patient was transferred to our hospital. By open transabdominal approach after the wide sagittal diaphragmotomy the primary repair over the nasogastric tube using simple interrupted sutures (Vicryl 3/0) and partial fundoplication to cover the suture line was performed. Chest drainage tubes was then positioned near and parallel to the repaired esophagus and feeding jejunostomy was then performed for enteral nutrition. On the seventh postoperative day, a gastrografin swallow showed a small leak in the repair site without any collection, which was healed after 1,5 month of conservative treatment. We consider, that proactive surgical approach with primary surgical repair is still possible and feasible option despite the late presentation of Boerhaave's syndrome.

KEY WORDS: Active drainage, Boerhaave's syndrome, Primary repair

Introduction

Complete transmural perforation of the esophagus was first described in 1724 by Dutch physician Herman Boerhaave, who called this disorder as fatal disease of esophagus. The first successful surgical therapy was accomplished by N. Fink in 1941 with drainage of left pleural cavity alone and only more than 200 years after the first description of this pathology the first successful operation of spontaneous perforation of the esophagus was performed by N. Barrett in 1947 [1,2]. Boerhaave's syndrome, spontaneous or idiophatic esophageal rupture, is a rare clinical entity and a life-threatening condition characterized by the complete transmural disruption of the distal esophagus due to forceful emesis and vomiting-induced sharp and major increase in the internal esophageal pressure. Up to end of 20th century a little more than 300 documented cases of Boerhaave's syndrome were reported in the world literature. Despite the fact that in that event the classical clinical scenario is well known and mainly presented with chest pain, subcutaneous emphysema, pneumomediastinum and a left-sided pleural effusion, the timely diagnostics is still problematic and resulting in delay of prompt and appropriate treatment. It should be noted also, that in recent years there are several reports in literature describing the presentation of Boerhaave's syndrome with a right-sided pleural effusion [3-7]. Herein, we present an successful approach with surgical treatment of a late case of Boerhaave's syndrome with perforation of the mid-esophagus, which involved primary surgical repair of the site of perforation and active drainage procedure.

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Case Report

An 55 year-old female presented to the emergency department of another hospital with complaints of chest pain, dyspnea, vomiting and fever. Chest X-ray and computed tomography (CT) scan of the chest with oral contrast revealed pneumomediastinum, free contrast extravasation from the middle third of the esophagus into the left pleural space and mediastinum with left-sided pleural effusion (Fig. 1). The esophagogastroduodenoscopy (EGD) showed an obvious perforation and a big defect of left posterolateral aspect of esophagus with extrusion of fluid and gastric contents into the mediastinum and left chest (Fig. 2). Emergency intercostal drainage insertion was performed and patient was transferred to our hospital for further care. The patient was febrile, with a temperature of 38.7 °C, and leukocyte count on admission was 18×109/L. The patient was taken to the operating room 48 h after the acute event and a upper midline laparotomy was performed. After the exploration of the abdominal cavity and performing the sagittal diaphragmotomy the posterior mediastinum was then widely opened. The esophageal longitudinal large tear site was identified on the left posterolateral wall, having a length of 7-8 cm just above the esophageal hiatus. After the acceptable mobilization of the esophagus with some technical difficulties because of adhesions, inflammation and infiltration changes of tissues one-layer repair over the nasogastric tube using simple interrupted sutures (Vicryl 3/0) and partial fundoplication to cover the suture line was performed. Mediastinum and chest

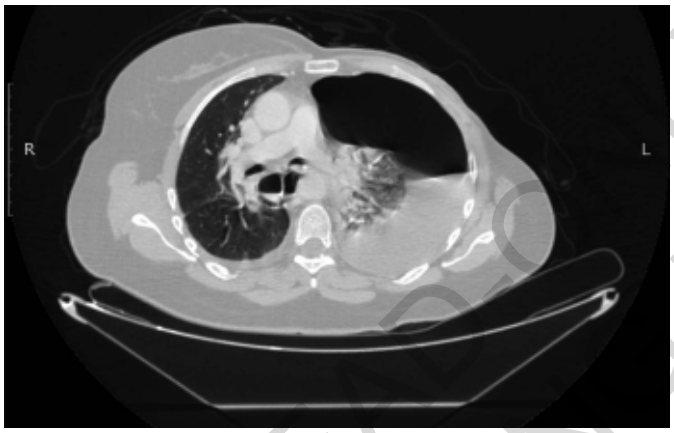

Fig. 1: Chest CT showing pneumomediastinum and free contrast extravasation into the left pleural space.

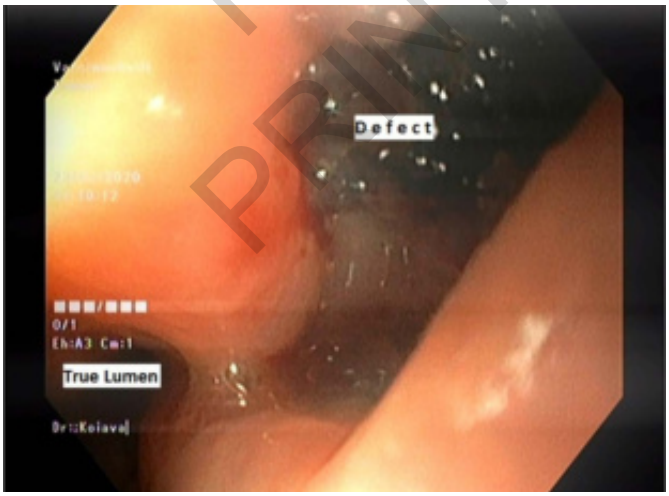

Fig. 2: Urgent EGD scopy showing big esophageal wall defect.

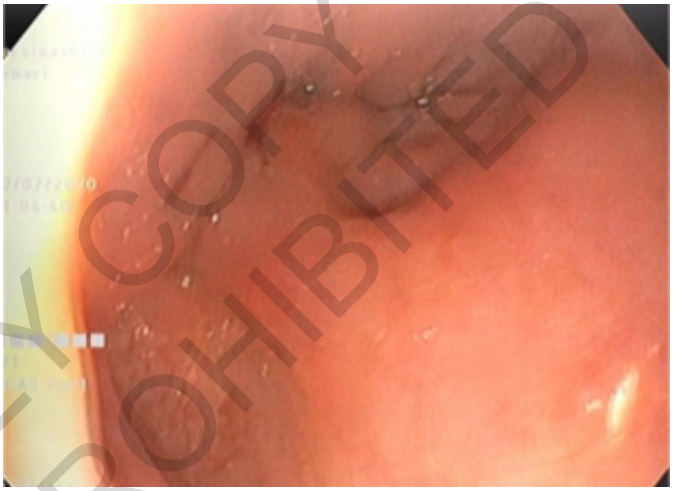

Fig. 3: EGD scopy 3 month after surgery showing healed perforation.

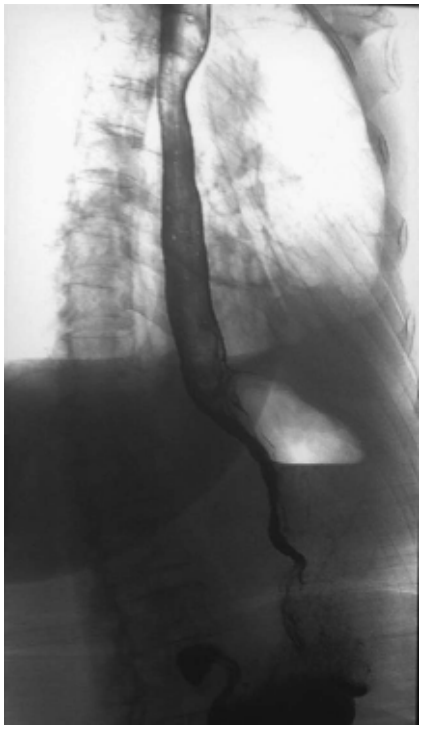

Fig. 4: X-ray study 3 month after surgery showing free flow of contrast without any extravasation.

drainage tubes was then positioned near and parallel to the repaired esophagus. A feeding jejunostomy was then performed and the abdominal wall was closed in layers. Postoperative treatment with broad-spectrum antibiotics was continued. Gastric decompression was performed by using nasogastric tube and enteral nutrition through jejunostomy feeding was started on the second postoperative day. On the seventh postoperative day, a gastrografin swallow showed a small leak in the repair site without any collection. On the 21th postoperative day because of mechanical obstruction the surgical intervention with correction of feeding jejunostomy tube was performed. Full parenteral and jejunostomy feeding as well as active drainage were continued. At 1,5 month after the surgery the repeated X-ray study showed free flow of contrast from the esophagus into the stomach, without any extravasation. The patient was then started on oral feeding and was discharged to home. At 3 month after surgery the control endoscopic and X-ray study not revealed any pathology and at the present time she is eating a normal diet and her 6 month follow-up period is uneventful (Figs. 3, 4).

Discussion

Boerhaave's syndrome, or spontaneous transmural esophageal rupture is a rare, but life-threatening condition, which still today remains as unsolved problem for surgeons as for early and proper diagnosis as well for timely appropriate treatment. When the Boerhaave syndrome is diagnosed, surgery should be performed within the first 24 hours, as with delayed surgical treatment the mortality rates >56% after 24 h and 75-89% after 48 h have been reported and if left untreated, the mortality reaches 100% [7-10,23]. In such events there are proposed a wide spectrum of different surgical options of treatment: from primary repair, controlled fistula, exclusion and diversion to esophagectomy with esophagoplasty. In the recent years there have been several reports of the management of Boerhaave's syndrome by means of endoscopic stent insertion or using the minimally invasive surgical procedures [11-19]. However, at the present time the open primary repair and active adequate drainage are commonly accepted as the gold standard method of treatment for this condition, especially when esophageal rupture is diagnosed within 24 h [7-9,20-23]. Furthermore it should be remembered the very unusual case of successful primary repair one month after the esophageal perforation, which recently have been reported [23]. However, for the cases of late perforation the optimal treatment strategy still remain controversial and primary surgical repair is considered as hazardous procedure because of high expectancy of esophageal leakage. But it should be noted, that leakage may occur despite meticulous and precise surgical suturing of esophageal perforation and in that situation the adequate surgical drainage is the mainstream treatment method of complex therapy, which was carry out in our present case. The GI tract decompression and nutritional support are also very important factors of postoperative treatment policy, which also was realized in our case via nasogastric tube and feeding jejunostomy.

Conclusions

Our case illustrate that in the situation of delayed surgical treatment it should be used personalized and procedure-specific individual approach, because there is no generally accepted and universal surgical intervention for late perforation. We consider, that proactive surgical approach with primary surgical repair is still possible and feasible option despite the late presentation of Boerhaave's syndrome regardless the time interval of the onset of the event and surgical intervention.
Hence, in our opinion, in such cases the successful surgical strategy must include the following basic principles: nil-per-os status, good exposure, primary repair of the esophagus, adequate active drainage around the repair, decompression of the esophagus and stomach (via nasogastric tube) and distal enteral nutrition (feeding jejunostomy).

Riassunto

Presentiamo un caso di sindrome di Boerhaave gestita con successo 48 ore dopo l'evento acuto mediante approccio transaddominale aperto. Una donna di 55 anni presentava idropneumotorace, dolore toracico, dispnea, vomito e febbre. Lo studio radiologico in urgenza (raggi X, TC) ed endoscopico ha dimostrato la grande soluzione di continuo nella parete posterolaterale sinistra dell'esofago con estrusione di contenuto fluido e gastrico nel mediastino e nell'emitorace sinistro. È stato eseguito l'inserimento di un drenaggio intercostale di emergenza e la paziente è stata trasferita al nostro ospedale. Dopo ampia diaframmotomia sagittale, per via transaddominale open, è stata eseguita una riparazione primaria su sondino nasogastrico utilizzando semplici suture interrotte (Vicryl 3/0) e una fundoplicatio parziale per coprire la linea di sutura. Quindi sono stati posizionati vicino e paralleli all'esofago riparato i tubi di drenaggio toracico ed è stata eseguita una digiunostomia per proseguire con nutrizione enterale. Una esofagografia con gastrografin in settima giornata postoperatoria ha mostrato una piccola perdita nel sito di riparazione, senza alcuna raccolta, che è guarita dopo 1,5 mesi di trattamento conservativo. Secondo noi, l'approccio per una riparazione chirurgica primaria immediata – entro 48 ore – è ancora possibile e un'opzione fattibile nonostante la presentazione tardiva della sindrome di Boerhaave.

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