SPONTANEOUS PERFORATION OF A PEPTIC ESOPHAGEAL STRICTURE

G. Yankov¹, Y. Yamakova², B. Vladimirov³, E. Mekov¹, M. Kovacheva³, F. Abedinov², R. Petkov¹

¹Department of Pulmonary Diseases, Medical Faculty, Medical University – Sofia, Bulgaria

²Department of Anesthesiology and Intensive Care, Medical Faculty, Medical University – Sofia, Bulgaria

³Department of Gastroenterology, Medical Faculty, Medical University – Sofia, Bulgaria

Abstract. *Surgical interventions for intractable and unamenable for dilatation peptic esophageal strictures could sometimes be difficult and challenging. Esophageal perforation management depends on many factors such as underlying esophageal disease, location and cause of perforation, age, overall condition, comorbidities, and time from perforation to presentation. Of great importance for the selection of technique is whether the esophagus is normal and it is worthwhile trying not to remove it or whether it is pathologically changed and it is reasonable to proceed with resection during the initial intervention. We present a patient who has undergone surgery several times in another hospital for perforation of peptic stricture in the distal part of the esophagus and esophageal diversion in its proximal part. Three months later, he was admitted to the Thoracic Surgery Department and resection of the excluded esophagus followed by thoracic duct ligation for chylothorax was performed. After another three months, retrosternal colon replacement and subsequent removal of the gastrostomy were performed.*

Key words: *Peptic stricture, esophageal perforation, esophageal resection, esophageal diversion, colon replacement*

Corresponding author: Evgeni Mekov, MHATPD "Sveta Sofia", 19 "Acad. Ivan Geshov" blvd., 1431 Sofia, Bulgaria. tel. +359 888 320 476, e-mail: evgeni.mekov@gmail.com

We present a case of a 52-year-old man who underwent three surgical procedures in another hospital for spontaneous perforation of peptic stricture in the distal part of the esophagus. The medical history was positive for gastroesophageal reflux disease for 10 years which was not treated. No other comorbidities were reported.

In the first intervention, a suture of the perforation and gastrostomy were performed. Three days later relaparotomy and antecolic gastroenterostomy were performed due to severe pyloric stenosis, which was not seen in the first intervention. Because of right-sided persistent pleural empyema and mediastinitis,

several thoracic drainages were placed in the right pleural cavity, and a week later a left-sided cervicotomy with an esophageal diversion was performed. The distal part of the cervical esophagus was closed and placed in the upper mediastinum, and the proximal part was taken out as a terminal cervical esophagostomy. A severe postoperative period was followed. Three months later the patient was admitted to the Thoracic Surgery Department.

The patient's overall condition was impaired with intoxication and malnutrition (Fig. 1). Chest CT (Fig. 2) showed partial resection of the 8th rib and postoperative changes of the 9th rib on the right. An ir-

regular postoperative pleural thickening in the costo-diaphragmatic recess adjacent to the described bone changes and a pleural collection 24/76/28 mm with an elevation of the right diaphragm was also noted. Close to the first one and the pericardium, a second collection was noted with dimensions 50/24/25 mm. There was no evidence of focal and infiltrative changes in the lung parenchyma. One enlarged right bronchopulmonary lymph node up to 14 mm was found. The middle and lower third of the esophagus were with progradient circulatory wall thickening. A segment with a length of 15 cm was affected with distal bulb-like dilation and fluid retention in the lumen and no visible communication with the stomach lumen. Gastrostomy's tube in the stomach was present.

A subtotal esophagectomy was carried out. A right posterolateral thoracotomy was performed. The pleu-

ral cavity was obliterated due to massive adhesions between the lung and parietal pleura. Debridement, decortication of the lower lobe, and partial pleurectomy were carried out. Three encapsulated collections were opened and evacuated. The esophagus was slightly dilated predominantly in the proximal part and sclerotically altered in a distal direction. The esophagus was interrupted by a stapler near the gastroesophageal junction. The closed proximal part of the esophagus in a previous intervention was released from the surrounding tissues, and subtotally resected (Fig. 3 a,b). Inflammatory carinal and paraesophageal lymph nodes were excised.

Six days later, because of the persistence of the right chylothorax, a right-side posterolateral rethoracotomy, debridement, evacuation of chylothorax, and thoracic duct ligation were performed (Fig. 4). Hyal-

Fig. 1. The patient on admission

Fig. 2. Chest CT on admission

Fig. 3. **A** – Operative view of mobilized and **B** – transected esophagus in gastroesophageal junction

orrhea from a medium-sized branch of ductus thoracicus was found at the level of the carina. The thoracic duct was localized in the supradiaphragmatic area and was ligated by two ligatures.

Fig. 4. Evacuation of the chylothorax

Three months later, the patient was admitted to our department for the second time and a retrosternal colon replacement was performed (Fig. 5). Upper medial laparotomy was carried out, continued as lower. Massive adhesions were noted from the liver to the stomach and previous antecolic gastroen-

Fig. 5. Preparation for retrosternal colon replacement

teroanastomosis with Brown anastomosis, omentum, small intestine, and colon, around the previous gastrostomy and parietal peritoneum. A total debridement with omentectomy was performed. The descending, transverse, and a portion of the ascending colon with feeding left colic artery were mobilized by preparing a graft for neoesophagus. A typical appendectomy and a left cervicotomy around the previously esophagostomy were performed. The isoperistaltic graft was pulled-up by the retrosternal route and a terminal-lateral esophagocoloanastomosis was carried out. In the abdominal cavity, a terminal-lateral cologastroanastomosis was performed at the anterior stomach wall. The colonic continuity was reconstructed with a terminal-terminal ascendo-sygmo anastomosis.

One month later, the patient was admitted to the department for the third time and removal of the gastrostomy was performed. Fig. 6 shows the contrast esophagography one year later.

DISCUSSION

Benign peptic esophageal strictures represent 23% of all strictures [1]. Endoscopic dilation is successful in 95% of cases [2]. Esophageal perforations are divided into spontaneous (after vomiting or nausea), iatrogenic (after endoscopy, transesophageal echocardiography, dilation, intubation attempts) and caused by foreign bodies [3], and are associated with higher

Fig. 6. Contrast X-Ray one year later

morbidity and mortality [4]. Iatrogenic perforation may occur during dilation, while spontaneous perforations based on peptic strictures are extremely rare. For perforations in the distal part of the esophagus, Thal [5] or Woodward modification [6] procedures are recommended to avoid resection. We successfully resected the proximally excluded esophagus and sanitized the residual pleural collections. The postoperative chylothorax resulting from a lesion of a thoracic duct's branch and possibly caused by acute esophageal dissection was successfully resolved by subsequent re-thoracotomy. The continuity of the digestive tract was restored using retrosternal colon replacement without complications.

We believe that suture attempts on such perforations are doomed to failure, both because of the stenosis aggravation and possible suture insufficiency. Esophageal diversion is indicated in adults and severely impaired patients who are not suitable for resection. Diversion only in the proximal part is extremely risky and dangerous. The gastroesophageal junction must necessarily be interrupted by ligation or stapler. We prefer to perform esophageal resection in such cases. If the patient is severely impaired, replacement of

the esophagus with a stomach or intestinal interposition could be performed at another stage.

Disclosure summary: *The authors have nothing to disclose.*

REFERENCES

1. Braghetto I, Csendes A, Burdiles P et al. Barret's oesophagus complicated with stricture: correlation between classification and the results of the different therapeutic options. *World J Surg* 2002;26(10):1228-33.
2. Pearson FG, Cooper JD, Patterson GA et al. Gastroplasty and fundoplication for complex reflux problems. *Ann Surg* 1987; 206:473-81.
3. Minnich DJ, Yu P, Bryant AS et al. Management of thoracic perforations. *Eur J Cardiothorac Surg* 2011;40(4):931-7.
4. Kaman L, Iqbal J, Kundil B, Kochhar R. Management of Esophageal Perforation in Adults. *Gastroenterology Res* 2010;3(6):235-44.
5. Thal AP. A unified approach to surgical problems of the esophagogastric junction. *Ann Surg* 1968;168:542-50.
6. Hollenbeck JI, Woodward ER. Treatment of peptic esophageal stricture with combined fundic patch-fundoplication. *Ann Surg* 1975;182:472-7.

Received: 10 June 2020, **Accepted:** 10 July 2020