

COMPLICATIONS AFTER ESOPHAGEAL RESECTION DUE TO SQUAMOUS CELL CARCINOMA

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ABSTRACT

Esophagectomy remains the leading treatment option for esophageal cancer. Surgical interventions are extremely difficult and technically challenging. Techniques in both resection and reconstruction are complex. The results of surgical treatment are constantly improving. Anastomotic leakage and graft necrosis with subsequent perforation are common surgical complications. We present a case of a patient with squamous cell carcinoma in the lower third of the esophagus. Transthoracic esophageal resection and Ivor-Lewis gastroesophagoplasty were performed. Complications followed, which were successfully treated. The patient underwent adjuvant chemotherapy and radiation therapy and is currently prepared for coloesophagoplasty.

KEYWORDS : Esophageal carcinoma; Complications; Intrathoracic stomach necrosis and perforation; esophageal resection

INTRODUCTION

Esophagectomy remains the leading treatment option for esophageal cancer. In recent years, minimally invasive techniques are performed in early-diagnosed cases. The rate of postoperative complications and deaths following oesophagectomy for cancer has fallen steadily over the past five decades but long-term survival remains disappointing [1]. Esophagectomy is a highly invasive procedure with several serious postoperative complications, including pneumonia, anastomotic leakage, and recurrent laryngeal nerve paralysis and may result in multiorgan failure [2, 3]. Herein, we present a case of an elderly patient with a series of complications in the early postoperative period after transthoracic esophageal resection and Ivor-Lewis gastroesophagoplasty, which were successfully treated.

CASE STUDY

A 70-year-old woman was admitted to the Department of Thoracic Surgery due to complaints of difficulty in swallowing of solid and liquid food and weight loss of 7 kg in the last few months. During an upper endoscopy was observed a rigid polypoid formation with contact bleeding in the distal esophagus, making it impossible to pass the endoscope through the esophagus. We verified histologically grade 2 highly differentiated squamous cell carcinoma with keratinization. Furthermore, we performed a computed tomography (CT). At CT (Figure 1) there was a concentrically thickened 52 mm long wall of the esophagus in the distal third of the esophagus. Locally, the front esophageal wall was 11 mm. The pathologically altered area was localized 15 mm cranially from the gastroesophageal junction and was hyperdense. There was an enlarged lymph node 16/8 mm at the level of hiatus esophagi and another 19/13 mm coronally from the middle group retrocardially. After a discussion with a medical oncologist and radiotherapist, surgery was the treatment of choice.

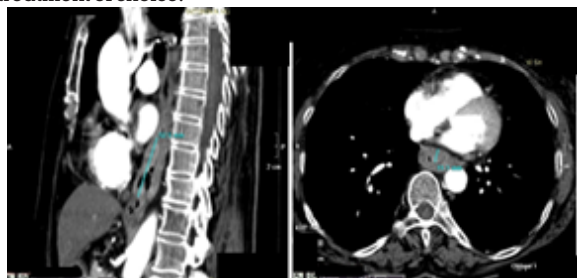


Figure 1. CT sagittal and axial imaging

We performed an upper median laparotomy and right lateral thoracotomy. A dense tumor formation 5/3 cm was found. It was localized about 2 cm above the gastroesophageal junction with proximal extension to the distal third of the esophagus. Suspected lymph nodes around the celiac trunk, arc of the hepatic artery and lienal artery were removed. A gastric tube was formed from the large curvature of the stomach after gastric mobilization (Figure 2).

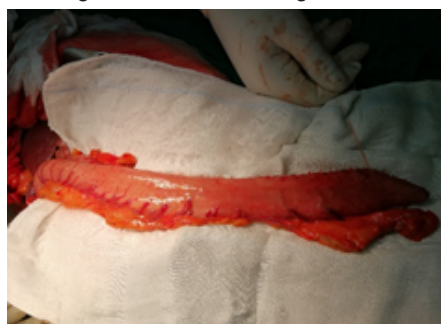


Figure 2. Gastric graft

Paratracheal, carinal and paraesophageal lymph nodes were removed, the latter being enlarged. We performed subtotal esophageal resection with Ivor-Lewis intrathoracic gastroesophagoplasty (Figure 3).

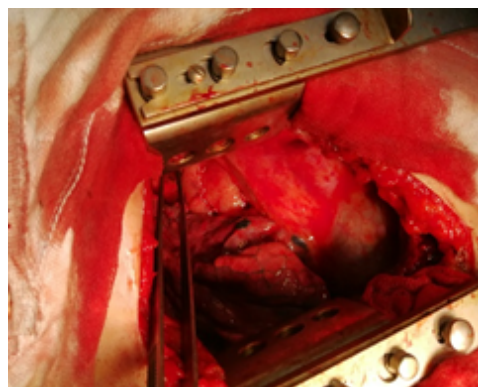


Figure 3. Gastroesophagoplasty

According to the final histological result the patient was diagnosed with pT3 N3 M0 R0 G2 moderately differentiated keratinizing squamous cell carcinoma of the esophagus with infiltration through the entire wall, and focal penetration into the adventitia (Figure 4).

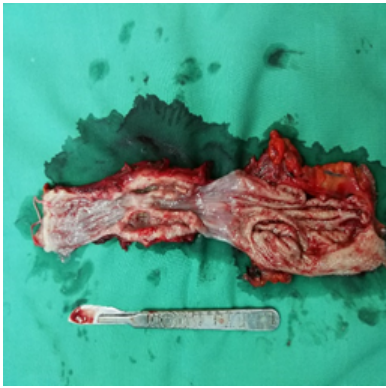


Figure 4. Gross specimen

On the ninth postoperative day, oral water-soluble contrast was given to the patient and fluoroscopically there was no evidence of extraluminal leakage of contrast material. On the 10th postoperative day the pleural drainage was removed after no abnormalities at chest X-ray were observed (Figure 5).

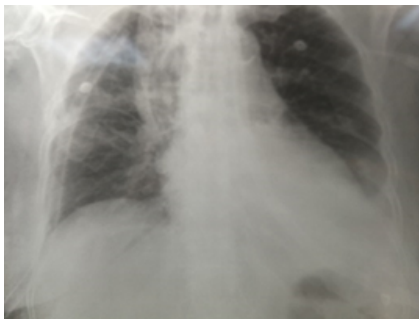


Figure 5. Chest X-ray with pleural drainage

On the 12th postoperative day, due to clinical and radiological evidence of pneumothorax on the right (Figure 6), a pleural catheter was placed again with little gastric contents being leaked.



Figure 6. Chest X-ray with pneumothorax

Due to the obvious signs of perforation of the intrathoracically located stomach, an immediate right rethoracotomy was performed. We found small gastric content and saliva mainly in the dorsal-apical parts of the right hemithorax, which were evacuated and followed by debridement. We observed a necrotic area 20/20 mm of the gastric tube located 2 cm below the anastomosis with perforation (Figure 7).

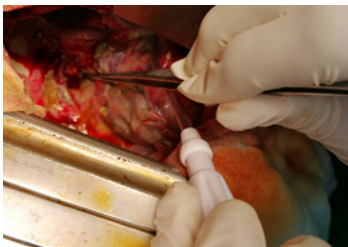


Figure 7. Necrosis and perforation of the graft

The remaining part of the intrathoracic esophagus was dissected and a total esophagectomy was performed. The

intrathoracic stomach was released from the mediastinum. Relaparotomy and partial debridement were performed. The proximal necrotic part of the stomach was resected, forming a terminal gastrostomy with a peccor catheter №32 to the left transrectally.

A left cervicotomy in front of the sternocleidomastoid muscle followed. A terminal esophagostomy using the proximal esophagus was performed. Ten days later, a re-relaparotomy was performed due to pain in the area of the gastrostomy and leakage of necrotic gastric secretions around it (Figure 8).



Figure 8. Gastric necrosis around the gastrostomy

By partial debridement, we found a necrotic area in the proximal part of the stomach around the gastrostomy, with no collection intraperitoneally. A degastrostomy was performed. Resection of the proximal part of the stomach to proximal subtotal gastrectomy was performed, preserving only the antrum. A duodenostomy was performed by inserting the peccor catheter into the descending part of the duodenum. The patient was followed-up for 1.5 years. During this period, he conducted 12 courses of chemotherapy and 6 courses of radiation therapy. We are aiming to perform colo-esophago-plasty.

DISCUSSION

Usually esophageal tumors are diagnosed as locally advanced cancer [4]. Esophageal resections due to cancer continue to be associated with high morbidity and mortality, especially in older patients. Esophagogastrectomy is associated with significant morbidity and mortality; however, the postoperative complications are not independent predictors of mortality [5]. In older patients, the incidence of complications in the early and late postoperative period is much higher, very often due to concomitant diseases. Studies suggest as risk factors for complications the presence of preoperative oncologic therapy and higher preoperative bleeding volume, but not sex or tumor stage [6]. Chemoradiotherapy is a risk factor for anastomotic leakage compared to chemotherapy; however, anastomotic leakage did not affect overall survival [7]. The rate of postoperative complications and mortality following esophagectomy for cancer has decreased over the past five decades but long-term survival remains rather low [1, 8]. Minimally invasive esophagectomy (MIE) includes a huge mix of several techniques including hybrid techniques, full MIE and robotic surgery [9]. While trimodality therapy for esophageal cancer has improved patient outcomes, surgical complication rates remain high [10]. Esophagectomy is a highly invasive procedure with several serious postoperative complications, including pneumonia, anastomotic leakage, and recurrent laryngeal nerve paralysis, perforation of the giant stress ulcer of the duodenum, axial hiatal hernia and late pleural hemorrhage [2, 3, 11-14]. In our case, an elderly patient underwent transthoracic esophageal resection and Ivor-Lewis gastroesophageal anastomosis due to moderately differentiated keratinizing squamous cell carcinoma of the esophagus with

infiltration through the entire wall, with focal penetration into the adventitia. However, series of complications in the early postoperative period followed. The observed perforation and necrosis on day 12 postoperatively were most probably due to ischemic changes in the stomach wall about 2 cm below the anastomosis, which are seen in older patients due to atherosclerosis of the vessels of the stomach. The subsequent necrosis of the stomach around the gastrostomy once again confirmed our opinion. Usually the necrosis of the graft is more extensive. After serious resuscitation care, both reoperations followed, the patient was fed through the newly formed duodenostomy and discharged in good condition. One month later, the patient underwent 12 courses of chemotherapy and 6 courses of radiation therapy. She was followed-up for 1.5 years as we were planning to prepare her for colon replacement. A multimodal approach has shifted to neoadjuvant treatment. In cases of squamous cell carcinoma, most oncologist advocate a definitive chemoradiotherapy as first line treatment and reserve surgery as a second therapeutic option in case of failure of the definitive chemoradiotherapy [4]. In our case, after a consilium with medical oncologist and radiotherapist, surgery was the treatment of choice due to the presentation of severe difficulty in swallowing and inability to eat, weight loss. We believe that preoperative therapy would worsen her condition. Improved survival is likely to be dependent on earlier diagnosis and adjunctive therapies [1].

CONCLUSIONS

Vast majority of esophageal tumor are locally advanced cancer at diagnosis. Esophagectomy remains the most important treatment option for esophageal cancer. Early diagnosis and multidisciplinary approach are paramount importance for reduction in postoperative morbidity.

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