

Single Case

Gastric Tube Ulcer that Could Be Saved by Early Conservative Treatment

Muneyuki Koyama^a Hiroaki Shiba^b Kazuki Takakura^c Yuto Yamahata^b
Sho Otsuka^b Minako Odaka^b Keisuke Takagi^b Yasuhiro Takano^a
Ken Eto^a

^aDepartment of Gastrointestinal Surgery, The Jikei University School of Medicine, Tokyo, Japan; ^bDepartment of Digestive Surgery, AOI Universal Hospital, Kawasaki, Japan; ^cUnMed Clinic Motomachi, Yokohama, Japan

Keywords

Esophageal cancer · Gastric tube ulcer · Conservative treatment

Abstract

The patient was an 81-year-old man who had received subtotal esophagectomy for esophageal cancer reconstructed by a gastric tube via a posterior mediastinal route. He presented to our emergency room with a complaint of epigastric pain and a small amount of hematemesis. Thoracoabdominal computed tomography showed that the reconstructed gastric tube was filled fluid and had irregular wall thickening. We suspected upper gastrointestinal bleeding, and we started to treat with administration of proton pump inhibitors (PPIs) since the anemia was mild and his vitals were stable. However, his anemia was rapidly progressed to Hb 6.0 with a large amount of old blood melena. The emergency gastroscopy showed an A2 stage ulcer with active oozing at middle esophagus reconstructed by a gastric tube. Therefore, we applied thrombin spray to treat the bleeding. Fortunately, his recovery was progressing nicely with medical treatments for a week. In this study, we experienced a case in which early administration of PPIs might be a key player to prevent his medical condition worsened further.

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Introduction

With advances in esophageal cancer treatment, the prognosis of postoperative patients with esophageal cancer has improved dramatically. As a result, reports of late complications, such as gastric tube ulcer, are increasing [1].

Correspondence to:
Muneyuki Koyama, takahadoctor@yahoo.co.jp

Gastric tube ulcers are ulcers that form in the reconstructed gastric tube. Their frequency is on the rise due to the improved prognosis of esophageal cancer patients and often occurs within 5 years after surgery. Because sympathetic afferent fibers are severed during gastric tube creation, patients with gastric tube ulcers usually have poor physical findings, and diagnosis based on physical findings alone is often difficult and treatment is delayed.

Hence, gastric tube ulcers often have a severe course with perforation or penetration of the adjacent organs such as the heart, aorta, and trachea [1–3]. We herein report the successful treated case of massive bleeding from an ulcer in the reconstructed gastric tube, treated with early administration of proton pump inhibitors (PPIs).

Case Report/Case Presentation

An 81-year-old man was emergent admitted to our hospital, due to epigastric pain and vomiting of a small amount of old blood. He underwent subtotal esophagectomy and reconstruction using a gastric tube via a posterior mediastinum for early esophageal cancer (Ut 0-Is cT1bN0M0 cStage I) at another hospital in 2012. The patient refused follow-up at the outpatient hospital 4 years after the surgery. He had a previous history of right thalamic hemorrhage and has hypertension, type 2 diabetes mellitus, and Parkinson's disease as concomitant diseases. No antiplatelet agents, anticoagulants, or NSAIDs were taken.

At the time of admission, his blood pressure was 115/76 mm Hg, and his pulse was 67 beats/min. Body temperature was 36.5°C. Abdominal examination revealed only very mild epigastric pain without rebound tenderness. Blood test revealed mild anemia, with 11.2 g/dL, and increased inflammatory response was observed with 9,600/ μ L.

Thoracoabdominal computed tomography (CT) showed that the reconstructed gastric tube was filled with fluid and showed irregular wall thickening (shown in Fig. 1). However, the bleeding site of the gastric tube and free air of abdomen were not detected.

With a diagnosis of upper gastrointestinal bleeding, and since the anemia was mild and his vitals were stable, we started to treat the patient with administration of PPIs while fasting. In the evening of the next day, a large amount of old blood melena was observed. His anemia was rapidly progressed to Hb 6.0, and we performed an emergent gastroscopy after administration of blood transfusion and hemostatic agents. The emergency gastroscopy showed an A2 stage ulcer with oozing was found in the middle of reconstructed gastric tube. We applied thrombin spray to stop the bleeding (shown in Fig. 2).

The patient continued to receive PPIs, and a follow-up gastroscopy was performed at one week after the first gastroscopy (shown in Fig. 3). The ulcer was improved to H1 stage, and

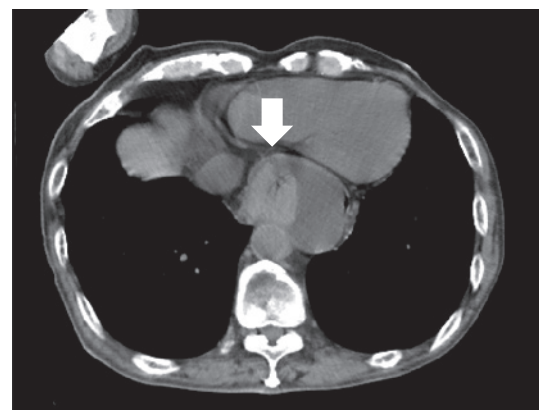


Fig. 1. CT findings. The reconstructed gastric tube was filled with fluid, and the esophageal wall was irregularly thickened.

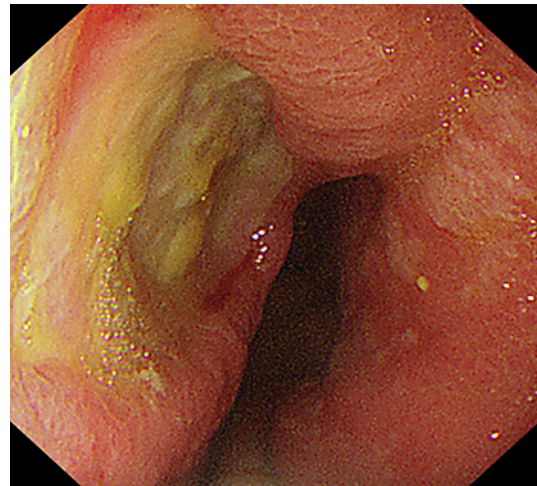


Fig. 2. First endoscopy findings. An A2 stage ulcer with oozing was found in the reconstructed gastric tube 30 cm from the incisor.

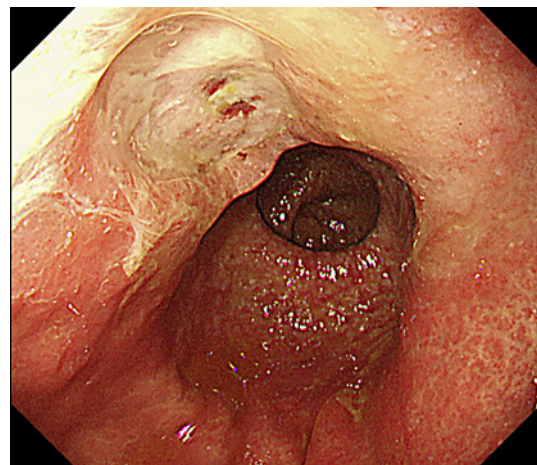


Fig. 3. Second endoscopy findings. The ulcer was reduced.

its size was reduced. A liquid diet was started on the same day. The patient made satisfactory recovery, was discharged on the 14th day after the first gastroscopy with good progress, and remains well without recurrence of the gastric tube ulcer.

Discussion/Conclusion

In recent years, the long-term prognosis of postoperative patients with esophageal cancer has improved by advances of surgical techniques and materials, pre- and postoperative chemotherapy, and peri-operative managements. Therefore, the incidence of the late complications after esophageal cancer surgery is increasing [1]. One of these complications is ulceration of the reconstructed gastric tube, which has been reported to cause severe complications such as intrathoracic perforation, pericardial perforation, and pyothorax [1–3]. In present case, we experienced successful treated case of active reconstructed gastric tube ulcer with massive bleeding by early administration of PPIs.

Although the incidence of reconstructed gastric tube ulceration varies from 6 to 19.4% [4], more than 80% of cases occur within 5 years after surgery [5]. The causes can be categorized into aggressive factors, protective factors, and others [2]. Aggressive factors include increased

gastric acid secretion due to stagnation of gastric contents caused by poor motility and residual gastric acid secretion not mediated by the vagus nerve, and protective factors include mucosal damage due to decreased blood flow, postoperative radiotherapy, oral administration of NSAIDs, *H. pylori* infection, and others, such as hypergastrinemia and gastric cancer, hypergastrinemia and flexion of the gastric tube. In present case, increased gastric acid secretion was possible main cause of active gastric tube ulcer, given that the findings of the thoracoabdominal CT scan showed a large amount of retained material, the endoscopy also showed a small amount of food residue, and the patient was not taking antiulcer medication prophylactically.

The physical findings of this patient with gastric tube ulcer include chest pain, back pain, anorexia, etc. Because the afferent fibers running in the sympathetic nerves are cut off during the creation of the gastric tube, gastric tube ulcer patients usually have few physical findings or are asymptomatic [6]. Therefore, diagnosis based on physical findings alone is often difficult. It has been reported that imaging tests are useful for diagnosis [7]. In the present case, thoracoabdominal CT showed findings suggestive of ulcer lesions in the gastric tube; on the other hand, the patient had only very mild epigastric pain and vomited a small amount of old blood.

A total of 23 cases of gastric tube ulcer have been reported in the Japanese literature from 2000 to 2020. The median time from surgery to ulcer development was 50 months, ranging from 10 months to 15 years. Even after surveillance is completed, there are reports recommending an endoscopy every 6 months to 1 year [8, 9]. The mortality rate of perforation or perforation in severe cases is more than 50% [3]. Therefore, it is necessary to be constantly vigilant against gastric tube ulcer. In addition, even if the vagus nerve is removed during surgery, the acidic environment in the gastric tube returns to the same state as before surgery within 3 years after surgery [10]. Therefore, it is desirable for patients with or without a history of gastric ulcer to take antiulcer drugs, mainly PPIs, prophylactically after surgery.

Conservative treatment such as PPI administration, fasting, discontinuation of NSAIDs, and eradication of *H. pylori* should be the first choice for treatment. In severe cases, perforation or penetration is reported to occur in 35% of cases of gastric tube ulcer [11], and surgical treatment such as open chest drainage or gastrectomy is often required. However, there is no guideline for the treatment of gastric tube ulcers, and it is reported that early detection and treatment of gastric tube ulcers are the best ways to prevent severe disease [7]. There were only two cases, including present case, in which acute bleeding was treated conservatively with early administration of PPIs and the patient survived, as far as we could find in the Japanese literature [12]. In these three cases, the diagnosis was made by CT imaging, and gastric acid secretion was promptly controlled by abstinence from food and drink and administration of antiulcer drugs. Antibiotics were also administered to control the infection.

In present case, the immediate administration of PPIs may have prevented perforation and penetration for other organs. If a gastric tube ulcer is suspected in a patient with a long-term course after esophageal cancer surgery, we should give the patient administration PPIs as early as possible for preventing severe complication due to perforation or penetration of gastric tube ulcer.

Statement of Ethics

In accordance with the Declaration of Helsinki, our performed study has been approved by the Ethics Committee of AOI universal hospital. ID; 91028118. Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

Muneyuki Koyama drafted the manuscript. Hiroaki Shiba and Kazuki Takakura supervised this study. Yuto Yamahata, Sho Otsuka, Minako Odaka, Keisuke Takagi, Yasuhiro Takano, and Ken Eto performed management of the patient, collected data, and reviewed and corrected the manuscript. All authors read and approved the final manuscript.

Data Availability Statement

All data generated or analyzed during this study are included in this article. Further inquiries can be directed to the corresponding author.

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