



Gastric conduit perforation induced by massive beer drinking

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Abstract: A 55-year-old man with a 4-year gastric conduit after esophagectomy presented to the Emergency Department with severe right chest pain and short of breaths following massive beer drinking. Chest film and computed tomography revealed right pneumo-hydrothorax. A total of 150 mL fresh blood was initially drained out via tube thoracostomy. On the third day, the drainage amount of right pleural fluid dramatically increased and its color changed to deep gray. Diagnosis of gastric conduit perforation was established. He underwent thoracoscopic decortication, repair of the retrosternal gastric conduit, and feeding jejunostomy on post-perforation day 4. Secondary repair of the perforation was performed via anterior thoracotomy because of re-leaks on post-perforation day 11. He underwent tracheostomy and esophageal stent on post-perforation day 33 because the perforation hole was still not healed. In the hospital course, he required 32-day ventilatory support because of respiratory failure resulted from bilateral pneumonia. He gradually recovered and was discharged on post-perforation day 63.

Keywords: Gastric conduit; perforation; esophageal reconstruction; esophageal cancer

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Introduction

Sequelae of gastric conduit could include ulcers, fistulae, and rare occurrence of perforations. Ulcer perforation of gastric conduit was rare. Ubukata *et al.* mentioned a total of 13 cases of gastric tube ulcer perforation following esophageal cancer surgery existed in the English literature from 1978 up to 2007 (1). Among the aforementioned 13 cases, 11 cases were gastric conduit fistula with great vessels, tracheobronchus, and other adjacent structures. Only two cases were definite gastric conduit ulcer perforation to thoracic cavity. Patil *et al.* reported a patient who developed a tension pneumothorax consequent to spontaneous ulcer perforation of the gastric conduit 7 years after esophagectomy (2). Here we report a unique case with spontaneous perforation of 4-year gastric conduit following massive beer drinking. Challenges of diagnosis and treatment of this case will be discussed.

Case presentation

A 55-year-old man had undergone thoracoscopic

esophagectomy and retrosternal pull-up of gastric conduit for esophageal cancer 4 years before this admission. He presented to the Emergency Department with severe right chest pain and short of breaths following a dinner and massive beer drinking. He was an active plate mold worker, but still had habit of alcohol drinking after the initial esophageal surgery. During regular follow-up in our out-patient clinic, repeated endoscopy always revealed superficial gastritis which was treated using Esomeprazole. The last esophagogastric endoscopy was performed 4 months ago, which revealed a shallow gastric ulcer. At the Emergency Department, the patient described that he ate regular food and drank 2,500 mL of beer at dinner time and followed by right chest pain at midnight when he was sleep. There was no significant vomiting at this episode. Chest film and computed tomography revealed right pneumo-hydrothorax. He underwent tube thoracostomy at the Emergency Department 8 hours after the onset of chest pain, 150 mL of fresh blood was initially drained out and total amount was 450 mL in the first 12 hours. The drained fluid gradually changed to pinkish in color. Unfortunately,

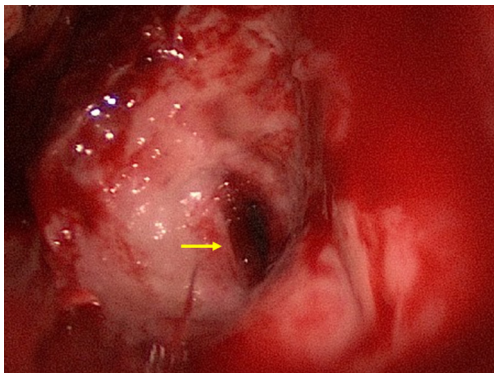


Figure 1 Intra-operative finding shows the perforation (arrow) of the gastric conduit.

he had another episode of severe right chest pain following a meal in the ward near 48 hours after the first right chest pain. The pleural drainage amount dramatically increased and its color changed to deep gray. Diagnosis of gastric conduit perforation was established. He underwent thoracoscopic decortication and repair of the substernal gastric conduit 80 hours after first episode of right chest pain. At operation, a 3 cm laceration of gastric conduit was found behind the junction of right 4th intercostal space and sternum. Intra-operative endoscopy revealed only a small nail of previous stapling at the perforation edge, no ulcer in the whole gastric conduit. The perforating wound of gastric conduit was also presenting healthy mucosal tissue without ulceration, but the tissue around the laceration was dense and rigid (*Figure 1*). The perforation was closed using 2-O Vicryl (Ethicon) sutures and enforced by pericardial fat. Following right pleural decortication and primary repair of the gastric conduit, a feeding jejunostomy was performed for temporary nutritional support. However, the pleural drainage changed to gray color and local wound infection on postoperative day 7. A second repair via anterior thoracotomy was needed because of re-leaks on post-perforation day 11. To achieve secure sutures, local retrosternal mobilization of the gastric conduit was carried out. He underwent tracheostomy and esophageal stent on post-perforation day 33 because the perforation was not healed. Ventilator support was maintained for 32 days because of respiratory failure caused by bilateral pneumonia. Sequential cultures of pleural drainage obtained the results of infection by candida albicans, Burkholderia cepacia, pseudomonas aeruginosa, and Klebsiella pneumoniae. These infections were successfully controlled by anti-fungus drugs (Fluconazole 400 mg QD for 11 days) and antibiotics

(Levofloxacin 750 mg QD for 24 days and Doripenam Hydrate 500 mg Q8h for 9 days). He gradually recovered, the tracheostomy tube was removed on post-perforation day 58, and he was discharged uneventfully on post-perforation day 63.

Comments

Spontaneous rupture of the esophageal wall occurs commonly in the left posterolateral wall of the lower third esophagus located 2 to 3 cm proximal to the gastroesophageal junction, and usually related to force vomiting (3). Gastric conduit ulcers were common. Koide, *et al.* evaluated a total of 62 patients with a reconstructed gastric tube after esophagectomy for esophageal cancer using esophagogastroduodenoscopy, ulcers of the gastric tube were detected in 12 (19.4%) patients (4). In some situations, ulcer of gastric conduit could lead to fistula or perforation. In the present case, when he presented to the Emergency Department in the Lunar-New-Year holidays, we firstly considered the possibility of gastric conduit perforation even no vomiting. However, only fresh blood was drained out that against the diagnosis of gastric conduit perforation. When the fluid changed to pinkish one day later, we attempted to remove the chest tube. Until the pleural fluid converted to turbid and deep gray in color following a meal, diagnosis of gastric conduit perforation was established. In this present case, the gastric conduit perforation was truly induced by massive beer drinking, not related to gastric conduit ulcer, which was compatible with operative findings and intra-operative endoscopy findings. When we retrospectively reviewed the computed tomography, which was performed in the Emergency Department, the ignored perforation hole seems already presented (*Figure 2* and *Figure 3*). Early detection of the gastric conduit perforation could be achieved by direct performing any one of diagnostic thoracoscopy, esophagoscopy, and esophagography. In this case, we directed to perform primary repair of perforation of the gastric conduit when the diagnosis of gastric conduit perforation. Unsuccessful repair could be attributed to the rigid fibrotic tissue around the perforation of the gastric conduit. To achieve a successful second repair, we locally mobilized the gastric conduit for security of suture. Some researchers pointed out that primary repair and T-tube repair can provide equivalent results in the treatment of esophageal perforation. Reinforced sutures appear to provide better outcomes by reducing postoperative leakage (5). We considered primary repair of gastric conduit



Figure 2 Axial view of CT shows a perforation (arrow) of the gastric conduit.

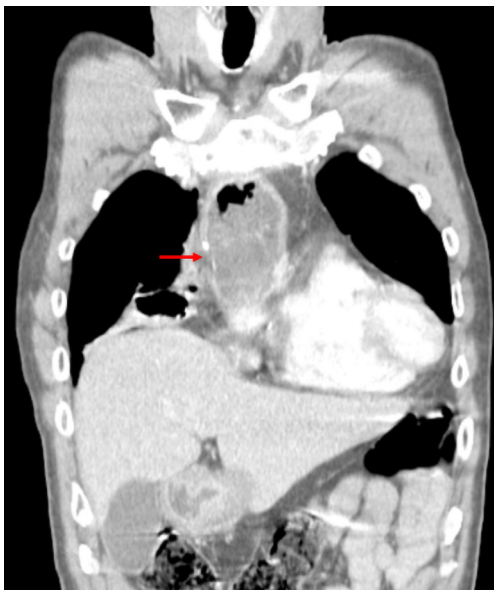


Figure 3 Coronal view of CT shows a perforation (arrow) of the gastric conduit.

because no definite tissue necrosis of the gastric conduit. However, we faced to many issues including delay diagnosis, delay treatment, delay healing of gastric conduit, bilateral pneumonia, respiratory failure, and long hospital stay.

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Footnote

Conflicts of Interest: Both authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/aoe.2019.08.01>).

[org/10.21037/aoe.2019.08.01](http://dx.doi.org/10.21037/aoe.2019.08.01)). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in studies involving human participants were in accordance with the Declaration of Helsinki (as revised in 2013). Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

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References

1. Ubukata H, Nakachi T, Tabuchi T, et al. Gastric tube perforation after esophagectomy for esophageal cancer. *Surg Today* 2011;41:612-9.
2. Patil N, Kaushal A, Jain A, et al. Gastric conduit perforation. *World J Clin Cases* 2014;2:398-401.
3. Spapen J, De Regt J, Nieboer K, et al. Boerhaave's Syndrome: Still a Diagnostic and Therapeutic Challenge in the 21st Century. *Case Rep Crit Care* 2013;2013:161286.
4. Koide N, Hiraguri M, Nishio A, et al. Ulcer in the gastric tube for esophageal replacement: a comparison of 12 esophageal cancer patients with or without postoperative radiotherapy. *J Gastroenterol Hepatol* 2001;16:137-41.
5. Sulpice L, Dileon S, Rayar M, et al. Conservative surgical management of Boerhaave's syndrome: experience of two tertiary referral centers. *Int J Surg* 2013;11:64-7.

doi: 10.21037/aoe.2019.08.01

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