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Mallory-Weiss Tear during Esophagogastroduodenoscopy

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Key Words

Mallory-Weiss tear · Esophagogastroduodenoscopy · Gastric perforation

Abstract

Mallory-Weiss tears (MWTs) are mucosal lacerations caused by forceful retching and are typically located at the gastroesophageal junction. Reported cases of MWT with serious complications seen in esophagogastroduodenoscopy are limited. We report MWT in an 81-year-old woman who presented with gastric perforation by esophagogastroduodenoscopy. We discuss and indicate that hiatal hernia, atrophic gastritis and old age may be associated with the gastric perforation in comparison to typical tears occurring at the gastroesophageal junction.

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Introduction

Mallory-Weiss tear (MWT) is characterized by longitudinal mucosal lacerations (intramural dissections) in the distal esophagus and proximal stomach. These tears are usually secondary to a sudden increase in intra-abdominal pressure. Precipitating factors include vomiting, straining at stool or lifting, blunt abdominal injury, epileptic convulsions, coughing, hiccups under anesthesia, closed chest massage and colonoscopic preparation with polyethylene glycol electrolyte lavage solution [1–3]; MWT has also been recognized as one of the complications related to endoscopic examination [4]. Acute gastrointestinal bleeding is the major clinical manifestation and may be accompanied by epigastric or back pain. Bleeding occurs when the tear involves the underlying esophageal venous or arterial plexus. Patients usually, but not always, give a history of non-bloody vomiting or retching before the onset of hematemesis [5].

Most of the time, the hemorrhage in MWT is mild and self-limited, with patients benefiting from conservative medical treatment (including fasting, bed rest, antiemetics, sedation,

intravenous antacids and somatostatin as well as blood transfusion). However, some patients, especially those with risk factors such as evidence of active bleeding (e.g. fresh blood hematemesis and hemodynamic instability), presence of stigmata of recurrent bleeding (such as visible vessel and adherent clots) and comorbid diseases (such as hepatic cirrhosis and diabetes mellitus), may require interventional endoscopy and/or other hemostasis procedures [6, 7].

Although iatrogenic MWT occurring during esophagogastroduodenoscopy (EGD) is rare and generally has a benign course [8], we report a case of MWT associated with gastric perforation during an EGD.

Case Report

A 1.2-cm pedunculated polyp on the prepylorus was detected in an 81-year-old woman, and she received endoscopic mucosal resection. Follow-up EGD 3 months later showed an approximately 1.5-cm flat elevated lesion on the angle (fig. 1). The biopsy result was adenoma with low-grade dysplasia. She was admitted to our hospital for further treatment.

The patient had a history of hypertension and diabetes for 10 years. She was admitted 5 days prior to the endoscopic procedure, after stopping antithrombotic medication of 50 mg mesoglycan sodium. There were no abnormal findings on family or social history. On admission, she was asymptomatic and her general condition was good. Blood pressure was 131/67 mm Hg with a pulse rate of 58 beats/min, and physical examination demonstrated no palpable abdominal mass or organ. Laboratory data showed white blood cell count to be 5,610/mm³, hemoglobin 12.5 g/dl, hematocrit 36.4%, platelet count 233/mm³ and PT INR 0.90; other general chemical tests were all in the normal range. Chest radiography and simple abdomen showed no abnormal findings. After hospitalization, EGD demonstrated esophageal hiatal hernia and gastric atrophy. Furthermore, an approximately 1.5-cm flat elevated lesion was detected on the angle. Argon plasma coagulation (APC) was carried out for removal of the lesion, which was confirmed to be an adenoma with low-grade dysplasia (fig. 2). After APC vital signs were normal, and the patient had a benign abdominal exam. Laboratory data and X-ray showed no abnormal findings, and we performed EGD to confirm successful treatment of the lesion. Although significant bleeding and perforation were not observed and the patient was adequately sedated with midazolam (3 mg) without struggling or vomiting during EGD, longitudinal gastric laceration with perforation was detected on the corpus to cardia (fig. 3). A total of four hemoclips were applied and emergency surgical repair was performed on the gastric perforation. After surgery the patient had no further complications, and she currently undergoes annual transnasal endoscopy.

Discussion

MWTs were first described in 1929 by Mallory and Weiss [9] in 15 alcoholic subjects; gastroesophageal tears have been a recognized cause of upper gastrointestinal bleeding. The reported incidence of MWT is 5–15% of all cases of upper gastrointestinal bleeding, although MWT may also occur iatrogenically during endoscopic examination, and its incidence has been estimated to be 0.007–0.49% of all such procedures [10]. The pathogenesis of this syndrome is not completely understood, but MWTs occur from a sudden increase in intra-abdominal pressure during retching or vomiting [11]. The rise in intraluminal pressure at the cardioesophageal junction leads to barotraumas of the adjacent mucosa.

Predisposing conditions to MWT include hiatal hernia, chronic alcoholism, gastric atrophy and perhaps increasing age. Hiatal hernia has been found in 40–100% of patients with MWT [12]. The greatest pressure difference develops in the hernia pouch compared with the rest of the stomach during retching or vomiting, thereby increasing the potential for mucosal laceration [13]. In addition, atrophic gastritis has also been shown in more than half of patients with MWT after autopsy. MWT resulting from endoscopy complications occur especially in the elderly, suggesting a possible increase in MWT in atrophic gastritis patients [3]. Based on previous reports and this observed case, aging may be considered a risk factor for MWT associated with gastric perforations. This case suggests that taking antithrombotic medication, as well as repeated esophagogastroduodenoscopic procedures within a short time frame (the patient had undergone EGD 3 months prior), may have an effect on MWT with serious complications. In order to assess these relationships, further observation and investigation is necessary in a greater number of patients with similar cases.

Most patients with iatrogenic MWT can be treated conservatively, with or without endoscopic hemostasis, injection therapy, electrocautery and mechanical hemostatic therapy. Although serious complications such as massive bleeding and perforation are rarely encountered, they are possible [14]. Therefore, in Korea atrophic gastritis, which is one of the factors causing MWT, is very common. EGD is necessary to evaluate the predisposing factors.

Conclusion

We have reported a case of surgical treatment of MWT associated with gastric perforation during EGD. Severe complications of MWT associated with EGD are very rare, and in our particular case study, the patient's hiatal hernia, atrophic gastritis and old age may have affected the observed gastric perforation accompanying MWT. Therefore, it is necessary to avoid this kind of complication by trying to reduce the time of endoscopies, allowing as little air inflow as possible.

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Disclosure Statement

The authors declare that there is no conflict of interests regarding the publication of this article.

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Fig. 1. EGD findings at the time of diagnosis. EGD showed an approximately 1.5-cm flat elevated lesion on the angle (arrow); the biopsy result was adenoma with low-grade dysplasia.

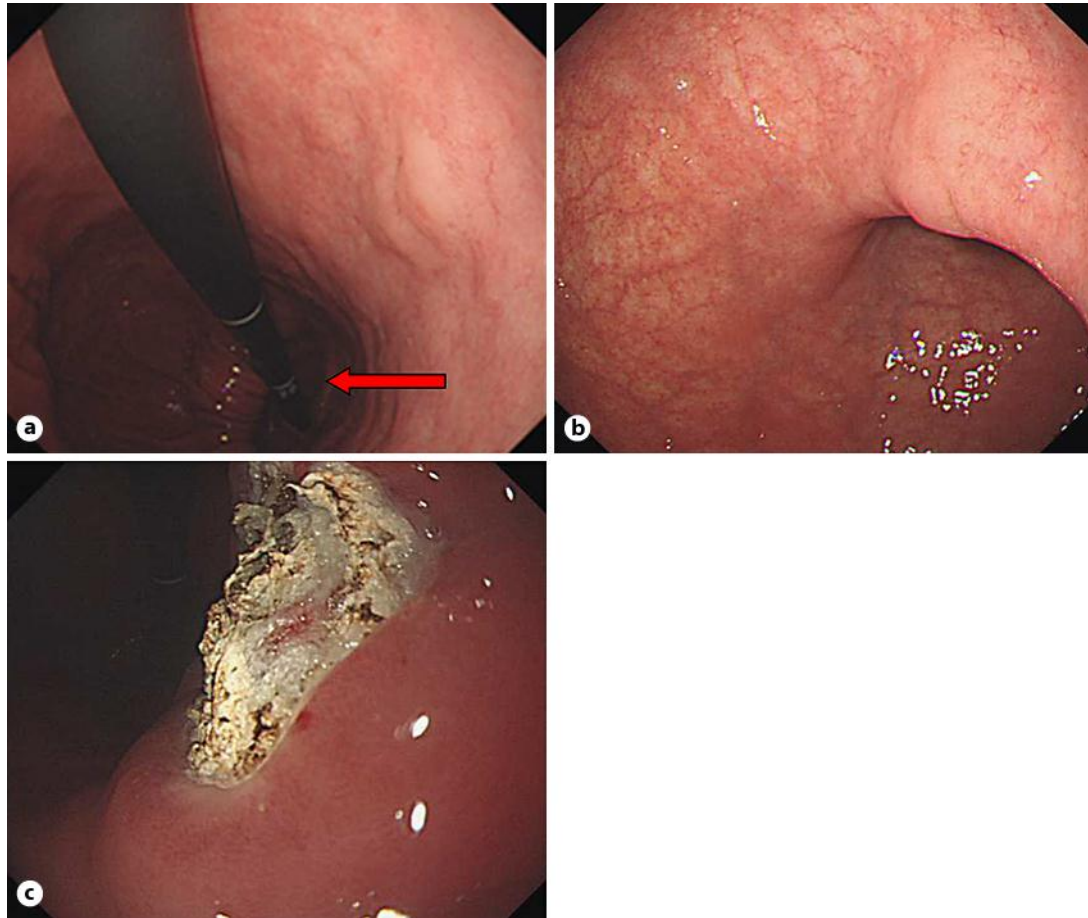


Fig. 2. APC was carried out for removal of the lesion. EGD demonstrated esophageal hiatal hernia (**a**, arrow) and gastric atrophy (**b**). Furthermore, a 1.5-cm flat elevated lesion was detected on the angle. APC was carried out for removal of the lesion (**c**), which was confirmed to be an adenoma with low-grade dysplasia.

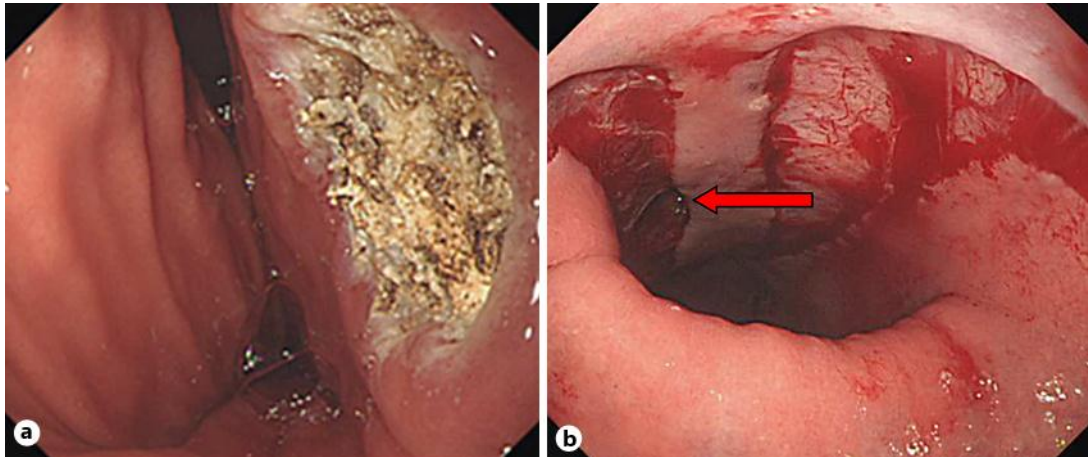


Fig. 3. EGD was performed the day after APC to confirm treatment of the lesion. Although significant bleeding and perforation were not observed (a) and the patient was adequately sedated with midazolam (3 mg) without struggling or vomiting during EGD, longitudinal gastric laceration with perforation (arrow) was detected on the corpus to cardia (b).