

Huge gastric mucosal laceration during endoscopy in a patient with hiatal hernia

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Abstract Massive gastric mucosal ruptures during upper gastrointestinal endoscopy in patients with esophageal hiatal hernias are rare. However, tearing of the gastric mucosa alone, without tearing of the gastroesophageal junction, is even rarer. This study reports a case of a large mucosal rupture that occurred on the posterior wall of the upper body of the stomach during upper gastrointestinal endoscopy in an 83-year-old woman with an esophageal hiatal hernia while sedated. The patient was treated with endoclips for the rupture.

Key words: Hernia, hiatal, Mallory-Weiss syndrome, Endoscopy, gastrointestinal, Hemostasis, endoscopic

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INTRODUCTION

Hemorrhagic complications that occur during diagnostic upper gastrointestinal endoscopy are rare. Among these, Mallory-Weiss tearing is the most common type. The incidence of upper gastrointestinal tract Mallory-Weiss lacerations during endoscopy ranges from 0.08% to 0.49%.¹⁻⁴ The predisposing factors for Mallory-Weiss tears include esophageal hiatal hernia, atrophic gastritis, and advanced age. The accompanying rate of esophageal hiatal hernia has been reported to be 25-86%, with varying degrees.⁵

In contrast to Mallory-Weiss tears, extensive lacerations of the mucosa of the stomach body are rare complications of diagnostic upper gastrointestinal endoscopies. Herein, we report a case in which a laceration, excluding the gastroes-

ophageal junction, was repaired by clipping.

CASE REPORT

An 83-year-old woman was transferred from the emergency room to the department of gastroenterology for an anemia work-up. She experienced subjective symptoms of general weakness and dyspnea (modified Medical Research Council grade 4) for 2 weeks. On admission, the patient was 155 cm tall and weighed 58 kg, with a body mass index of 24.14 kg/m². Her blood pressure and pulse rate were 118/60 mmHg and 95 bpm, respectively, and physical examination demonstrated no palpable abdominal mass or organs. The laboratory findings were as follows: white blood cell count of 3,920/mm³, hemoglobin level of 3.90 g/dL, hematocrit

level of 15.1%, mean corpuscular volume of 74.8 fL, mean corpuscular hemoglobin level of 19.3 pg, platelet count of 152,000/mm³, prothrombin time and international normalized ratio of 1.28, and activated partial thromboplastin clotting time of 25.2. Other general biochemical test results were within normal ranges. Chest radiography indicated cardiomegaly and subsegmental atelectasis in both lower lung fields, and a simple abdominal examination revealed no abnormal findings. Because of severe anemia, transfusion of three red blood cell (RBC) packs was conducted immediately. A GIF-H260 anterior-viewing endoscope (Olympus Corporation, Hachioji, Japan) was used for the examination. The patient was laid in the left decubitus position, and precautions for the examination were explained. As a pretreatment for conscious sedation, a bolus injection of 30 mg propofol was administered. The patient's blood pressure, pulse rate, and oxygen saturation were 150/85 mmHg, 71 bpm, and 99%, respectively. An endoscope was inserted when the patient did not respond to a request to open their eyes 2 minutes after the propofol injection. The endoscope was easily inserted, and after viewing the antrum and duodenum, a J-turn maneuver was performed to view the stomach body and fundus. Type 1 hiatal hernia and chronic atrophic gastritis were noted in the examined field (Fig. 1). Straightening the endoscope's tip to view the gastric body revealed a 3×0.5 cm spontaneous mucosal laceration on the posterior wall of the upper body of the stomach (Fig. 2). Seven endoclips were applied at the lacerated mucosa, and the procedure was ended after confirming no additional bleeding (Fig. 3). A plain chest X-ray confirmed no specific findings, such as free air. At 12 hours after transfusion of four RBC packs, the laboratory findings were as follows: white blood cell count of 7,900/mm³, hemoglobin level of 9.0 g/dL, hematocrit level of 28.5%, and a platelet count of 125,000/mm³. Overall, no additional complications, such as delayed perforation or additional bleeding, were observed. After 2 days of nothing by mouth, parenteral nutrition supply, and intravenous proton pump inhibitor use, a follow-up endoscopy was performed. Previous gastric mucosal lacerations with clips and two separated Mallory-Weiss tears

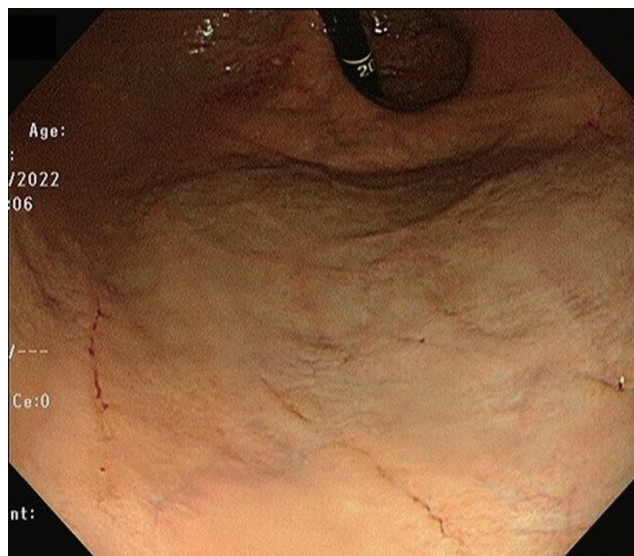


Figure 1. Endoscopic finding. Type 1 hiatal hernia and atrophic gastritis were observed by performing a J-turn maneuver during endoscopy.

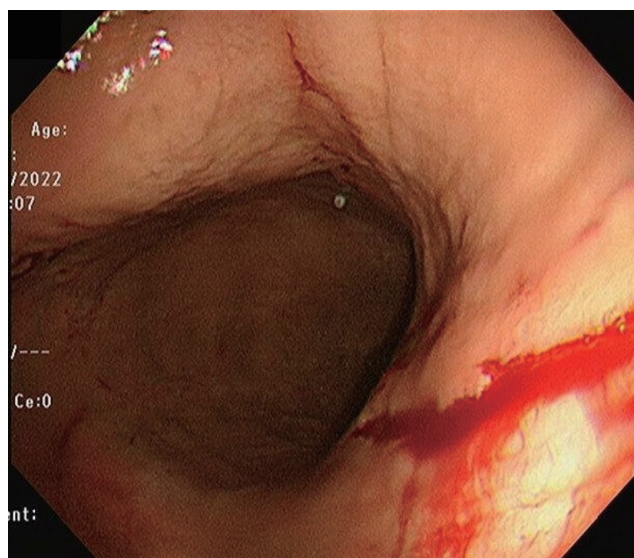


Figure 2. Endoscopic finding. A huge gastric mucosal tear occurred during endoscopy. This huge gastric mucosal tearing of approximately 3 cm in length and 0.5 cm in width was noted on the posterior wall of the upper body of the stomach.

were identified (Figs. 4, 5). The mucosa was confirmed to be healing without further bleeding. The patient was discharged after 7 days and is a current outpatient in good general condition; the patient will be followed-up for 6 months.

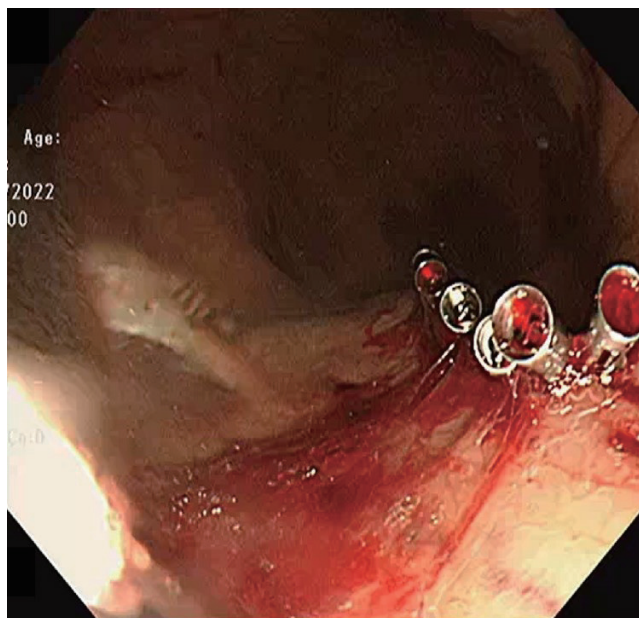


Figure 3. Endoscopic finding. A huge gastric mucosal tearing was treated using seven endoclippings.

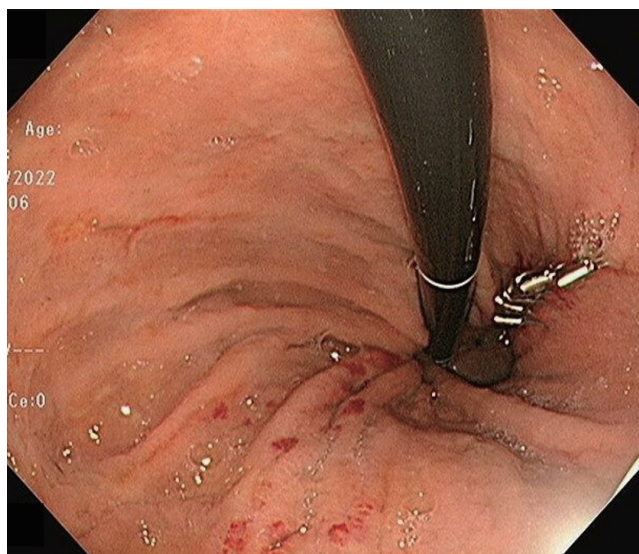


Figure 4. Endoscopic finding. Well attached endoclippings were noted in the follow-up endoscopy 2 days after gastric mucosal tearing.

DISCUSSION

Mallory-Weiss tears are frequently caused by an abrupt increase in intra-abdominal pressure due to events such as nausea, vomiting, straining when lifting or squatting, blunt abdominal injury, epileptic convulsions, coughing,

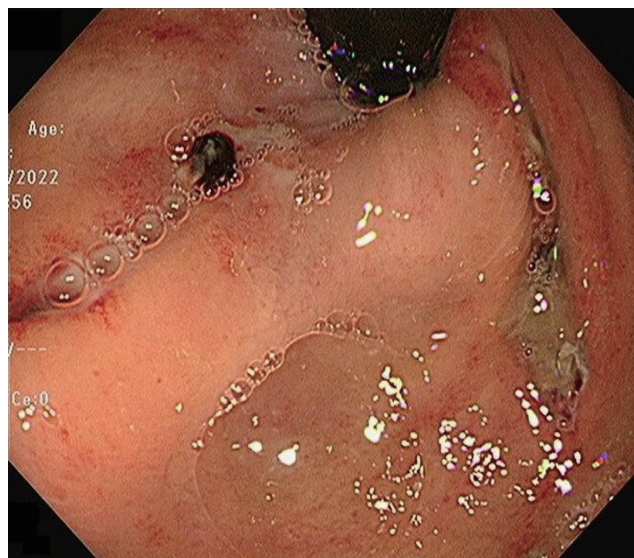


Figure 5. Endoscopic finding. Additional Mallory-Weiss tearing was detected in the follow-up endoscopy 2 days after gastric mucosal tearing.

hiccupping while sedated, chest massages, and colonoscopy preparation with a polyethylene glycol electrolyte solution.^{5,6} Spontaneous gastroesophageal mucosal laceration occurs most often in patients aged <40 years; however, in elderly patients, laceration occurs most often during upper gastrointestinal endoscopy, presumably because of membrane fragility. One report has indicated that 83% of gastroesophageal mucosal lacerations occur in the lesser curvature of the stomach.⁷ Thus, the lesser curvature is presumed to be anatomically closer to the gastroesophageal border than the greater curvature and fixed. Moreover, gastric mucosal folds in the lesser curvature may be significantly fewer than in the greater curvature.

Although anemia may have been the cause of the pale gastric mucosa in this case, it may have been caused by mucosal thinning in reality. Old age, hiatal hernia, and atrophic gastritis were identified as risk factors for stomach mucosal lacerations in this patient. Considering atrophic gastritis as a significant risk factor for gastric mucosal lacerations in elderly patients is difficult because it is commonly observed in elderly patients. No mucosal folds were observed in the greater curvature even when air was infused, suggesting that poor extensibility of the gastric

wall increases the risk of laceration.

Similar to this case, a single spontaneous gastric mucosal laceration during an upper gastrointestinal endoscopy is rare. Reducing patient anxiety, nausea, and gag reflex may not be helpful for gastric mucosal lacerations compared to that for Mallory-Weiss tears. Finally, risk factors need to be identified before the procedure, and in patients aged >75 years, aspirin dosage and atrophic gastritis should be assessed during endoscopy. Providing special attention is crucial to assess the weakness of the extensibility of the gastric mucosa against air pressure when the body surface area and stomach are small.

To the best of our knowledge, this is a rare case of a single rupture of the gastric mucosa, other than a Mallory-Weiss tear, during upper gastrointestinal endoscopy in a patient with an esophageal hiatal hernia. In this case, barotrauma via air pressure may be the primary cause of the gastric mucosal laceration. Therefore, patients with risk factors, including advanced age and atrophic gastritis, need to be carefully monitored, and the airflow should be controlled more precisely.

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