Intramural Dissection of the Esophagus: Endoscopic Findings

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Abstract

Intramural esophageal dissection is a rare but well described condition that is characterized by a laceration between the esophageal mucosa and submucosa but without perforation. It is usually associated with a rapid increase in intraesophageal pressure, especially in the presence of coagulation disorder. Intramural esophageal dissection revealed by an upper gastrointestinal endoscopy was reported in a uremic case with sudden onset of hematemesis and anterior chest discomfort during admission. An active ulcer with bleeding in the duodenal bulb and multiple small ulcerations in the antrum and corpus of the stomach were also noted and immediately treated by injection therapy for duodenal bleeding. The patient was discharged completely asymptomatic. Three months later, follow-up upper endoscopy showed a healed scar in the duodenal bulb. The esophagus and the stomach were normal.

Key Words: Intramural dissection, Esophagus, Upper gastrointestinal bleeding

Introduction

Intramural esophageal dissection was first reported by Marks and Keet in 1968. Intramural dissection of the esophagus is an esophageal injury that is an intermediate between transmural esophageal rupture (Boerhaave's syndrome) and esophageal mucosal tear (Mallory-Weiss syndrome). A Mallory-Weiss tear is a mucosal laceration at the esophageogastric junction or gastric cardia usually caused by retching or forceful vomiting, and there is a slight male predominance. Intramural esophageal dissection usually affects middle-aged or elder women and presents as acute chest pain, accompanied by dysphagia or hematemesis. It has been reported in association with coagulopathy, variceal injection sclerotherapy, endoscopic instrumentation and foreign body ingestion, as well as spontaneous occurrence. Intramural dissection of the esophagus showed by an upper gastroduodenal endoscopy was reported in a...
uremic patient who also had multiple ulcers in the gastric antrum and corpus and an active ulcer with bleeding in the duodenal bulb presenting with hematemesis during admission.

**Case Report**

An 80-year-old female was admitted to our hospital because of progressive edema of both legs and exertional dyspnea associated with decreased urine output of three weeks' duration. The patient has a history of chronic renal failure and hypertension. There was also a history of allergy to contrast media. On physical examination, there was a systolic heart murmur over the apex and legs edema. Abnormal laboratory data were hemoglobin: 4.7 g/dl (normal: 12-16 g/dl), BUN: 121 mg/dl (12-26 mg/dl) and creatinine: 8.6 mg/dl (0.5-1.3 mg/dl). Hemodialysis was done after admission. On the 6th hospital day, sudden onset of hematemesis associated with anterior chest discomfort occurred. An upper gastrointestinal endoscopy was done showing an active ulcer with bleeding in the duodenal bulb and multiple small ulcers in the antrum and corpus of the stomach. Injection therapy for duodenal bleeding was immediately carried out. There were also two lumens including a true esophageal lumen and a false lumen, separated by a mucosal bridge in the distal portion of the esophagus, with a mucosal slough located between the mucosal bridge and esophagogastric junction (Fig. 1). *Helicobacter pylori* infection was positive. Esophagogram and computed tomographic scan of the chest were not performed because of an allergy history to contrast media. The patient was treated with intravenous pantoprazole 40 mg daily, nothing by mouth and intravenous fluid for 48 hours. Subsequently a proton pump inhibitor and antibiotics for *Helicobacter pylori* eradication were given. The patient was discharged well on the 26th hospital day. Three months later follow-up upper gastrointestinal endoscopy showed a healed scar in the duodenal bulb. The esophagus and the stomach were normal (Fig. 2).

**Discussion**

Intramural esophageal dissection is a rare disor-
der characterized by a laceration between the mucosal and submucosal layers of the esophageal wall. The etiology of intramural dissection of the esophagus remains uncertain. Two hypotheses have been proposed for the pathogenesis of intramural dissection of the esophagus. The first theory postulates that intramural dissection is initiated by submucosal bleeding (or hematoma), which leads to submucosal dissection by the resulting hematoma along the esophageal wall. The second theory is that the dissection may start as a small mucosal tear, followed by bleeding and further dissection. Intramural esophageal dissection usually affects women in their seventh or eighth decade. The most common presenting symptoms are acute chest pain, hematemesis, odynophagia, dysphagia, and back pain.

The diagnosis of intramural dissection of the esophagus was made on the basis of the upper gastrointestinal series, upper gastrointestinal endoscopy, computed tomographic scan or magnetic resonance imaging. Barium esophagogram in cases of intramural esophageal dissection may demonstrate the mucosal tear or an extraluminal, submucosal collection of barium which is separated from the true lumen by a thin mucosal flap, producing the typical appearance of a "double-barrel" esophagus. Computed tomography or magnetic resonance imaging of the thorax has been useful in diagnosing this injury and may facilitate early differential diagnosis of other mediastinal lesions. A computed tomographic scan of the chest may show an asymmetric esophageal wall with marked thickening, resulting in an eccentric lumen. At endoscopy, two apparent false and true lumens separated by a mucosal bridge may be visible. Marks and Keet have cautioned that endoscopy could be harmful in this condition, but a gentle endoscopic examination in patients of intramural esophageal dissection has not been reported to cause esophageal perforation. We think that upper gastrointestinal endoscopy is reasonably used as an initial assessment of patients with upper gastrointestinal bleeding, as in our case.

The treatment of intramural esophageal dissection is conservative; nothing by mouth, intravenous fluid supply, and nutritional support are the mainstays of therapy. On follow-up endoscopy, most of intramural esophageal dissections have satisfactory healing of these lesions within two to three weeks after onset of symptoms. Endoscopic therapies including incision of the septum between the true and false lumens, balloon dilatation, transection of the true esophageal wall, and metal stent insertion, have been used to treat intramural esophageal dissection with refractory to conservative treatment. Surgery should be reserved for cases that do not resolve with conservative management, or that have complications, such as esophageal perforation or ongoing hemorrhage.

References