Primary Repair of Spontaneous Intramural Esophageal Dissection: A Case Report

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Intramural esophageal dissection (IED) is a laceration between the mucosal and submucosal layers without perforation. Spontaneous IED is relatively common in elderly female patients on anticoagulation medication, while secondary IED is associated with endoscopic procedures or foreign body impaction. Although conservative management is regarded as the primary treatment for IED, there are several reported cases treated by endoscopic intervention or esophagectomy. We experienced rare spontaneous IED in a young male patient who was treated exclusively with primary repair of the esophagus. To the best of our knowledge, this is the first case report in which the patient recovered completely with only primary repair.

Key Words: Esophagus, Dissection, Endoscopy, Esophagectomy

Introduction

Intramural esophageal dissection (IED) is a rare condition defined by a laceration without perforation between the mucosal and submucosal layers. The condition is generally caused by a rapid increase in intraesophageal pressure. Spontaneous IED has been believed to traditionally found in elderly women and is associated with coagulopathy or use of anticoagulant medications. Secondary IED is caused by procedures such as endoscopy, endoscopic intervention, or trans-esophageal echocardiogram; foreign body ingestion; or impaction. Patients with IED present with acute chest pain, back pain, dysphagia, odynophagia, nausea, and, rarely, hematemesis. Diagnosis of spontaneous IED can be challenging as chest and back pain symptoms are similar to those of ischemic chest pain or aortic dissection. Therefore, the use of proper radiological study for early diagnosis is critical. Conservative management is considered to be the main treatment for IED, as well as nil by mouth, hydration, nutritional support, and intravenous antibiotics.

Here we present the case of a rare, spontaneous IED in a young male patient, treated with primary repair of the esophagus. To the best of our knowledge, this is the first case report in which a patient has recovered completely from this condition with only primary repair.

Case Report

A 38-year-old male patient was transferred from a local clinic to the emergency department with a suspected tracheoesophageal fistula (T-E fistula). The patient presented with a five day history of poor oral intake, a sore throat, epigastric pain, dyspepsia, nausea, and vomiting. In addition, the patient began to experience sharp back pain one day prior. He was previously in good physical health, without coagulopathy or taking anticoagulation medication. An endoscopy was performed in the local clinic to identify the cause of pain in the epigastric area. During this procedure, a pus-secreting aperture was discovered 20 cm from the incisor and was suspected to be a T-E fistula (Fig. 1). The patient did not have common symptoms of a T-E fistula, such as a cough or dyspnea when eating, but he did complain of epigastric discomfort. When he arrived at our emergency department, vital signs included a blood pressure of 141/80 mmHg, a pulse rate of 91/min, a respiration rate of
18/min, and a body temperature of 37.5°C.

The electrocardiographic finding was unremarkable. The results of his initial laboratory tests were within normal ranges including white blood cell count and cardiac enzymes except for that of C-reactive protein of 21.83 mg/dL (normal range, 0.00~0.50 mg/dL). Chest computed tomography (CT) revealed focal ulceration in the upper esophageal wall and the intervening mucosal flap of the esophageal double lumen (Fig. 2). There was no evidence of the presence of a T-E fistula, esophageal perforation, or mediastinitis. Gastrografin esophagography showed a double-barreled esophagus with a dilated false lumen beneath the lower half of the esophagus (Fig. 3).

IED was diagnosed based on chest CT and esophagography. Conservative treatment with nothing taken by mouth, fluid resuscitation, and intravenous antibiotics was maintained and an emergency surgical procedure was considered. In light of signs of infection such as a mild fever and pus discharge in the false lumen of the

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**Fig. 1.** Endoscopy showing a pus-secreting aperture 20 cm from the incisor.

**Fig. 2.** Chest computed tomography showing focal ulceration in the upper esophageal wall, esophageal double lumen, and intervening mucosal flap (white arrow).

**Fig. 3.** (A, B) Gastrografin esophagography showing double-barreled esophagus (white arrow) with dilated false lumen below the lower half of the esophagus.
esophagus, the emergency operative procedure was chosen. At this stage, the esophageal muscle propria seemed grossly intact and air injected by a nasogastric tube leaked beneath the muscle layer. The ruptured mucosa was simply repaired.

The patient continued to receive nil by mouth and was administered intravenous antibiotics for seven days after primary repair. A follow up chest CT performed seven days post-procedure showed no esophageal abnormality and the patient experienced mild pain at the surgical site. He was discharged in good condition eleven days post-operation.

**Discussion**

When this patient presented to the emergency department with chest pain, back pain, and dysphagia; a differential diagnosis of spontaneous IED was challenging in the absence of any reason to suspect IED. It is relatively simple to diagnose secondary IED as the patient may have a history of esophageal injury due to an endoscopic procedure or foreign body impaction. Emergency physicians should consider spontaneous IED in patients with no history of esophageal injury and presenting with chest pain, back pain, dysphagia, odynophagia for several days, or signs of infection. It is believed that the best methods for diagnosing IED are endoscopy and esophagography. CT scans or magnetic resonance imaging has been widely used recently as these can aid in ruling out cardiovascular disease and mediastinal disease. When esophageal disease is suspected, initial diagnostic tool is endoscopy. But endoscopy could provide misdiagnosis. In our case, initial diagnosis was T-E fistula. Wang at al. reported IED in 56-year-old female, who initially diagnosed as esophageal fistula due to the presence of pus-like fluid in the false lumen like our own case.

In most cases, the primary treatment for IED is conservative therapy including nil by mouth, hydration, nutritional support, and intravenous antibiotics. When conservative management elicits a poor response, endoscopic treatments such as transection of the true esophageal wall, incision of the septum between the false and true lumens, balloon dilatation, or metal stent insertion can be used. If the response to conservative treatment and endoscopic intervention are poor; or complications including signs of infection, esophageal perforation, abscess formation, or esophageal bleeding are present; surgical treatment such as esophagectomy may be necessary. However, in the present case, the patient recovered fully with primary repair.

In our case as well as that of Wang et al., surgical treatment was the first choice and these patients were discharged within two weeks of admission. When conservative therapy fails, endoscopic interventions are generally used as the second choice treatment option and hospitalization could be relatively long (over one month in duration). Patients without complications can be cured exclusively with conservative therapy within a short time period (such as one week).

In the present case, the patient had mild fever and pus discharge in the false lumen of the esophagus and therefore underwent a surgical procedure within 5 hours of being admitted to the emergency department. Primary repair could be the definitive course of treatment for this patient as he completely recovered within two weeks.

**REFERENCES**


