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Case Report

Initial presentation of mesenteric venous thrombosis mimicking acute duodenitis: A true gastrointestinal vascular emergency

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Abstract

We present a patient who had a 3-day history of epigastric pain and acid regurgitation and was found to have gastroesophageal reflux disease and duodenitis by esophagogastroduodenoscopy. His symptoms were refractory to treatment with a proton pump inhibitor. Peritonitis developed subsequently. Enhanced computed tomography (CT) confirmed a diagnosis of mesenteric venous thrombosis (MVT) with jejunum infarction. Emergency exploratory laparotomy with segmental resectioning of the jejunum was performed. We emphasize that emergency department (ED) physicians should always thoroughly re-evaluate patients with abdominal pain using serial physical examinations in accordance with the chronic nature of the disease. There is a need to be highly alert to pain that is out of the proportion to the physical examination results and/or endoscopic findings, the development of peritoneal irritation signs, the presence of fever, and the presence of leukocytosis among patients with nonspecific endoscopic findings. This will help to differentiate MVT as the true etiology of ischemic duodenitis in a timely manner. ED physicians should also be aware that hyperemic edematous duodenitis can be the finding for MVT using endoscopy.

Keywords: Duodenitis; Esophagogastroduodenoscopy; Mesenteric venous thrombosis

1. Introduction

Mesenteric venous thrombosis (MVT) is an uncommon but life-threatening disease. The symptoms are usually subtle and generally are not associated with distinct physical examination findings or characteristic laboratory findings. We present a patient who had a 3-day history of epigastric pain and acid regurgitation and was found to have gastroesophageal reflux disease (GERD) and duodenitis by esophagogastroduodenoscopy (EGD). His symptoms were refractory to a 2-day course of treatment with a proton pump inhibitor. Peritoneal irritation signs developed subsequently. Enhanced computed tomography (CT) confirmed a diagnosis of MVT with jejunum infarction. Here we emphasize that EGD is usually performed in patients with suspicions of upper gastrointestinal lesions, but in addition, the ED physicians should interpret nonspecific endoscopic findings objectively in accordance with the clinical presentations. ED physicians need to be highly alert to evolving changes in clinical manifestations, including persistent pain and the development of peritoneal irritation signs; furthermore, they should not be misled by the nonspecific endoscopic findings such as hyperemic edematous duodenitis. In such circumstances, enhanced CT should be performed promptly to avoid delayed diagnosis.

2. Case report

A 51-year-old male visited our gastroenterology outpatient department because of intermittent poorly-localized abdominal pain, fullness, acid regurgitation, and nausea that was present for 3 days. He denied any history of medical illness or illicit drug use. The pain was described as being aggravated by food intake. Local tenderness could be elicited in the

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epigastric region only. An EGD was performed to explore the possibility of suspected GERD and peptic ulcer disease. The results of endoscopic examination showed GERD grade A and shallow duodenal ulcers together with notable edematous and hemorrhagic mucosa (Fig. 1). A diagnosis of GERD, duodenitis, and duodenal ulcer was made, and oral proton pump inhibitor therapy was started. Over the following 2 days, the patient noted a persistent worsening of the pain, which was accompanied by fever and vomiting; he was admitted to the emergency department. His vital signs included a blood pressure of 102/60 mmHg, a pulse rate of 114 beats/min, a respiration rate of 22 breaths/min, and a body temperature of 37.8°C. A repeat physical examination showed the presence of epigastric tenderness and signs of peritoneal irritation. A rectal examination showed melena. The results of the laboratory examination revealed marked leukocytosis (16,800/μL). The remaining findings, including electrolytes together with glucose, lipase, creatinine, and aspartate transaminase levels, were normal. There was a positive stool guaiac test that confirmed the presence of fecal occult blood. Radiography of the chest and abdomen revealed no free air and the absence of abnormal bowel gas. However, it was clear that the patient's pain was out of proportion to the physical examination findings. Enhanced multidetector-row CT of the abdomen with coronal reconstruction showed a long segmental lower attenuation in the hepatic portal veins, splenic vein, and superior mesenteric vein (Fig. 2, white asterisk) together with edematous swelling and poorly enhanced long segmental small bowel loops (Fig. 2, white arrow). A diagnosis of MVT with jejunum infarction was made. Emergency exploratory laparotomy involving the segmental resectioning of the jejunum was performed. Pathological examination of the resected jejunum was inconsistent with a transmural infarction. The patient was treated with unfractionated heparin postoperatively. A diagnosis of protein C deficiency was subsequently confirmed. He recovered well and was discharged on the 12th hospital day with oral warfarin as a continuing treatment. During the first 12 months of follow-up, the patient showed no signs or symptoms that were consistent with any recurrence of MVT.

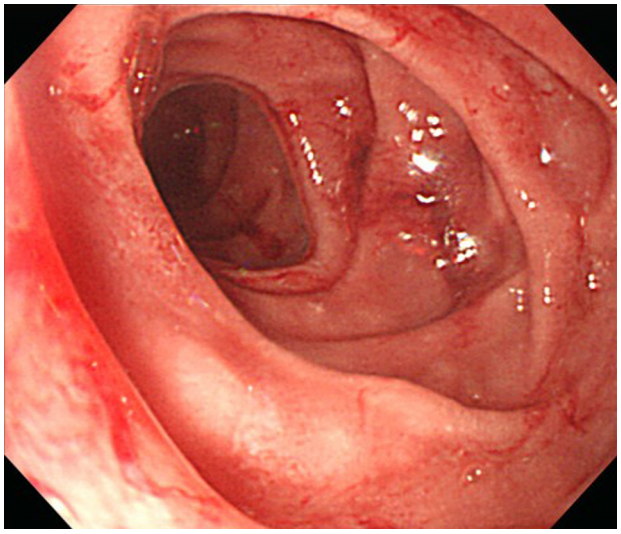

Fig. 1. Endoscopic finding for the second portion of the duodenum. Note the congestion and the erythematous changes to the duodenal mucosa.

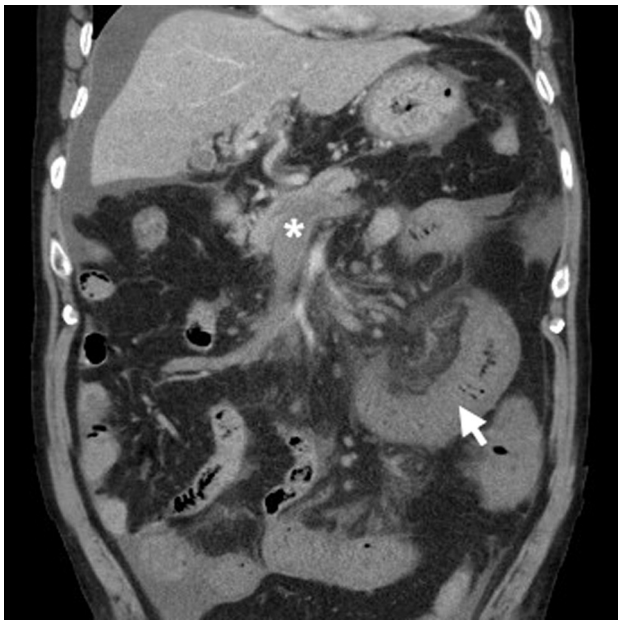

Fig. 2. A coronary reconstructed view of multidetector-row computed tomography of the abdomen. Note the long segmental lower attenuation in the hepatic portal veins, splenic vein and superior mesenteric vein (white asterisk) together with edematous swelling and poorly enhanced long segmental small bowel loops (jejunum; white arrow).

3. Discussion

In this study we present a patient who had epigastric pain and endoscopic findings indicating duodenitis as the initial presentation of protein C deficiency related MVT. EGD is commonly found in patients with gastrointestinal hemorrhage or suspicions of upper gastrointestinal lesions. The etiologies of duodenojejunitis include Henoch-Schönlein purpura, vasculitis, Crohn's disease, celiac sprue, ischemia, lymphoma, Zollinger-Ellison syndrome, bacterial or parasitic infection, radiation, drug induced jejunitis, eosinophilic jejunitis, ingestion of toxins, and concomitant pancreatitis. Hypercoagulable status-related ischemic or necrotic duodenitis should be paid particular attention under such circumstances since MVT is a true vascular emergency and surgical intervention may be required.[1] An endoscopic finding of hyperemic edematous duodenitis is nonspecific and is found with various kinds of duodenitis, ulcerative disease, and inflammatory bowel disease. Gastrointestinal bleeding may be the initial presentation of MVT. This case highlights the fact that endoscopic finding should be interpreted objectively in accordance with the patient's clinical presentations. ED physicians should always re-evaluate patients with abdominal pain judiciously using serial physical examinations and be highly alert to evolving changes in the clinical manifestations of disease, including persistent pain and the development of

peritoneal irritation signs. Furthermore, they need to be aware that nonspecific endoscopic findings such as hyperemic edematous duodenitis can be an early sign of MVT. Although EGD and colonoscopy have limited value given the rarity of colonic and duodenal involvement, clinicians should be highly alert to the endoscopic clues suggesting MVT, including diffuse edematous mucosa, purple-red discoloration, necrosis, actively oozing blood without ulcerations, and antiperistaltic movement.[2−5] In addition, pain out of the proportion to the endoscopic findings should be regarded as a clue suggesting the presence of MVT. These findings can be attributed to reduced venous flow from the splanchnic area. Antiperistaltic movement is an indication of early dysmotility prior to the onset of a paralytic ileus.

The symptoms of MVT are usually subtle and generally not associated with distinct physical examination findings, the presence of characteristic laboratory findings, or specific plain radiographic findings. The presentation of nonocclusive thrombus can evolve over days to weeks and is often characterized by vague, nonspecific symptoms that delay diagnosis due to their slow progression.[6,7] The most consistent finding is pain that is out of proportion to the physical examination findings. Frequently, the abdominal pain of patients with MVT begins insidiously and worsens progressively. Approximately 50% of patients have been found to have suffered from pain from 5 days to 30 days, and 27% have reported abdominal pain for more than 1 month.[8] Acute MVT is highly associated with bowel infarction and peritonitis.[9] Predisposing conditions associated with MVT include congenial coagulation disorders, paraneoplastic syndromes, intra-abdominal inflammatory conditions, being in a postoperative status, portal hypertension, and trauma. Nonetheless, most MVT is idiopathic, which ranges from 21% to 49%.[9,10] An enhanced CT with an adequate portal venous phase is highly sensitive and specific when diagnosing MVT.[9,10] Supportive measures include nasogastric suction, fluid resuscitation, and bowel rest.[9] Immediate anticoagulation should be used in almost all MVT cases. Endovascular thrombolytic therapy can be administered via the percutaneous transhepatic or transjugular intrahepatic routes or indirectly via superior mesenteric artery infusion of thrombolytic agents.[9,11,12] Postoperational anticoagulation has also been demonstrated to reduce mortality and recurrence rates. Emergency exploratory laparotomy should be performed when peritoneal signs and bowel infarction are present.[6,13]

In conclusion, ED physicians should be aware that hyperemic edematous duodenitis can be an endoscopic finding indicating MVT. ED physicians need to be highly alert in patients with nonspecific endoscopic findings indicating duodenitis to pain that is out of the proportion to the physical examination findings or endoscopic findings, the development of peritoneal signs, the presence of fever, and the presence of leukocytosis. This will help to differentiate in a timely manner MVT as the true etiology of ischemic duodenitis, separating these patients from those with nonischemic duodenitis or GERD alone. Anticoagulation therapy and surgical consultation should occur in a timely manner to avoid any delays in the patient receiving appropriate treatment.

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