

An unusual cause of gastrointestinal bleed

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Abstract

Gastrointestinal (GI) bleed often brings the patient to the emergency medical service with great anxiety. Known common causes of GI bleed include ulcers, varices, Mallory-Weiss among others. All causes of GI bleed should be considered however unusual during the evaluation. Aortoenteric fistula (AEF) is one of the unusual causes of GI bleed, which has to be considered especially in patients with a history of abdominal surgery in general and aortic surgery in particular.

Keywords: Abdominal surgery, aortoenteric fistula, gastrointestinal bleed

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Introduction

Hematemesis is an emergency that directs physician's attention towards various causes of gastrointestinal (GI) bleeding. Aortoenteric fistulas (AEFs) are rare but often fatal cause of upper GI bleeding, which should not be overlooked in patients with a history of aortic reconstruction surgeries. Primary AEF is seen as a communication between the native aorta and the GI tract, whereas secondary AEFs (SAFs) usually arise between a suture line of a vascular graft and the intestine.^[1] The development of AEFs after aortic reconstruction is rare, and incidence ranges from 1% to 4%.^[2] Here, we report a case of upper GI bleed due to SAF. The aim of this case report is to emphasize early diagnosis and management of all such GI bleeding in patients with a history of aortic reconstructive surgery.

Case Report

A 45-year-old man presented to the emergency room with a history of two episodes of hematemesis. He had noticed melena 2 weeks prior, which he had ignored.

There was a history of significant alcohol intake for 20 years and jaundice of 2 months. He had undergone aortobifemoral bypass around 8 years back for treatment of claudication.

His examination revealed tachycardia, tachypnea, icterus, and hypotension. There was a mid-line linear scar over the abdomen with no organomegaly. Rest of the examination was unremarkable. Labs from the emergency room showed hemoglobin of 7 g/dl, total counts of 14,000 cells/cm with neutrophil predominance and platelets of 1.2 lakhs/cm. Liver function test showed hypoalbuminemia with mild elevation of bilirubin and mild elevation of aspartate aminotransferase. Initially, he was stabilized with blood transfusion. Somatostatin and proton pump inhibitor infusion were started as well. Upper GI endoscopy was done within 2 h of presentation to hospital to look for the cause of bleed which revealed normal esophagus and stomach. However, a large adherent clot with underlying ulcer was seen at the D2 and D3 junction [Figure 1]. In view of the unusual position of the ulcer and with a history of aortobifemoral bypass, an AEF was suspected, and computed tomography (CT) scan of the abdomen with angiogram was obtained, which revealed nonfunctional graft in the aorta surrounded by hematoma/thrombus at the proximal end of the aortobifemoral bypass graft and extravasation of the contrast surrounding the lower abdominal aorta with hematoma/thrombus. Proximal

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extent of the hematoma was seen in relation to the third part of the duodenum [Figures 2 and 3]. He was considered for surgery at the earliest. However, he had another episode of massive GI bleed and succumbed before the surgery could be undertaken.

Discussion

Prior to 1960's, the common cause of abdominal AEFs was aortic aneurysm, followed by infectious aortitis due to syphilis or tuberculosis.^[3] Of the late erosion of the intestine by prosthetic vascular grafts, has become much more common cause, with an incidence of up to 4%.^[2] SAF is an uncommon but a very important complication of abdominal aortic reconstruction. The complication often occurs months to years after aortic surgery with high morbidity and mortality rates. The clinical manifestation of the AEF is always upper GI bleeding. A study from Johns Hopkins Medical Institution showed the mean interval from the initial operation to the onset of upper GI bleeding to be 2.8 years in a study conducted over 20 years.^[4] Bastounis *et al.* reported average interval was 32 months.^[2] The longest postoperative interval for an AEF was 23 years after aortofemoral bypass surgery; the shortest postoperative interval was 2 days, recorded in 1974, in which a para-prosthetic enteric fistula developed after resection of a ruptured abdominal aortic aneurysm with graft interposition.^[5]

There are two types of SAF; Type 1 or graft enteric fistula is more common (80%) and is characterized by a direct connection between the bowel and the aortic lumen at the suture line, causing massive hemorrhage. Type 2, otherwise known as a para-prosthetic enteric fistula, is less common (20%) and is characterized by communication between the bowel and perigraft region with a direct luminal connection. Associated sepsis is usually seen in Type 2 fistula.^[6] The bleeding results from the eroded bowel. The pathogenesis of SAFs after prosthetic aortic grafting includes a low-grade infection, pseudoaneurysm formation caused by suture line failure, and failure of interposing viable tissue between the graft and the duodenum. Repetitive pulsation of the graft against the duodenum may cause ischemia of the duodenal wall, leading to erosion and hemorrhage. Any part of the GI canal may be involved, but the most common site is the third part of the duodenum (80%) followed by its fourth part, then the jejunum and ileum.^[7]

The initial "herald bleeding" is often transient and self-limiting, owing to the formation of thrombus. Bouts of bleeding can recur over a period of hours, days, or

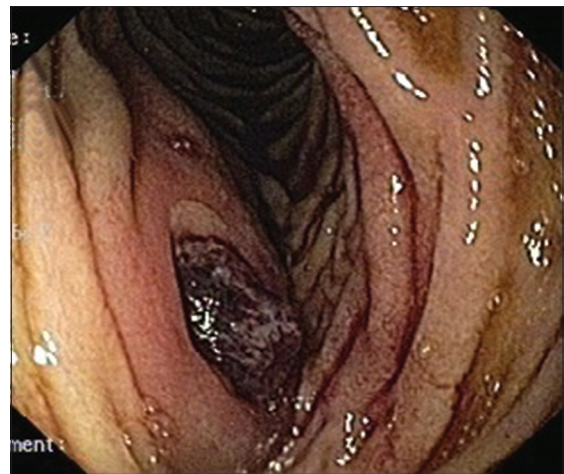


Figure 1: Upper gastrointestinal endoscopy showing a large clot at D2–D3 junction



Figure 2: Computed tomography scan in sagittal view showing non-functional aortic graft with thrombus/hematoma in relation to the third part of the duodenum



Figure 3: Computed tomography scan in axial view showing non-functional aortic graft with thrombus/hematoma in relation to the third part of duodenum

weeks, eventually culminating in massive hemorrhage and hypovolemic shock. In some patients, back pain or fever may be the presenting symptoms. A high index of

clinical suspicion based on the patient's medical history and a thorough physical examination, is the key to a correct diagnosis.^[8]

Esophagogastroduodenoscopy is usually performed first for patients presenting with herald bleeding to exclude other causes of upper GI hemorrhage. Bleeding arising from a point distal to the second part of the duodenum in the absence of a proximal lesion in patients with a history of aortic surgery could suggest an AEF. CT/magnetic resonance angiogram is also useful for confirming the presence of abnormal communication between the prosthetic graft and the GI tract or for showing extraluminal gas in the periaortic region. Angiography can alter the surgical approach by giving additional information. Bleeding may be intermittent making the diagnosis difficult and diagnostic tests often fail to reveal its course. The appropriate diagnostic method should be determined by the clinical presentation and high clinical suspicion in such patients with a history of aortic surgery is the most important tool. This condition is often fatal if misdiagnosed and should be surgically treated immediately. Laparotomy should be performed as soon as the diagnosis is suspected with clot removal, graft revascularization, duodenorrhaphy and omentoplasty.^[9]

Conclusion

Secondary AEF is a rare cause of GI hemorrhage associated with a high mortality rate. AEFs should be considered in any patient with a history of abdominal

aortic repair who presents with GI hemorrhage, no matter how minor. Moreover, because these patients usually have other comorbid conditions such as coronary disease of hypertension, and diagnostic tests may be difficult or inconclusive, emergency surgery is mandatory to minimize mortality.

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