Aortoenteric Fistula to the Sigmoid Colon—Case Report

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Aortoenteric fistula is defined as a communication between the aorta and any adjacent segment of the bowel. It may be primary or secondary. The former occurs *de novo* in patients with intestinal or vascular diseases, whereas secondary aortoenteric fistula is a rare and dreadful complication of aortic reconstruction with vascular prosthesis. We report a case of a 62-year-old man who presented to the emergency department with acute rectal bleeding. The patient had previous aortoiliac surgery with the utilization of an aorto-bifemoral vascular graft. Diagnosis of secondary aortoenteric fistula was made between the aortoiliac graft and sigmoid colon. After exploratory laparotomy, Hartmann's procedure, excision of the graft, oversewing of the aortic stump, and axilobifemoral bypass were successfully performed. This study reports a rare type of secondary aortoenteric fistula to the left colon, and it describes an unusual and successful surgical treatment. (Curr Surg 62:49-54. © 2005 by the Association of Program Directors in Surgery.)

KEY WORDS: aorta, sigmoid colon, fistula, rectal bleeding, vascular prosthesis

INTRODUCTION

Aortoenteric fistula (AEF) is defined as a communication between the aorta and any adjacent segment of the bowel. Although Sir Astley Cooper[1] was the first to draw attention to the complication of abdominal aneurysm that he called "arterioenteric fistula," the first formal case report of an aortoenteric fistula was presented in 1843 by Salmon.[2] It may be classified into primary or secondary AEF. The former occurs *de novo* in patients with intestinal or vascular diseases, whereas secondary AEF is a rare and dreadful complication after aortic reconstruction with vascular prosthesis.[3-5]

Secondary AEF is more frequent than primary AEF.[5] Although a serious and life threatening condition, it occurs only in 0.3% to 5.9% of all patients who undergo aortic reconstruction.[6,7]

The most common gastrointestinal site for the development of an AEF is the duodenum, which is involved in 87% of the cases, followed by small bowel, and other sites such as esophagus, stomach, and appendix.[4,8-11] Large bowel is rarely affected.[12]

Early diagnosis is essential for a successful outcome in spite of the lethal nature of AEF. Also, definitive treatment requires immediate surgical intervention.[11,13,14] Even though new diagnostic methods have been developed allowing early diagnosis, the mortality from this disease remains extremely high.[4,15-19]

The aim of this study is to report a rare type of secondary AEF to the left colon, which was effectively diagnosed and successfully treated, allowing a complete recovery from this dreadful complication.

CASE REPORT

A 62-year-old man presented to the emergency department with intermittent rectal bleeding for the last 15 days. The bleeding became more intense in the last 12 hours and was associated with intense perianal pain. There was no history of fever or weight loss. The patient was hemodynamically stable and physical examination showed only mild paleness. Hematological findings confirmed anemia (Hb = 8.7 g/dl; Ht = 26%).

The patient had previous history of an aortoiliac aneurysm managed by an elective surgical intervention, with interposition of an aortobiiliac Dacron graft with no immediate postoperative complications sixteen years earlier.

Esophagogastroduodenoscopy was normal. Abdominal ultrasonography showed a great vascular mass in the hypogastric region (approximately 50 cm^3) (Fig. 1), whereas abdominal computed tomography (CT) scans showed a right common-iliac aneurysm (5 cm diameter) (Fig. 2) in direct contact with the bladder and the sigmoid colon (Figs. 3 and 4). Colonoscopy

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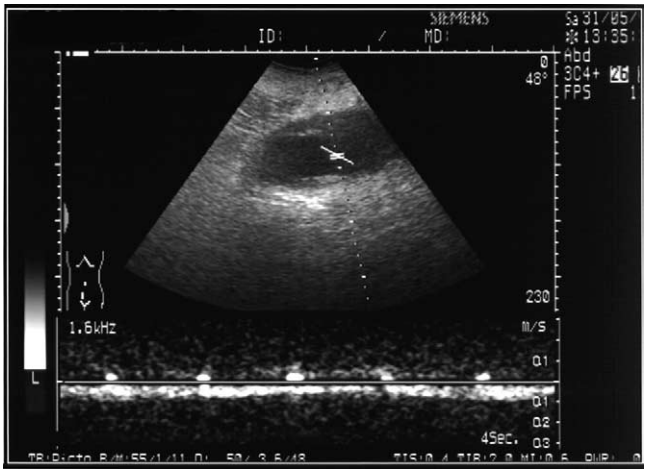

FIGURE 1. Ultrassonographic illustration of the great vascular mass.

revealed blood in the rectum, sigmoid stenosis secondary to an extrinsic pulsate compression, and hematic infiltration of the sigmoid wall (Fig. 5). Blood cultures were positive for *Streptococus faecalis*.

Once AEF was diagnosed, the patient underwent immediate laparotomy. Intraoperative findings included a great pulsatile mass in direct contact with the sigmoid colon, which showed signs of hematic infiltration of its wall. Mobilization of the sigmoid colon confirmed the erosion of the pseudoaneurysm, and bleeding was controlled after clamping of the aorta and iliac arteries. Then, full dissection of the aorta, excision of the entire aortic graft, oversewing of the aortic stump, sigmoidectomy, and end-colostomy (Hartmann's procedure) were performed (Fig. 6). An extra-anatomic bypass was created using axilofemoral Dacron graft and a femoro-femoral saphenous vein graft to

FIGURE 3. Computed tomography scan shows a mass (b) causing extrinsic compression of the bladder (a) and the large bowel (c).

reestablish blood flow to lower extremities. Total aortic clamping time was approximately 60 minutes.

Pathological examination of the colon showed ischemic necrosis of the sigmoid colon, large mesocolic hematoma, and a rectal segment with alterations secondary to acute ischemia.

The patient developed bilateral lower limb compartmental syndrome requiring immediate bilateral fasciotomies at the end of the operation. The patient was discharged from the hospital on the twenty-fourth postoperative day. He had no neuromuscular defi-

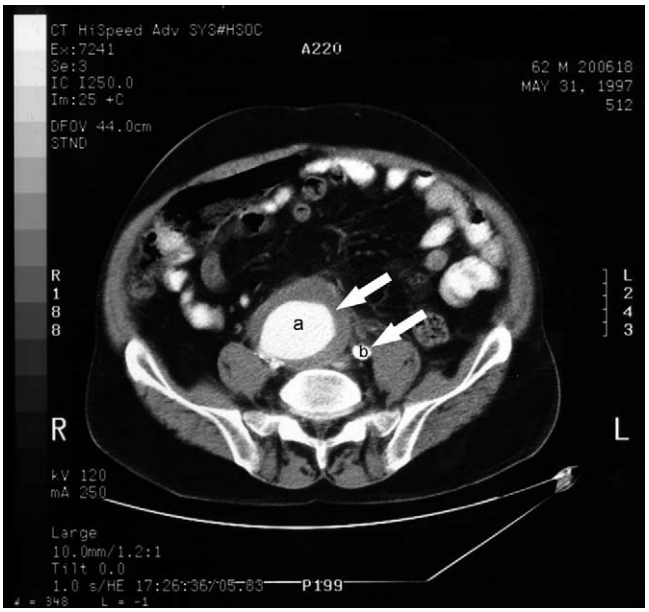

FIGURE 2. Computed tomography scan shows a right common-iliac aneurysm (a) and a normal left common-iliac artery (b).

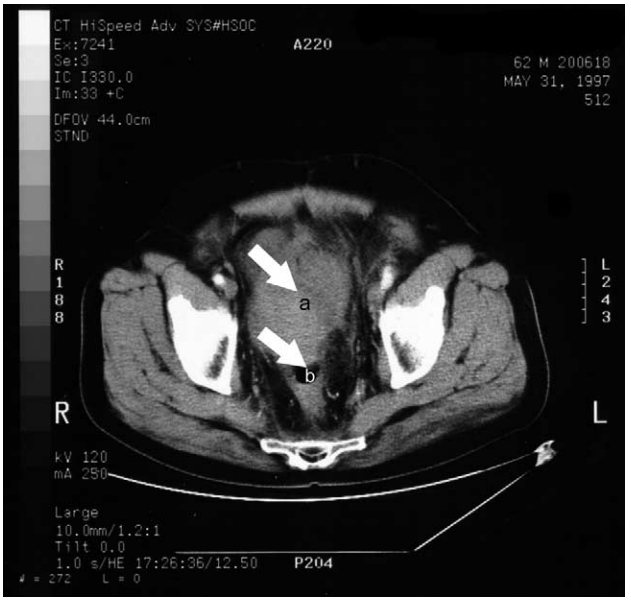

FIGURE 4. Computed tomography scan shows a mass (a) causing extrinsic compression of the bowel (b). A plane between both structures cannot be clearly identified.