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Received: 27 April, 2025

Accepted: 25 May, 2025

Published: 28 July, 2025

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CITATION

Yigit G, Celikten AE, Turkmen U, Alkurt EG, Ekici M. A rare case presenting with rectal bleeding: Iatrogenic transcolonic graft malposition. AZJCVS. 2025;6(2):44-6.

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A rare case presenting with rectal bleeding: Iatrogenic transcolonic graft malposition

Abstract

Aortobifemoral bypass surgery is commonly performed for aortoiliac occlusive disease. Aortoenteric fistula (AEF) is a rare but serious complication, either primary or secondary. This case report presents a 50-year-old male who developed hematochezia three months after aortobifemoral bypass. Colonoscopy revealed an iatrogenic sigmoid colon injury. The patient required multidisciplinary management involving general surgery and urology. He underwent multiple reoperations, including bowel repair, ureteral intervention, and colostomy. Postoperative care included antibiotics and dual antiplatelet therapy. He was discharged in stable condition after 35 days, with no further gastrointestinal bleeding observed during follow-up. This case highlights the need to consider secondary AEF in post-vascular surgery patients presenting with GI bleeding. Prompt diagnosis and coordinated multispecialty intervention are crucial to prevent fatal outcomes and ensure optimal recovery.

Keywords: Aortoenteric fistula, hematochezia, complication

INTRODUCTION

Aortobifemoral bypass surgery is commonly performed for surgical reconstruction in patients with aortoiliac occlusive disease (1). One of the undesirable complications after this surgery is the development of aortoenteric fistula (AEF), which can be primary or secondary with a rate of 0.6% to 4% (2).

AEF is defined as a direct connection between the aorta and the gastrointestinal tract and is classified into primary and secondary AEF. Secondary AEF usually presents in the first few years after aortic surgery, although it can occur at any time between six months and ten years after aortic surgery (3). The most common cause of secondary AEF is prosthetic vascular grafts used in abdominal aorta reconstruction (4,5). The duodenum is the most commonly affected site for developing AEF, while colon-related pathologies are rarely observed (6). AEF is a rare cause of gastrointestinal bleeding (<1:1000) but has a high mortality rate when not properly diagnosed and treated (7).

In this report, we present the multidisciplinary management of a 50-year-old man who underwent aortobifemoral bypass surgery three months ago and presented with hematochezia after an iatrogenic sigmoid injury. To the best of our knowledge, sigmoid colon involvement due to graft malposition in AEF is extremely rare, and very few similar cases have been reported in the literature.

CASE REPORT

A 50-year-old male patient who was an active smoker had a family history of irritable bowel syndrome and complained of intermittent claudication at 50 meters and had undergone aortobifemoral bypass surgery in another center with a diagnosis of aortoiliac occlusive disease. The patient had no postoperative problems and was discharged with medical treatment. Three months after the operation, the patient presented to our gastroenterology clinic with the complaint of hematochezia. The patient's vital signs were stable, consciousness was clear,

fever was 36 degrees, blood pressure was 110/70 mmHg, pulse rate was 85 beats/min, and saturation was 95%. Laboratory tests revealed WBC: $6.51 \times 10^9/L$, Hgb: 8.7g/dL, CRP: 19.3mg/L, Procalcitonin: 0.28ng/mL. The patient was hospitalized in the cardiovascular surgery clinic after abdominal CT angiography revealed a suspicious vascular structure in the colon segment on the right side. (Figure 1A). A diagnostic colonoscopy was planned by the gastroenterology clinic for further investigation. Upon detection of AEF on colonoscopic examination, the patient was transferred to the intensive care unit. (Figure 1B). On the second day of intensive care unit follow-up, no growth was detected in the blood culture samples taken at the time of initial admission, and there was no fever; sepsis was ruled out, and the patient was planned for open surgery.

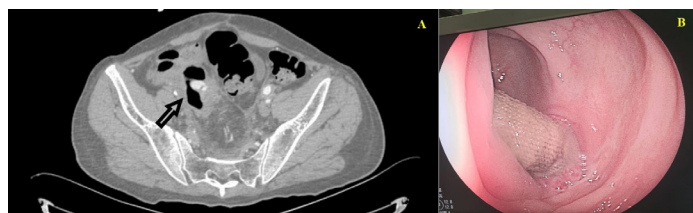


Figure 1. A. Abdominal CT angiography revealed a suspicious vascular structure in the colon segment on the right side (arrow); B. Colonoscopic view of the aorto-bifemoral graft inside the sigmoid colon

Reoperation was performed together with the general surgery team. Adhesions in the abdomen due to the previous operation were tried to be opened, and the previous graft site was reached. The right femoral was opened through the old incision, and an anastomosis site was found. Intestinal tissues clustered around the right leg of the graft were observed. (Figure 2A). The right leg of the graft was freed by removing adhesions from the main body to the site of separation. After heparinization, clamps were placed, and the right leg of the pants graft was completely removed, leaving a stump. Re-interposition, defined as the replacement of the previously inserted graft limb with a new synthetic graft segment through standard vascular anastomosis, was then performed using 8mm dacron graft. (Figure 2B). Simultaneously, the sigmoid colon segment through which the graft passed was removed, and the colon was anastomosed end-to-end. Microbiologic and pathologic samples were taken from the operation field. There was no abscess, purulent content, or infective appearance in the abdomen. The patient was taken to the intensive care unit after the operation. Broad-spectrum antibiotherapy was organized with the recommendations of the infectious diseases' clinic. Hemodynamic and laboratory parameters were normal. Intraoperative cultures of graft and tissue samples were negative for growth during follow-up. On the second postoperative day, abdominal distension and light-colored clear fluid coming from the abdominal drain ureteral injury were considered, and the patient was re-operated with the general surgery and urology team. The re-anastomosed colon segment was found to have severe edema, and this segment was resected, and a colostomy was opened. Intraoperative examination revealed that the proximal segment of the left ureter

was markedly dilated, and the distal ureter could not be selected because of adhesions. In intraoperative ureterorenoscopy, the left distal ureter segment could not be passed due to possible adhesions. The left kidney and proximal ureter were dissected and visualized. It was observed that the left ureter was transected after proximal 4-5 cm. The urology team decided to perform a left nephrectomy, considering that the adhesions due to previous operations might damage the vascular graft. In the postoperative intensive care unit follow-up, hemodynamics and renal functions did not deteriorate, and the patient was extubated on postoperative day two. Septic condition and renal failure did not develop during follow-up. Meropenem and teicoplanin treatment was organized with the recommendations of infectious diseases. Abdominal examination and renal functions were stable, and the regimen was gradually opened. The patient was mobilized and taken to the ward for follow-up. There were no problems in the ward follow-up, and no growth was observed in the blood cultures taken during hospitalization. The patient, whose general condition completely improved, was discharged from our service on the 35th day of hospitalization with dual antiplatelet (clopidogrel and acetylsalicylic acid) treatment. The use of dual antiplatelet therapy was initiated in the early term to reduce the risk of graft thrombosis, considering the synthetic nature of the vascular graft and the absence of bleeding complications. In addition, the presence of peripheral arterial disease in the distal lower extremities also contributed to our decision to initiate dual antiplatelet therapy.

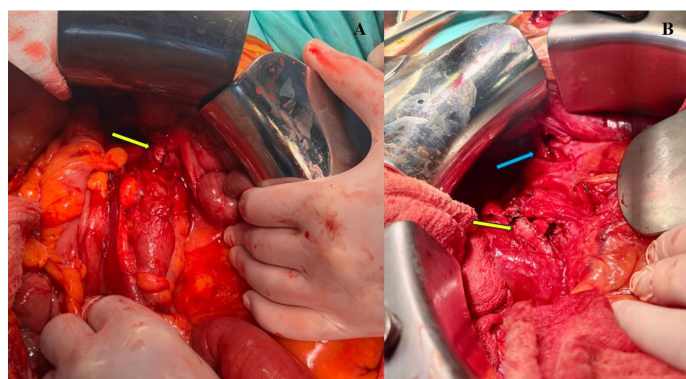


Figure 2. A. Intraoperative view of the intestinal tissues clustered around the right leg of the graft; B. Graft reinterposition using 8mm Dacron (yellow arrow indicates old graft, blue arrow indicates new graft)

This report was carried out with the permission of Hitit University Erol Olçok Training and Research Hospital Non-Invasive Research Ethics Committee (Date: 13/09/2023, Decision No: 2023-108). Written informed consent has been obtained from the patient for publication of the case report and accompanying images.

DISCUSSION

Secondary AEF, first described by Brock in 1953, is an important problem that can also develop due to aortic grafts used in vascular surgery (8). However, the time of onset of postoperative complications related to AEF can vary considerably (9). When

all the findings of the patient who presented to us in the third postoperative month are evaluated, it is predicted that the cause of AEF in the first case was secondary to graft malposition. It is known that AEFs are rare causes of GI bleeding, and the fact that the patient in this case presented with hematochezia supports this. In addition, other findings of AEF, such as abdominal pain, sepsis, retroperitoneal abscess, or back pain, were absent in our case.

CT angiography is the standard radiologic method used to detect AEF. Diagnostic criteria for AEF include perigraft fluid collection, soft tissue attenuation, ectopic gas, pseudoaneurysms, or focal bowel wall thickening (10). Although direct examination with endoscopy and colonoscopy cannot visualize ongoing bleeding from the enteric fistula in AEFs with active bleeding, it is very effective in demonstrating graft malpositions. Although the common findings of AEF in the literature are not present on CTA images, we confirmed the malposition after direct colonoscopy to confirm the current diagnosis based on our clinical suspicion and experience.

AEF should be considered a surgical emergency. Although the mortality and complication risks of reoperation are high, open surgical reoperation is an option that cannot be ruled out due to the poor survival rates without intervention (11). While most secondary aortoenteric fistulas typically involve the duodenum due to its anatomical proximity to the aorta and surgical grafts, rare instances affecting the sigmoid colon or resulting from foreign body erosion, such as pledget-induced case, has also been documented (12). These unusual presentations, like the case we report, highlight the importance of considering diverse etiologies, particularly in the context of iatrogenic complications. It is important that patient management and decisions in patients with AEF are made with a multidisciplinary approach from the time of diagnosis. In this case, although the decision of nephrectomy made together with the urology department was radical in terms of ureteral injury that occurred during the resection of severe adhesions and inflamed tissues due to the previous operation, this decision can be justified when the benefit-loss ratio to the patient is considered. In addition, removing the leg of the old graft with sigmoid colon resection and subsequent re-interposition of the graft was performed to prevent limb amputation. In this case, it is essential to manage the whole process with a multidisciplinary team to prevent mortality and morbidity rates.

CONCLUSION

Malposition of grafts in vascular surgery is a rare complication but has clinically significant consequences. Secondary AEF should be considered as a differential diagnosis in every patient with GI bleeding who has undergone vascular surgery. A multidisciplinary approach is important in detecting and treating this complication, which has a high mortality rate.

Conflict of Interests: The authors declare that there are no conflict of interests.

Financial Disclosure: The authors declare that there is no financial support.

Ethics Committee Approval: Hitit University Erol Olçok Training and Research Hospital Non-Invasive Research Ethics Committee (Date: 13/09/2023, Decision No: 2023-108).

Patient Informed Consent: Written informed consent has been obtained from the patient for publication of the case report and accompanying images.

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