

Fistula between splenic artery aneurysm and colon lumen as an unusual cause of lower gastrointestinal tract bleeding and endovascular treatment

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ABSTRACT

The patient, who had undergone a liver transplant 15 years prior due to autoimmune hepatitis and was subsequently followed for chronic portal hypertension, presented to our emergency department in the evening with abdominal pain and melena. This case report aims to present an uncommon cause of lower gastrointestinal bleeding, which is a fistula between the splenic artery and the colon lumen, as well as the fistula's diagnostic process and endovascular treatment.

Keywords: Splenic artery aneurysm, splenocolic fistula, melena, lower gastrointestinal bleeding, splenic artery embolisation

INTRODUCTION

This paper sets out the case of a 40-year-old female patient who presented to the emergency department of our hospital at approximately 10 p.m. with the complaint of severe stomachache and melena. Her medical history revealed that the patient had undergone a liver transplant at a different medical center in 2010 due to decompensated cirrhosis secondary to autoimmune hepatitis. In 2017, portal vein thrombosis was detected, and the patient commenced low-molecular-weight heparin therapy. In 2018, the development of ascites was observed, but it was managed with diuretic medications. Although bleeding fistula between the splenic artery and the colonic lumen have been rarely reported in the literature, they have generally been treated surgically.¹ In addition, chronic portal hypertension has been shown to cause splenic artery aneurysms in rare cases, as in our patient.²

CASE

The patient exhibited elevated liver enzymes at admission, with total bilirubin levels of 4.52 mg/dl, direct bilirubin levels of 3.52 mg/dl, lactate dehydrogenase (LDH) levels of 378 U/L, and gamma-glutamyltransferase (GGT) levels at 128 U/L. While the leucocyte count was found to be within normal limits (8.08 K/ μ L), the neutrophil ratio was found to be elevated (76.3%), and the lymphocyte ratio was found to be significantly reduced (8.78%). The hemoglobin level was recorded as low as 5.65

g/dl at admission but decreased to 3.5 g/dl after 22 hours. Prothrombin time-international normalized ratio (PTT-INR) was within normal limits of 1.18; consequently, an endoscopy and a colonoscopy were performed to reveal the bleeding focus.

A combination of upper and lower gastrointestinal endoscopy revealed the presence of oesophageal varices and portal gastropathy, but no active bleeding focus was detected. Subsequently, a decision was made to proceed with a comprehensive patient evaluation using contrast-enhanced upper and lower abdominal computed tomography (CT) and mesenteric CT angiography. CT angiography revealed multiple saccular aneurysms of varying sizes and structures along the splenic artery. In the distal part of the splenic artery, a saccular aneurysm with a diameter of 1 cm eroded the colon wall at the level of the splenic flexure and migrated to the sub-endometrial layer (**Figure 1**). Furthermore, late-phase imaging revealed the presence of hyperdense linear areas originating from the aforementioned aneurysm (**Figure 2**) and extending into the colon's lumen (**Figure 3**). Given the findings, which suggested the formation of a fistula between the splenic artery aneurysm and the colonic lumen at the level of the splenic flexure, the patient was referred to the interventional radiology department. It was decided that digital subtraction angiography (DSA) would be performed.



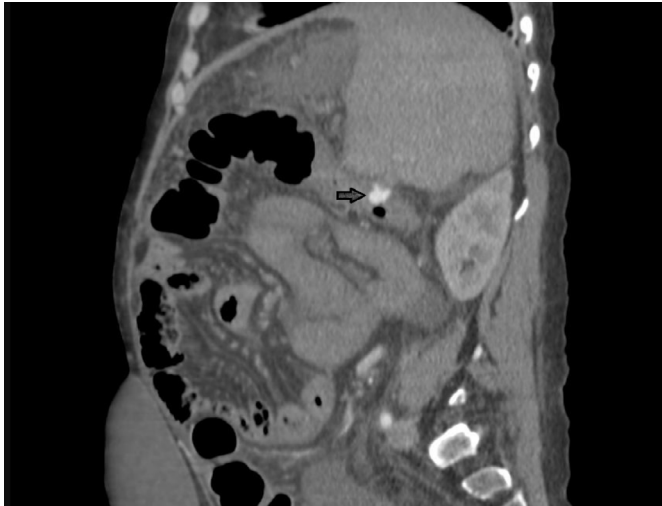


Figure 1. In the distal part of the splenic artery, a saccular aneurysm with a diameter of 1 cm eroded the colon wall at the level of the splenic flexure and migrated to the sub-endometrial layer (black arrow)



Figure 2. Late-phase imaging revealed the presence of hyperdense linear areas originating from the aforementioned aneurysm (black arrow)



Figure 3. Extension of the hyperdense linear area into the colon lumen is shown (black arrow)

TREATMENT

Following the administration of local anesthesia, an 18G needle was inserted into the right common femoral artery under ultrasonography guidance, and a 5F 11 cm vascular sheath was placed. Selective catheterization of the celiac trunk was then performed using a 5F shepherd hook catheter and 180 cm hydrophilic glide wire, after which diagnostic DSA images

of the celiac trunk and its branches were obtained. Following the confirmation of multiple aneurysms with various sizes and structures in the splenic artery (**Figure 4**), a microcatheter and microguide wire were used co-axially to reach the distal splenic artery and aneurysm localization was confirmed with contrast material (**Figure 5**). After reaching just proximal to the splenocolic fistula level with the microcatheter, the microcatheter lumen was washed with dextrose, n-acetyl cyanoacrylate with lipiodol was mixed 50/50, and a total of 10 cc was injected (**Figure 6**). Post-embolisation control DSA images revealed that the distal segment of the splenic artery and the aneurysms arising from this segment had been completely embolised, with no contrast agent visible (**Figure 7**). Subsequent dynamic CT images demonstrated that occlusion had been successfully achieved at the fistula level, with no evidence of transition to the colon lumen (**Figure 8**). Consequently, the procedure was terminated.

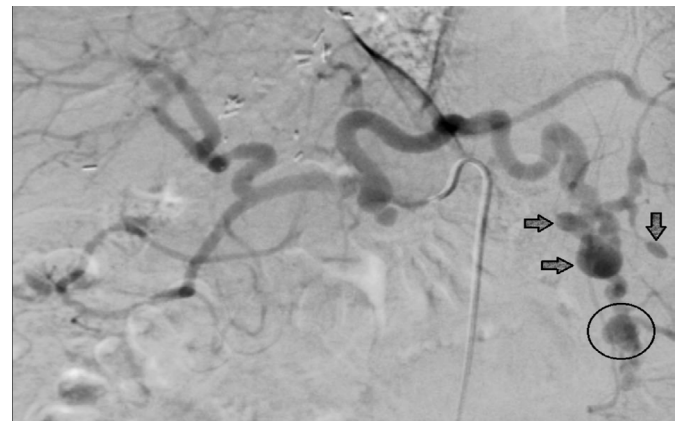


Figure 4. Multiple aneurysms of various sizes and structures are shown in the splenic artery (black arrow and black circle)

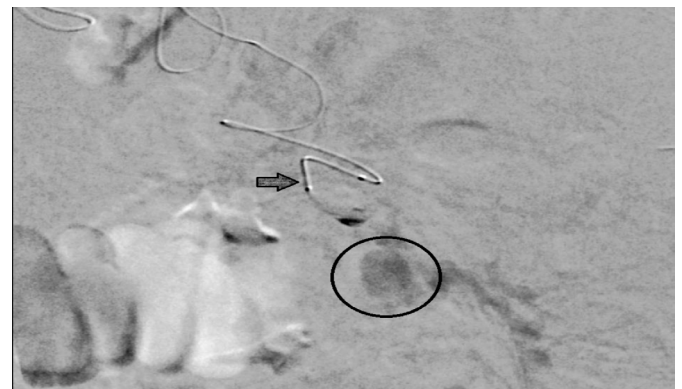


Figure 5. A microcatheter and microguide wire were used co-axially to reach the distal splenic artery and aneurysm localization was confirmed with contrast material (black arrow and black circle)

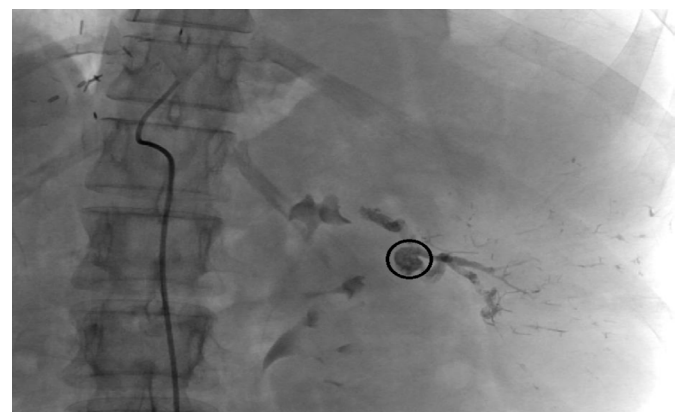


Figure 6. N-acetyl cyanoacrylate with lipiodol was mixed 50/50, and a total of 10 cc was injected (black circle)

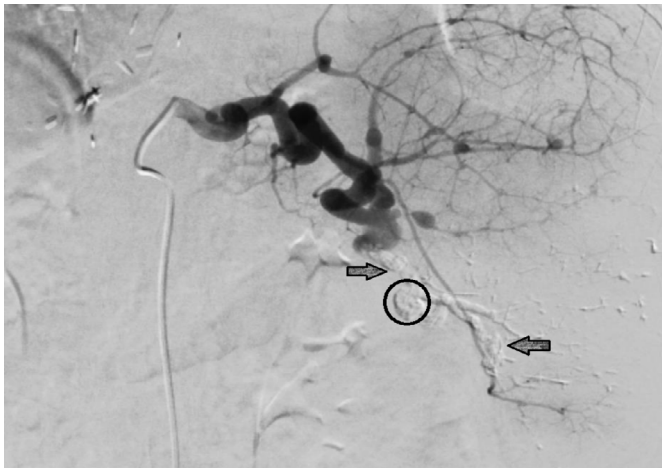


Figure 7. Post-embolisation control DSA images revealed that the distal segment of the splenic artery and the aneurysms arising from this segment had been completely embolised, with no contrast agent visible (black arrow and black circle)

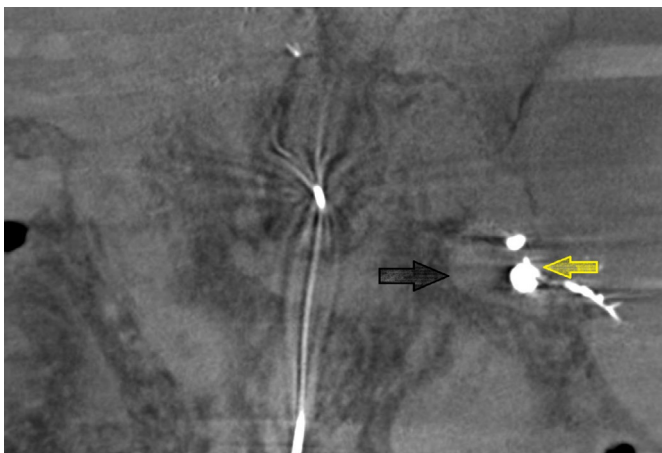


Figure 8. Occlusion had been successfully achieved at the fistula level, with no evidence of transition to the colon lumen (black arrow)

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CONCLUSION

The patient became hemodynamically stable and the hemoglobin level increased to 7.55 mg/dl after 24 hours. The patient's complaint of melena disappeared, and no blood was observed in the colon's lumen during the control colonoscopy. Only yellow-brown fecal material was observed.

ETHICAL DECLARATIONS

Informed Consent

The patient signed and free and informed consent form.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.