

## Case Report

# Iliac Artery Aneurysm with Primary Arteriocolic Fistula: An Unusual Cause of Lower Gastrointestinal Hemorrhage

Ying-Nan Tsai<sup>1</sup>, Chi-Ming Tai<sup>1</sup>, Tsung-Hao Liu<sup>3</sup>, Hao-Ming Li<sup>2</sup>, Kuang-Wen Liu<sup>4</sup> and Lei-Ray Mo<sup>1\*</sup>

<sup>1</sup>Division of Gastroenterology, Department of Internal Medicine, E-Da Hospital, Taiwan

<sup>2</sup>Department of Radiology, and Department of Internal Medicine<sup>3</sup>, E-Da Hospital, Taiwan

<sup>3</sup>Department of Internal Medicine<sup>1</sup>, National Taiwan University Hospital, Taiwan

<sup>4</sup>Division of Colorectal Surgery, Department of Surgery, E-Da Hospital, Taiwan

**\*Corresponding author**

Lei-Ray Mo, Division of Gastroenterology, Department of Internal Medicine, E-Da Hospital, Kaohsiung, Taiwan; Tel: 886-7-6150011; Fax: 886-7-6155352.; Email: moleinray@gmail.com

Submitted: 08 August 2014

Accepted: 18 October 2014

Published: 20 October 2014

**Copyright**

© 2014 Mo et al.

**OPEN ACCESS****Keywords**

- Aneurysm
- Abdominal pain
- Computed tomography
- Gastrointestinal bleeding
- Intestinal Fistula

**Abstract**

Arteriocolic fistula is a rare but life-threatening condition. We report the case of a 70-year-old man who presented with passage of bloody stools and intolerable abdominal pain. Esophagogastroduodenoscopy and colonoscopy failed to identify the source of the bleeding. Contrast-enhanced abdominal computed tomographic scans showed an aneurysm arising from the left common iliac artery with close adhesion between the aneurysm and adjacent sigmoid colon, but no extravasation was detected. After an episode of severe abdominal pain with massive bleeding, emergency laparotomy revealed that the aneurysmal wall was closely adhered to the sigmoid colon with fistula formation. Iliac arterial aneurysm with arteriocolic fistula was diagnosed. The aneurysm was excised, and femoral-femoral bypass grafting was done. No bleeding recurred during 6 months of follow-up. Although bleeding from a primary iliac arteriocolic fistula is rare, it should be considered in the differential diagnosis of lower gastrointestinal bleeding, especially in patients with severe abdominal pain.

**ABBREVIATIONS**

GI: gastrointestinal, CT: computed tomography, LGIB: lower gastrointestinal bleeding.

**INTRODUCTION**

Aortoenteric fistula is a well-recognized complication of aortic aneurysm; in contrast, arterioenteric fistula originating from other major arteries is relatively rare. An arterioenteric fistula can lead to massive gastrointestinal bleeding and is potentially life-threatening. This is a challenging diagnosis for most clinicians. [1,2] We report a rare case of iliac artery aneurysm formation with development of a primary arteriocolic fistula. The patient presented with lower gastrointestinal bleeding that was successfully treated with surgical intervention.

**CASE PRESENTATION**

A 70-year-old man presented with a medical history of hypertension and with passage of bloody stools one day prior to being admitted to our hospital. These episodes of hematochezia were accompanied by intolerable abdominal pain. Upon

admission, results of physical examination were unremarkable, except for mild tenderness to palpation of the lower abdomen.

Laboratory values were as follows: hemoglobin level, 9.7 gm/dL (normal range: 13.5–17.5 gm/dL); platelet count, 271,000/ $\mu$ L (normal range: 150,000–400,000/ $\mu$ L); prothrombin time, 10.3 seconds (control: 10.3 seconds); and activated partial prothrombin time, 28.3 seconds (control: 29.5 seconds). Complete colonoscopy revealed segmental hyperemia at the sigmoid colon, and the endoscope met with high resistance in this area. However, no active bleeding was noted during colonoscopy. Esophagogastroduodenoscopy also failed to disclose the possible site of bleeding. Computed tomographic (CT) angiography was performed to evaluate obscure gastrointestinal bleeding. Contrast-enhanced abdominal CT scans showed a 5.4-cm aneurysm with thrombus inside, which originated in the left common iliac artery. Close adhesion was noted between the aneurysm and adjacent sigmoid colon, and adjacent mesenteric fat stranding was seen as well (Figure 1A and 1B), but no extravasation was detected.

While he was hospitalized, the patient had several bouts of

severe low abdominal pain that radiated to his lower back, and he passed a large amount of bloody stool. The severity of the pain progressed to a point where it could be only partially controlled by injection of meperidine. After the patient had yet another episode of severe abdominal pain with massive gastrointestinal bleeding, emergency laparotomy was performed. This revealed that the aneurysmal wall was closely adhered to the sigmoid colon, and that a fistula had formed. A 0.3-cm fistular opening was noted at on the mucosal side of the sigmoid colon (Figure 2A and 2B). Iliac arterial aneurysm with arteriocolic fistula was diagnosed. Hartmann's operation with sigmoidectomy was performed, the aneurysm was excised, and then femoral-femoral bypass grafting was done. Wound infection had developed during admission but this improved after debridement and antibiotic treatment. During a 6-month follow-up period, bleeding did not recur, and contrast-enhanced abdominal CT scans showed no signs of enterovascular fistula.

## DISCUSSION

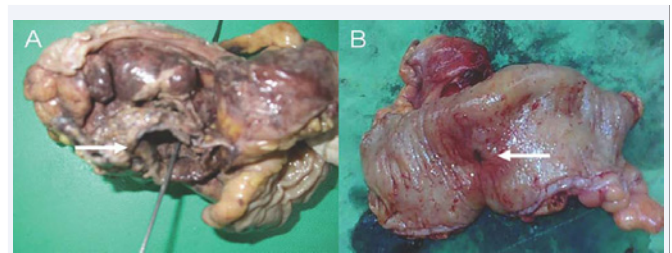
Lower gastrointestinal bleeding (LGIB) is common, and usually stops spontaneously. However, massive LGIB is life-threatening, and around 10% to 15% of these patients require emergency surgery [1]. The differential diagnosis of LGIB associated with abdominal pain includes ischemic bowel disease, intussusception, neoplasms, Crohn's disease, and arterioenteric fistula [3].



**Figure 1a** (A) Contrast-enhanced abdominal CT scans with curved multiplanar reconstruction images show a 5.4-cm aneurysm arising from the left common iliac artery, with partial thrombus and regional mesenteric fat stranding (white arrow).



**Figure 1b** (B) Close adhesion between the aneurysm and adjacent sigmoid colon was also seen (white arrow).



**Figure 2** (A) This surgical specimen shows the aneurysmal wall (white arrow) closely adhering to the sigmoid colon, with fistula formation. (B) The orifice of the fistula was found on the mucosal side of sigmoid colon (white arrow).

Arterioenteric fistula is an indication of communication between a major artery and the digestive system. It is also rare but potentially life-threatening.

Primary and secondary arterioenteric fistulas may occur. Etiologies of primary arterioenteric fistulas include aneurysms, infection, peptic ulcers, trauma, foreign body ingestion, inflammatory bowel disease (Crohn's disease), malignancy, and radiotherapy. Secondary fistulas are associated with complications from aneurysm repair [4]. Atherosclerosis, inflammation, infection, or neoplasms can lead to an expanding aneurysm, and primary arterioenteric fistula occurs spontaneously after a perforation into a fixed portion of bowel. Formation of a fistula of an iliac aneurysm that extends into the colon and results in primary arteriocolic fistula is rare [5,6].

Signs of arteriocolic fistula are similar to those of aortoenteric fistula. The classic triad of aortoenteric fistula includes gastrointestinal bleeding (64%-94% of cases), abdominal pain (32%-48% of cases), and a pulsatile mass (17%-25% of cases) [7]. Colonoscopy is the first diagnostic step for patients with LGIB, but the detection rate for arteriocolic fistula is low. CT has the highest sensitivity for detecting an aortoenteric fistula, followed by arteriography [8]. The most specific CT sign, direct extravasation of contrast medium into bowel lumen, is rarely seen. CT signs suggestive of the diagnosis include effacement of the adjacent fat plane, focal thickening or tethering of a bowel loop, and presence of a penetrating ulcer or intramural hematoma at the vessels [8]. In our case, no active bleeding was noted during colonoscopy and contrast-enhanced abdominal CT showed no extravasation. Preoperative diagnosis of arteriocolic fistula-related LGIB is difficult and challenging. Clinical suspicion should lead to early treatment.

Treatment of primary arteriocolic fistula includes surgical intervention and endovascular management. There are several surgical approaches for the management of primary arteriocolic fistula. Aneurysm resection and reconstruction of the aorta with an impregnated graft have been the most popular approaches. Endovascular managements are suggested for patients at a higher risk for surgery. Embolization and percutaneous aortic endografts are commonly used. These are efficient and safe to stabilize life-threatening arteriocolic fistulas, and lead to shorter hospital stay and a lower incidence of complications. Rebleeding and re-infection are major complications, and further surgical treatments are always needed [4,9].

In conclusion, although bleeding from a primary iliac arteriocolic fistula is rare, it should be considered in the differential diagnosis of LGIB, especially in patients with severe abdominal pain.

## REFERENCES

1. Chin CC, Yeh CY, Kuo YH, Wang JY. Massive lower gastrointestinal bleeding from an external iliac artery fistula in a patient with bladder cancer. *Chang Gung Med J.* 2008; 31: 612-615.
2. Leary CJ, Sussman SK, Ohki SK. Life-threatening gastrointestinal hemorrhage secondary to nonmesenteric sources. *J Vasc Interv Radiol.* 1997; 8: 1025-1028.
3. Vernava AM, Moore BA, Longo WE, Johnson FE. Lower gastrointestinal bleeding. *Dis Colon Rectum.* 1997; 40: 846-858.
4. Leonhardt H, Mellander S, Snygg J, Lönn L. Endovascular management of acute bleeding arterioenteric fistulas. *Cardiovasc Intervent Radiol.* 2008; 31: 542-549.
5. Longaker CJ, Bubrick MP, Kiser JC. Arteriocolic fistula: an unusual cause of gastrointestinal-tract bleeding. *Dis Colon Rectum.* 1977; 20: 135-138.
6. Wilson SE, Owens ML. Aortocolic fistula, a lethal cause of lower gastrointestinal bleeding: report of a case. *Dis Colon Rectum.* 1976; 19: 614-617.
7. Ranasinghe W, Loa J, Allaf N, Lewis K, Sebastian MG. Primary aortoenteric fistulae: the challenges in diagnosis and review of treatment. *Ann Vasc Surg.* 2011; 25: 386.
8. Saers SJ, Scheltinga M. Primary aortoenteric fistula. *Br J Surg.* 2005; 92: 143-152.
9. Raman SP, Kamaya A, Federle M, Fishman EK. Aortoenteric fistulas: spectrum of CT findings. *Abdom Imaging.* 2013; 38: 367-375.

### Cite this article

Tsai YN, Tai CM, Liu TH, Li HM, Liu KW, et al. (2014) Iliac Artery Aneurysm with Primary Arteriocolic Fistula: An Unusual Cause of Lower Gastrointestinal Hemorrhage. *JSM Gastroenterol Hepatol* 2(4): 1034.