

Endovascular Management for Isolated Spontaneous Dissection of the Superior Mesenteric Artery: Report of Two Cases and Literature Review

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ABSTRACT

The clinical course and treatment strategies of isolated superior mesenteric artery (SMA) dissection have not been fully investigated. Two cases of uncontrolled abdominal pain caused by isolated SMA dissection were successfully treated with percutaneous endovascular stent placement. At follow-up 6 months later, computed tomography confirmed that the lesions had stabilized. The patients remained symptom free at 14- and 13-month follow-up, respectively. The present report describes these two cases of isolated SMA dissection treated successfully with percutaneous endovascular stent placement, along with a review of the related literature.

ABBREVIATIONS

SMA = superior mesenteric artery, PTA = percutaneous transluminal angioplasty

Isolated spontaneous dissection of the superior mesenteric artery (SMA) has been reported as a very rare cause of acute abdominal pain. Early diagnosis of this condition has historically been very difficult (1–5). However, early identification in the acute stage is increasingly possible because of widespread use of imaging for the evaluation of abdominal pain and advances in imaging modalities, including ultrasonography (US) and computed tomography (CT) (6).

The pathology and natural course of SMA dissection remain unclear. Possible causes include Ehlers–Danlos syndrome, segmental arterial mediolysis, trauma, atherosclerosis, fibromuscular dysplasia, and vasculitis (1). Therapeutic options include surgical, medical, and endovascular treatments, although no consensus has been reached with regard to the best treatment modality.

Herein we describe two patients who presented with acute abdominal pain caused by isolated spontaneous dissections of the SMA that were rapidly identified on abdominal CT scans. Percutaneous endovascular stent implantation was performed in the setting of persistent or recurring pain despite anticoagulation and antiplatelet therapy. Symptoms were completely resolved after the procedures, and the patients showed no evidence of recurrence during more than 13 months of follow-up.

This case report was reviewed and approved by the institutional review board of the authors' institution.

CASE REPORTS

Case 1

A 48-year-old man presented to the emergency department with a 7-day history of severe epigastric pain. He had no notable medical history except for diverticulitis of the ascending colon 1 year earlier. Physical examination revealed a temperature of 36.8°, blood pressure of 110/70 mm Hg, and regular pulse rate of 72 beats/min. Abdominal examination demonstrated mild epigastric tenderness without rebound tenderness. The findings of laboratory tests, including complete blood cell count with differential, serum electrolytes, glucose, creatinine, creatinine kinase, bilirubin, amylase, and aminotransferase levels, were within nor-

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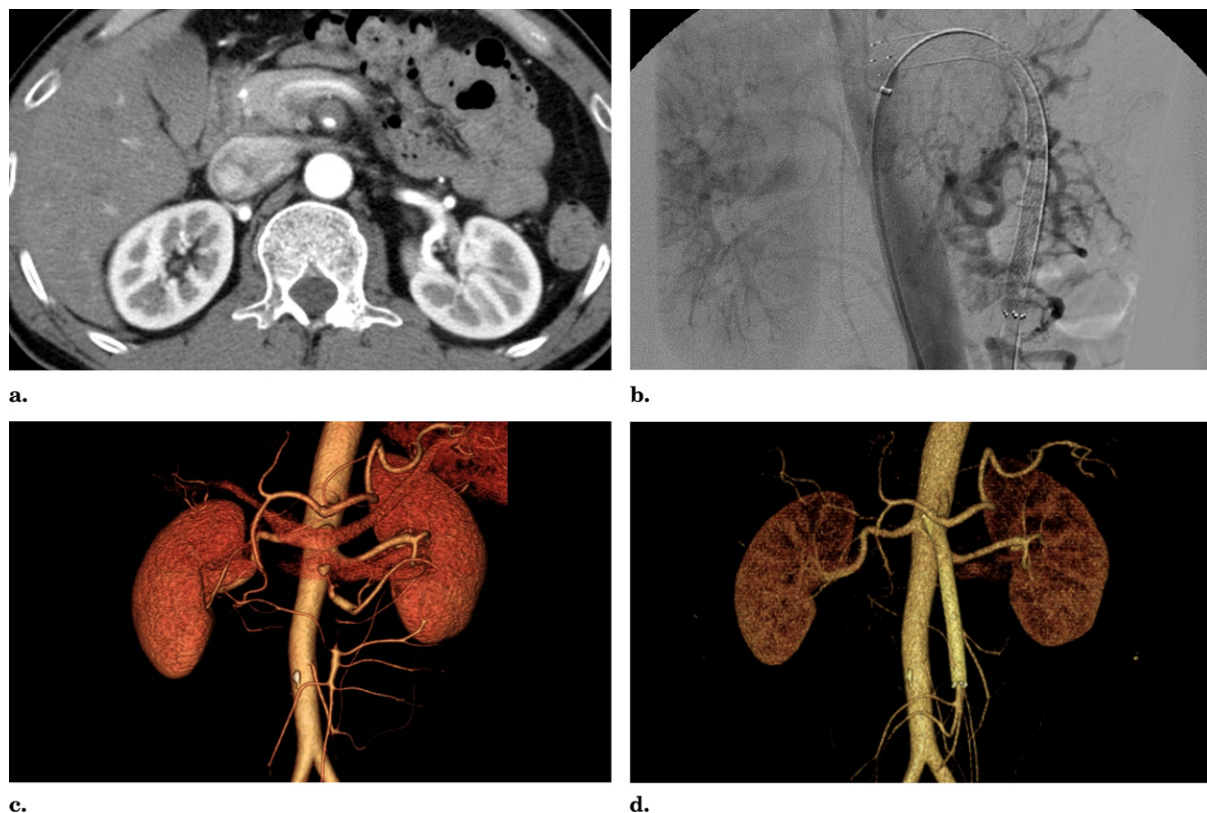


Figure 1. (a) Abdominal CT scan demonstrates SMA dissection with thrombosed false lumen. (b) Percutaneous transcatheter angioplasty was performed by deployment of an 8-mm \times 100-mm self-expandable stent. Follow-up three-dimensional volume-rendered images demonstrate good patency of the stent initially after endovascular treatment (c) and at 6 months (d). (Available in color online at www.jvir.org.)

mal ranges. The electrocardiogram, chest radiograph, and abdominal plain radiographs were also unremarkable.

Esophagogastroduodenoscopy and total colonoscopy performed 6 months earlier showed no abnormal findings except diverticulosis of the right colon. Therefore, abdominal CT was initially performed to evaluate the current abdominal pain. An abdominal CT scan (Fig 1a) revealed an approximately 7.8-cm-long segmental SMA dissection with proximal dilation. Acute angulation and narrowing of the proximal celiac axis with minimal poststenotic dilation was also demonstrated on the CT scan. There was no evidence of bowel ischemia or diverticulitis on the CT scan. Therefore, median arcuate ligament syndrome was suggested.

The patient was treated with anticoagulation (enoxaparin 1 U/kg every 12 h) and antiplatelet therapy (aspirin 100 mg/d and clopidogrel 75 mg/d) after admission, but his symptoms recurred after eating. We, therefore, decided to perform percutaneous endovascular stent implantation in the SMA dissection on the third hospital day.

The angiogram demonstrated a segmentally compressed true lumen in the middle part of the SMA and a small round pseudoluminal opacification of the flap via the side branch aperture. The SMA was superselected with a 5-F Cobra catheter (Cook, Bloomington, Indiana) through a 7-F guiding sheath (Ansel; Cook). A 0.035-inch J-tip guide

wire (Terumo, Tokyo, Japan) was negotiated to pass through the dissected true lumen under roadmap image guidance. The guiding sheath was engaged at the SMA orifice while the guide wire was fixed. An 8-mm \times 100-mm-self expandable stent (S.M.A.R.T.; Cordis, Miami Lakes, Florida) was deployed across the dissection (Fig 1b).

The patient was discharged 1 day after the procedure with no further abdominal symptoms. A 6-month follow-up CT angiogram (Fig 1d) showed good lumen patency compared with the initial CT angiogram (Fig 1c). At 14 months of follow-up, he described no recurrent symptoms.

Case 2

A 46-year-old man presented to the emergency department with severe postprandial abdominal pain for 1 day. He was healthy, with no history of hypertension, diabetes, abdominal surgery, or recent abdominal trauma. Physical examination revealed a temperature of 36.8°, a blood pressure of 130/80 mm Hg, and a regular pulse rate of 82 beats/min. Abdominal examination revealed epigastric tenderness but no rebound tenderness, and findings of rectal examination were normal. The findings of laboratory tests, including complete blood cell count with differential, serum electrolytes, glucose, creatinine, creatinine kinase, bilirubin, amylase, and aminotransferase levels, were unremarkable. The

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