Cureus
Part of SPRINGER NATURE

Open Access Case Report

# Spontaneous Isolated Superior Mesenteric Artery Dissection Presenting as Paralytic Ileus: A Case Report

**Review began** 10/14/2026
**Review ended** 10/20/2026
**Published** 10/22/2026

© **Copyright** 2026
Vora et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**DOI:** 10.7759/cureus.118423

Keval Vora [1], Jyoshna Latchubukta [1], Supraja Laguduva Mohan [2], Venkatesh Vaithiyam [1], Sanjeev Sachdeva [1]

1. Gastroenterology and Hepatology, Govind Ballabh Pant Institute of Postgraduate Medical Education and Research, New Delhi, IND 2. Radio Diagnosis, All India Institute of Medical Sciences, New Delhi, IND

**Corresponding author:** Venkatesh Vaithiyam, venkateshvaithiyam172@gmail.com

## Abstract

Spontaneous isolated superior mesenteric artery dissection (SISMAD) is an uncommon vascular disorder that usually presents with acute abdominal pain but may mimic other abdominal emergencies. We report a 56-year-old man who presented with a three-day history of progressive abdominal distension, abdominal pain, vomiting, and constipation. He was hemodynamically stable, and plain abdominal radiography showed dilated bowel loops with air-fluid levels suggestive of paralytic ileus. Contrast-enhanced computed tomography (CECT) and computed tomography angiography (CTA) demonstrated an isolated superior mesenteric artery (SMA) dissection without any evidence of ischemia or mechanical obstruction. The patient was managed conservatively with bowel rest, analgesics, and antiplatelet therapy, with complete clinical improvement. This case highlights that SISMAD can present with an ileus-like, pseudo-obstructive clinical picture. CTA is central to confirming the vascular diagnosis and assessing bowel viability. In hemodynamically stable patients without evidence of bowel ischemia, initial conservative management with close clinical surveillance is an appropriate treatment strategy.

**Categories:** Radiology, General Surgery, Gastroenterology
**Keywords:** acute abdomen, acute mesenteric ischemia (ami), isolated spontaneous superior mesenteric artery dissection, paralytic ileus, sakamoto classification

## Introduction

Arterial dissection is characterized by disruption of the arterial wall, creating a false lumen when blood enters through an intimal tear or a medial layer disruption. Arterial dissection most commonly involves the aorta, whereas spontaneous dissection of peripheral and visceral arteries is considerably less frequent. The superior mesenteric artery (SMA) is the most commonly affected visceral artery [1]. However, spontaneous isolated SMA dissection (SISMAD) is a rare but potentially serious vascular disorder characterized by dissection of the SMA in the absence of concomitant aortic dissection, trauma, or iatrogenic injury to the SMA. First described by Bauersfeld in 1947, SISMAD predominantly affects middle-aged men and most commonly presents during the fifth or sixth decades of life [2,3].

Abdominal pain is the predominant clinical manifestation of SISMAD. In a registry of 110 patients, 94.5% presented with abdominal pain, whereas intestinal obstruction was reported in only 7.3% [3]. Consequently, patients presenting with atypical symptoms such as abdominal distension, vomiting, and constipation may mimic more common gastrointestinal causes of intestinal obstruction or ileus [3,4]. This vague clinical presentation can lead to misdiagnosis of SISMAD as acute gastroenteritis, gastritis, or pancreatitis. This may further delay diagnosis, particularly when mesenteric vascular pathology is not initially suspected.

Contrast-enhanced computed tomography (CECT), particularly computed tomography angiography (CTA), is central to diagnosing SISMAD. It allows direct visualization of the intimal flap and true and false lumens, assessment of distal mesenteric perfusion, and detection of complications such as bowel ischemia [4,5]. In hemodynamically stable patients without clinical or radiological evidence of intestinal ischemia or rupture, conservative management is generally considered the initial treatment strategy. This typically includes bowel rest, analgesia, fluid and nutritional support, and blood pressure control [6,7].

Although SISMAD is increasingly recognized with the widespread use of CTA, presentation with ileus-like or pseudo-obstructive clinical pictures remains uncommon and may obscure the underlying vascular diagnosis. We report a case of Sakamoto type I SISMAD presenting with features of intestinal pseudo-obstruction that was successfully managed with conservative therapy. This case highlights the importance of considering SISMAD in the differential diagnosis of unexplained ileus-like symptoms and the role of early contrast-enhanced vascular imaging in establishing the diagnosis.

## Case Presentation

A 56-year-old man presented to us with a three-day history of progressive abdominal distension, abdominal

pain, vomiting, and obstipation. The vomiting was bilious in nature and associated with nausea. Abdominal distention was diffuse and associated with periumbilical abdominal pain, which was colicky in nature and relieved with vomiting. No history of blood in the vomitus, stool, or melena was observed. No fever, jaundice, or prodromal symptoms were observed. He is a known smoker and alcoholic for the past 30 years. The patient had no comorbidities. There was no history of trauma or surgery in the past.

On arrival, on clinical examination, the patient had tachycardia and tachypnea, with normal blood pressure. On abdominal examination, the abdomen was diffusely distended with periumbilical tenderness. However, there was no guarding, rigidity, fluid thrill, or signs of redness. A clinical diagnosis of acute abdomen with intestinal obstruction or acute pancreatitis was made. Laboratory examination revealed an elevated white blood cell count with normal hemoglobin and platelet counts (Table *1*).

| Parameter | Patient value | Reference range | Units |
|---|---|---|---|
| Hemoglobin | 14.5 | 13-17 | g/dL |
| White blood cell count | 13,000 | 4,000-11,000 | cells/μL |
| Platelet count | 350,000 | 150,000-450,000 | cells/μL |
| Blood urea | 90 | 15-45 | mg/dL |
| Serum creatinine | 1.6 | 0.7-1.3 | mg/dL |
| Total bilirubin | 0.8 | 0.2-1.2 | mg/dL |
| AST | 35 | 10-40 | U/L |
| ALT | 49 | 7-56 | U/L |
| ALP | 155 | 44-147 | U/L |
| Serum sodium | 136 | 135-145 | mmol/L |
| Serum potassium | 4.4 | 3.5-5.0 | mmol/L |

**TABLE 1: Baseline hematological and biochemical investigations.**

AST: aspartate aminotransferase; ALT: alanine aminotransferase; ALP: alkaline phosphatase

Renal function tests showed elevated urea and creatinine, consistent with prerenal acute kidney injury (Table *1*). An initial plain abdominal radiograph revealed dilated bowel loops with air-fluid levels, no obvious transition point, and gas in the rectum, suggestive of paralytic ileus (Figure *1*).



**FIGURE 1: Plain radiograph of the abdomen (AP supine view) showing occasional air-fluid levels in the small bowel, with mild-to-moderate gaseous distension of predominantly colonic loops, with gas extending to the distal colon/rectum and no evidence of a transition point suggestive of paralytic ileus.**

The patient was kept nil per os and started on broad-spectrum antibiotics, intravenous fluids, and intravenous analgesics. The patient was further evaluated with CECT with angiography of the abdomen, which demonstrated SMA dissection with an intimal flap within the SMA, extending for approximately 5.2 cm, with a double-lumen configuration and a false lumen larger than the true lumen (Figure *2*).

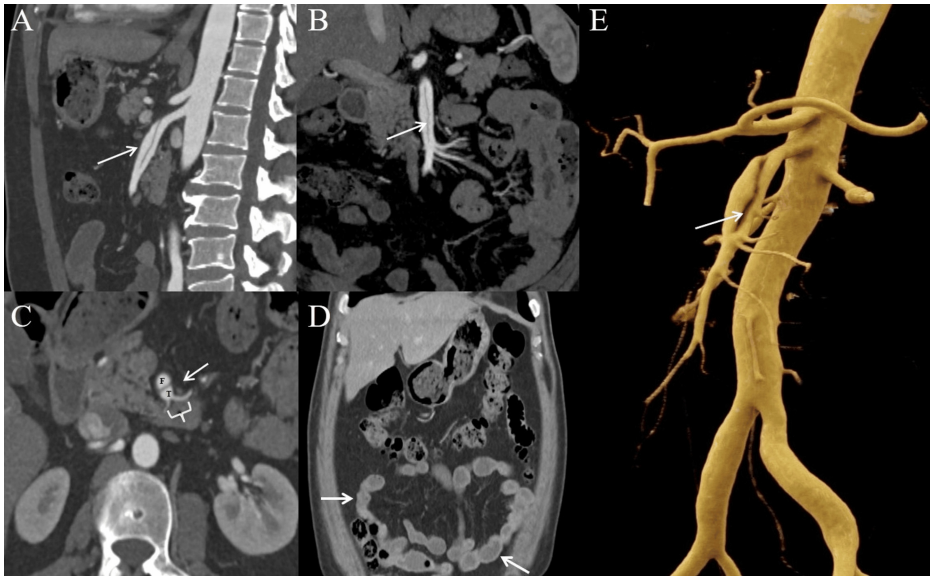



**FIGURE 2: CT angiographic findings of spontaneous isolated superior mesenteric artery dissection.**

(A) Sagittal and (B) coronal CT angiographic reformatted images demonstrate the superior mesenteric artery dissection flap (arrows). (C) Axial CT angiographic image demonstrates the dissection flap (arrows), with delineation of the true (T) and false (F) lumens. The jejunal and ileal branches arise from the true lumen (brackets). (D) Coronal contrast-enhanced CT image demonstrates normal enhancement of the small-bowel walls without evidence of bowel obstruction or ischemic changes. (E) Volume-rendered three-dimensional CT angiographic image demonstrates the dissected segment of the superior mesenteric artery (arrow), with preserved distal branching.

CT: computed tomography

The jejunal and ileal branches remained patent and were visualized arising from the true lumen. The small bowel wall enhancement was preserved and symmetric, with no evidence of bowel ischemia or mechanical obstruction. Radiologically, the dissection was classified as Sakamoto type I SISMAD [5]. With conservative management, the patient improved clinically in 48 hours, with resolution of abdominal distention, obstipation, and acute kidney injury, and was discharged after five days of hospital stay. The patient tolerated oral feeds, was discharged on analgesics and antiplatelet therapy, and had no symptoms at the six-month follow-up.

## Discussion

Given its rarity, heterogeneous clinical presentation, and increasing detection with the widespread use of CTA, the true epidemiology of SISMAD remains difficult to determine. Although historically considered exceptionally rare, the number of reported cases has increased substantially in recent years [8]. However, SISMAD is increasingly recognized due to the widespread use of cross-sectional vascular imaging. The pathophysiology of SMA dissection involves an intimal or vasa vasorum tear that leads to hemorrhage in the medial and adventitial layers of the SMA [9]. The tear can extend over different distances. Connective tissue disorders, vasculitis, fibromuscular dysplasia, and segmental arterial mediolysis have been reported as predisposing factors for SMA dissection [7]. Hypertension, cigarette smoking, and trauma are also known to predispose patients to SMA dissection. Vascular interventions for chronic mesenteric ischemia also predispose patients to SMA dissection [7]. In our patient, the only risk factor was cigarette smoking.

The symptoms of SMA dissection were non-specific; in a systematic review by Ullah et al., patients commonly presented with acute abdominal pain, most commonly in the epigastric and periumbilical regions [7]. Other symptoms included abdominal distention and melena. Approximately 8.2% of patients presented with chronic abdominal symptoms, such as nausea, vomiting, diarrhea, postprandial pain, and weight loss. In the registry reported by Lei et al., 90.9% of patients were male, the mean age was 52.4 years, and 94.5% presented with abdominal pain; 32 of 110 cases were initially misdiagnosed or missed [3]. Intestinal obstruction occurred in 7.3% of patients, including bowel necrosis in 3.6% [3]. In the present case, the combination of abdominal distension, vomiting, constipation, and air-fluid levels initially suggested ileus rather than a vascular disorder. The absence of a mechanical obstructing lesion and preserved bowel wall enhancement favored a functional ileus-like presentation rather than established mesenteric ischemia. A single case cannot prove a direct causal relationship between dissection and ileus; however, the temporal association and exclusion of a mechanical cause make this presentation clinically important.

CTA is the key imaging examination because it can demonstrate the intimal flap, true and false lumens, thrombosis, distal branch perfusion, and bowel wall changes [7]. Sakamoto et al. classified isolated SMA dissection (ISMAD) into four types according to false-lumen patency, the presence of re-entry, and an ulcer-like projection: type I has a patent false lumen with both entry and re-entry; type II has a blind-ending, cul-de-sac-shaped false lumen without re-entry; type III has a thrombosed false lumen with an ulcer-like projection; and type IV has a completely thrombosed false lumen without an ulcer-like projection [5]. However, this classification does not account for the true lumen, which thrombosis or stenosis may compromise. Consequently, it does not adequately encompass SISMAD with complete thrombotic occlusion of the SMA, a distinct subtype described by Zerbib et al. [10]. Yun et al. proposed an angiography-based classification system for ISMAD with four patterns defined by the extent of true-lumen patency and the presence or absence of flow within the false lumen (Figure *3*) [11].

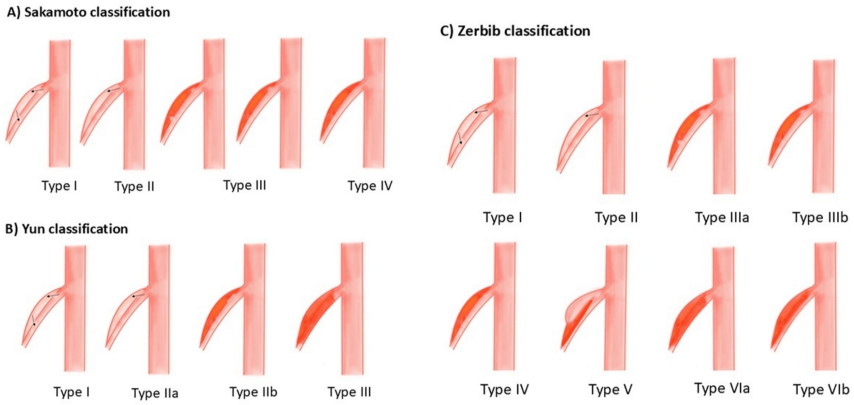



**FIGURE 3: Common classification systems for spontaneous isolated superior mesenteric artery dissection (SISMAD).**

(A) Sakamoto classification [5]: type 1: patent false lumen with entry and re-entry (arrows); type II: sac-like false lumen with only entry (arrow) with no re-entry; type III: thrombosed false lumen with ulcer-like projection(s) at the prior entry/re-entry sites; type IV: completely thrombosed false lumen. (B) Yun classification [11]: type 1: patent false lumen with entry and re-entry (arrows); type IIa: sac-like false lumen with only entry (arrows) and no re-entry; type IIb: sac-like thrombosed false lumen; type III: thrombosed false lumen with true SMA lumen. (C) Zerbib classification [10]: type 1: patent false lumen with entry and re-entry (arrows); type II: sac-like false lumen with only entry (arrows) and no re-entry; type III: thrombosed false lumen with ulcer-like projection(s) at the prior entry and re-entry sites (IIIa) or entry site alone (IIIb); type IV: thrombosed false lumen without ulcer; type V: aneurysmal dissection with stenosis of distal SMA; type VI: thrombosed false lumen with total (VIa) or partial (VIb) true SMA lumen thrombosis.

SMA: superior mesenteric artery

Figure hand-drawn by Supraja Laguduva Mohan on an iPad with a pencil (Apple, Cupertino, CA, USA), based on the classification descriptions provided by Sakamoto et al. [5], Yun et al. [11], and Zerbib et al. [10].

Several modified classification schemes have since been described; however, their clinical application has remained limited, largely because they are more complex than the original system [12]. Color Doppler flow imaging (CDFI) is indicated for evaluation and follow-up. CDFI, including color Doppler ultrasound (CDU) and contrast-enhanced ultrasound (CEUS), can show the true and false lumen, entry and re-entry sites, dissection location, intimal flap location, and hemodynamic changes [8]. Other imaging modalities, such as magnetic resonance angiography and digital subtraction angiography, can also be used for diagnosis.

Although morphological classifications help describe the lesion, treatment decisions should be guided primarily by symptoms, hemodynamic stability, distal perfusion, and evidence of bowel ischemia [6-8]. Contemporary evidence supports conservative treatment for most uncomplicated SISMAD. It includes bowel rest, gastrointestinal decompression, pain control, strict blood pressure control, and antiplatelet or antithrombotic therapy. Routine antithrombotic therapy remains controversial, with recent evidence not demonstrating a clear benefit in uncomplicated SISMAD [6,7,13]. A systematic review of 97 studies found that most patients could be managed without endovascular or open intervention; conservative therapy consisted mainly of blood pressure control, analgesia, and initial bowel rest [6]. A meta-analysis of 729 patients reported symptom resolution in 92.8% of patients treated conservatively, with 12.3% requiring conversion to endovascular treatment and 4.4% to open surgery; the pooled rate of bowel ischemia during conservative treatment was 3.75% [14]. Another meta-analysis found an 84.7% success rate for initial conservative management and no apparent benefit from antithrombotic therapy [15]. Based on imaging and Chinese expert consensus, conservative management is suggested for patients with ISMAD type I, type IIa with a false lumen diameter ⩽ 2 cm, type IIb, or type III [8]. Our patient received analgesics, bowel rest, and

antiplatelet therapy as part of the treating team's regimen and improved. Close clinical surveillance remains essential during non-operative treatment.

Endovascular or surgical intervention is generally reserved for patients with bowel infarction or peritonitis, arterial rupture, or failure of conservative management [16,17]. Imaging findings that require endovascular treatment include type IIa ISMAD with a false-lumen diameter > 2 cm and SMA rupture [8]. Endovascular management of ISMAD encompasses several techniques, including stent implantation, stent-assisted coil embolization, coil embolization of the false lumen or associated aneurysm, and catheter-directed thrombolysis [7,18]. Among these approaches, stent placement is the most frequently employed strategy for treating ISMAD [19]. Consider stent-assisted coiling when isolated stenting does not adequately exclude the false lumen and flow persists after stent deployment. In selected cases, clinicians can also perform direct coil embolization of the false lumen without stent placement. Currently, no stent has been specifically designed for the endovascular treatment of ISMAD. In most patients, bare-metal stents are sufficient to restore true-lumen patency by relieving the stenotic segment while simultaneously facilitating thrombosis of the false lumen. Covered stents may be considered in selected situations, particularly when the dissection involves the SMA origin or is complicated by arterial rupture. Stent-related complications, including stenosis at the distal stent margin, may occur during follow-up. Therefore, antiplatelet therapy is generally recommended following stent implantation.

Open surgical treatment includes bypass grafting, vascular repair, endarterectomy with patch angioplasty, and fenestration. However, it is rarely performed and is generally reserved for selected cases [20]. Most patients with ISMAD have favorable outcomes, with low disease-related mortality [19,20]. Abdominal pain generally resolves within weeks, although complications such as bowel ischemia or rupture are uncommon. Conservative therapy often results in arterial remodeling, and stent patency is generally durable. Regular clinical and imaging follow-up is recommended and tailored to the treatment modality.

## Conclusions

SISMAD should be considered in the differential diagnosis of an unexplained ileus-like acute abdominal presentation, particularly when routine evaluation does not identify a mechanical cause. CTA can establish the vascular diagnosis while simultaneously assessing distal perfusion and bowel viability. In hemodynamically stable patients without bowel ischemia, conservative management with close surveillance is an appropriate first-line strategy; if it fails, early endovascular interventions should be considered.

## Additional Information

### Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

**Concept and design:** Keval Vora, Venkatesh Vaithiyam, Sanjeev Sachdeva, Supraja Laguduva Mohan, Jyoshna Latchubukta

**Acquisition, analysis, or interpretation of data:** Keval Vora, Venkatesh Vaithiyam, Sanjeev Sachdeva, Supraja Laguduva Mohan, Jyoshna Latchubukta

**Drafting of the manuscript:** Keval Vora, Venkatesh Vaithiyam, Sanjeev Sachdeva, Supraja Laguduva Mohan, Jyoshna Latchubukta

**Critical review of the manuscript for important intellectual content:** Keval Vora, Venkatesh Vaithiyam, Sanjeev Sachdeva, Supraja Laguduva Mohan, Jyoshna Latchubukta

**Supervision:** Venkatesh Vaithiyam, Sanjeev Sachdeva

### Disclosures

**Human subjects:** Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

## References

1. Olawoye A, Kyaw H, Nwosu IF, et al.: Isolated superior mesenteric artery dissection: an unusual etiology of

epigastric pain. Cureus. 2022, 14:e25683. 10.7759/cureus.25683
2. Bauersfeld SR: Dissecting aneurysm of the aorta; a presentation of 15 cases and a review of the recent literature. Ann Intern Med. 1947, 26:873-89. 10.7326/0003-4819-26-6-873
3. Lei Y, Liu J, Lin Y, et al.: Clinical characteristics and misdiagnosis of spontaneous isolated superior mesenteric artery dissection. BMC Cardiovasc Disord. 2022, 22:239. 10.1186/s12872-022-02676-9
4. Funahashi H, Shinagawa N, Saitoh T, Takeda Y, Iwai A: Conservative treatment for isolated dissection of the superior mesenteric artery: report of two cases. Int J Surg Case Rep. 2016, 26:17-20. 10.1016/j.ijscr.2016.07.003
5. Sakamoto I, Ogawa Y, Sueyoshi E, Fukui K, Murakami T, Uetani M: Imaging appearances and management of isolated spontaneous dissection of the superior mesenteric artery. Eur J Radiol. 2007, 64:103-10. 10.1016/j.ejrad.2007.05.027
6. Acosta S, Gonçalves FB: Management of spontaneous isolated mesenteric artery dissection: a systematic review. Scand J Surg. 2021, 110:130-8. 10.1177/14574969211000546
7. Ullah W, Mukhtar M, Abdullah HM, et al.: Diagnosis and management of isolated superior mesenteric artery dissection: a systematic review and meta-analysis. Korean Circ J. 2019, 49:400-18. 10.4070/kcj.2018.0429
8. Mei J, Jia Z: Isolated superior mesenteric artery dissection: an updated review of the literature . J Interv Med. 2023, 6:69-73. 10.1016/j.jimed.2023.04.006
9. Eldine RN, Dehaini H, Hoballah J, Haddad F: Isolated superior mesenteric artery dissection: a novel etiology and a review. Ann Vasc Dis. 2022, 15:1-7. 10.3400/avd.ra.21-00055
10. Zerbib P, Perot C, Lambert M, Seblini M, Pruvot FR, Chambon JP: Management of isolated spontaneous dissection of superior mesenteric artery. Langenbecks Arch Surg. 2010, 395:437-43. 10.1007/s00423-009-0537-1
11. Yun WS, Kim YW, Park KB, et al.: Clinical and angiographic follow-up of spontaneous isolated superior mesenteric artery dissection. Eur J Vasc Endovasc Surg. 2009, 37:572-7. 10.1016/j.ejvs.2008.12.010
12. Jia Z, Tu J, Jiang G: The classification and management strategy of spontaneous isolated superior mesenteric artery dissection. Korean Circ J. 2017, 47:425-31. 10.4070/kcj.2016.0237
13. Yoo YS, Choi SJ, Lee HK: Antithrombotic therapy has no beneficial effect in conservative treatment of spontaneous isolated superior mesenteric arterial dissection. Ann Surg Treat Res. 2021, 100:166-74. 10.4174/astr.2021.100.3.166
14. Karaolanis G, Antonopoulos C, Tsilimigras DI, Moris D, Moulakakis K: Spontaneous isolated superior mesenteric artery dissection: systematic review and meta-analysis. Vascular. 2019, 27:324-37. 10.1177/1708538118818625
15. Zhu Y, Peng Y, Xu M, et al.: Treatment strategies and outcomes of symptomatic spontaneous isolated superior mesenteric artery dissection: a systematic review and meta-analysis. J Endovasc Ther. 2018, 25:640-8. 10.1177/1526602818796537
16. Garrett HE Jr: Options for treatment of spontaneous mesenteric artery dissection . J Vasc Surg. 2014, 59:1433-9.e1-2. 10.1016/j.jvs.2014.01.040
17. DeFilippis EM, Solomon M, Loscalzo J: Superior mesenteric artery dissection: classical presentation, novel genetic determinants. JACC Case Rep. 2021, 3:690-3. 10.1016/j.jaccas.2020.12.034
18. Yang Y, Han T, Lin C, et al.: Comparison of clinical outcomes between medical or/and endovascular therapy in spontaneous isolated superior mesenteric artery dissection patients without bowel ischemia. Asian J Surg. 2024, Online ahead of print:10.1016/j.asjsur.2024.08.046
19. Wang J, Luan F, Bai Z, Liu Z: Systematic review and meta-analysis of current evidence in endograft therapy for spontaneous isolated superior mesenteric artery dissection. Updates Surg. 2024, 76:1169-81. 10.1007/s13304-024-01821-7
20. Ling J, Sun J, Hou Y, et al.: Clinical practice guideline for spontaneous isolated superior mesenteric artery dissection (2025 edition). Ann Vasc Surg. 2026, 132:169-86. 10.1016/j.avsg.2026.06.010