CASE REPORT

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Spontaneous Isolated Superior Mesenteric Artery Dissection: A Rare Case Report

Spontan İzole Superior Mezenterik Arter Diseksiyonu: Nadir Görülen Bir Olgu Sunumu

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Abstract: Isolated superior mesenteric artery dissection (ISMAD) is a rare vascular disease occurring spontaneously in the superior mesenteric artery alone. It is often asymptomatic and usually detected incidentally during imaging performed for other reasons. The most common symptom in symptomatic patients is sudden onset abdominal pain. However, due to the nonspecific nature of symptoms, diagnosis may be delayed, leading to serious complications. In this case report, a 50-year-old male patient without comorbidities presented with worsening abdominal pain and nausea lasting three days. Abdominal computed tomography revealed an approximately 4 cm intimal flap and jejunal branch occlusion in the proximal-mid segment of the SMA, consistent with Sakamoto Type IV dissection. The patient was hemodynamically stable and did not require surgical or endovascular intervention; conservative management was chosen. Antiplatelet therapy was initiated, leading to symptom resolution. No symptom recurrence was observed during clinical and radiological follow-up. Treatment of ISMAD depends on clinical status and dissection type, including conservative, surgical, and endovascular approaches. Conservative treatment can be effective and safe in symptomatic patients with Type IV dissection and no signs of intestinal ischemia. However, regular follow-up is essential. This case highlights the importance of individualized patient management and close clinical-radiological monitoring.
Keywords: Superior mesenteric artery dissection, mesenteric ischemia, conservative treatment, Sakamoto classification.

Özet: İzole superior mezenterik arter diseksiyonu (İSMAD), sadece superior mezenterik arterde spontan gelişen nadir bir vasküler hastalıktır. Genellikle asemptomatik olan bu hastalık, çoğunlukla başka nedenlerle çekilen görüntülemelerde tesadüfen saptanır. Semptomatik hastalarda en sık görülen belirti ani başlayan karın ağrısıdır. Ancak hastalığa özgü olmayan bu semptomlar nedeniyle tanı gecikebilir ve ciddi komplikasyonlar gelişebilir.Bu olgu sunumunda, 50 yaşında, yandaş hastalığı olmayan bir erkek hasta, üç gündür şiddetlenen karın ağrısı ve bulantı şikâyeti ile başvurmuştur. Yapılan bilgisayarlı tomografi ile SMA'nın proksimal-orta segmentinde yaklaşık 4 cm uzunluğunda intimal flep ve jejunal dal oklüzyonu saptanmış, Sakamoto Tip IV diseksiyon tanısı konmuştur. Hemodinamik olarak stabil olan hastada cerrahi ya da endovasküler müdahale gerekmemiş, konservatif tedavi uygulanmıştır. Antiplatelet tedavi başlanmış ve hastanın semptomları düzelmiştir. Klinik ve radyolojik takipte herhangi bir şikâyet tekrarı gözlenmemiştir. İSMAD tedavisinde hastanın klinik durumu ve diseksiyon tipi göz önüne alınarak konservatif tedavi, cerrahi ve endovasküler tedavi seçenekleri arasında karar verilir. Tip IV diseksiyon ve intestinal skemi bulgusu olmayan semptomatik hastalarda konservatif tedavi etkili ve güvenli olabilir. Ancak düzenli takip şarttır. Bu olgu, hasta bazlı yaklaşımın ve yakın klinik-radyolojik izlemin önemini vurgulamaktadır.
Anahtar Kelimeler: Superior mezenterik arter diseksiyonu, mezenterik iskemi, konservatif tedavi, Sakamoto sınıflaması.

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1. Introduction

Arterial dissection is defined as a disruption in the layers of the vessel wall that begins with an intimal tear and results in the formation of a false lumen adjacent to the true lumen. The dissection flap may occlude the lumen of branching arteries, potentially leading to ischemia of distal organs. Subsequently, thrombosis can occur within the false lumen, accelerating thromboembolism (1). Isolated superior mesenteric artery dissection (ISMAD) refers to a dissection occurring exclusively in the superior mesenteric artery (SMA), typically spontaneous in onset, and without involvement of the aorta (2). The presumed mechanism of SMA dissection is an intimal or vasa vasorum tear causing hemorrhage within the medial and adventitial layers (1, 3). Spontaneous ISMAD, with exclusion of aortic involvement, is considered a rare vascular disease with potentially fatal consequences (4).

Although the etiology of ISMAD has not been fully elucidated, it is thought to develop due to multifactorial influences including systemic diseases (atherosclerosis, medial degeneration, and fibromuscular dysplasia), anatomical variations (wide aortomesenteric angle), and genetic factors (2, 5). Most patients are asymptomatic, and the condition is often detected incidentally during imaging performed for other reasons (6). The most common symptom is acute onset abdominal pain. Symptomatic patients typically present with localized abdominal pain in the epigastric, periumbilical, and left flank regions, which may be associated with food intake. Nausea, vomiting, hematochezia, or diarrhea may accompany the pain. Due to the nonspecific nature of these symptoms, diagnosis is often delayed, which can result in life-threatening complications such as SMA rupture, peritonitis, intestinal infarction, and death (6–8). In this case report, we aim to present a patient diagnosed with ISMAD who presented with abdominal pain, accompanied by a literature review.

2. Case Report

A 50-year-old male patient without known comorbidities presented to our clinic with progressively worsening abdominal pain and nausea over three days. His medical and family histories were unremarkable. Physical examination revealed tenderness on deep palpation in all abdominal quadrants without other pathological findings. Rectal examination showed no bleeding, and normal stool staining was observed. Vital signs were as follows: temperature 36.5 °C, pulse 84 beats/min, blood pressure 130/75 mmHg, respiratory rate 18/min, and SpO_2 97%. Laboratory tests revealed hemoglobin 12.9 g/dL, leukocytes 7890/uL, platelets 197,000/uL, C-reactive protein (CRP) 33.9 mg/L, lactate 1.4 mmol/L, D-dimer 0.28 mg/L, and creatinine 0.92 mg/dL; all values except CRP were within normal limits.

Abdominal computed tomography (CT) imaging for etiological evaluation demonstrated an approximately 4 cm intimal flap and jejunal branch occlusion in the proximal-mid segment of the SMA, consistent with Sakamoto Type IV dissection (Figures 1, 2). Intestinal perfusion was preserved via pancreaticoduodenal and ileocolic collaterals, with no signs of ischemia. Due to stable hemodynamics, absence of peritonitis signs, and no metabolic lactate elevation, urgent surgical or endovascular intervention was not considered; thus, conservative medical management was preferred. The patient was consulted with the Cardiovascular Surgery department, and no emergent vascular procedure was planned. Antiplatelet therapy with clopidogrel 75 mg/day and acetylsalicylic acid 100 mg/day was initiated, along with oral pentoxifylline 400 mg three times daily. The patient’s symptoms improved by the second day, and he was discharged on the sixth day with antiplatelet treatment. Follow-up CT angiography was scheduled at 1, 6, and 12 months; no symptom recurrence was noted during clinical and radiological monitoring.

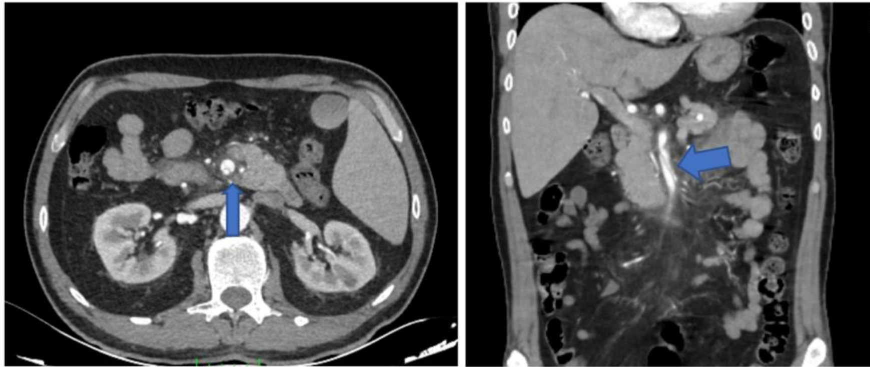

Figure.1 Axial CT showing intimal flap at proximal-middle SMA and sagittal/reformatted image -false lumen/true lumen distinction + jejunal branch occlusion.

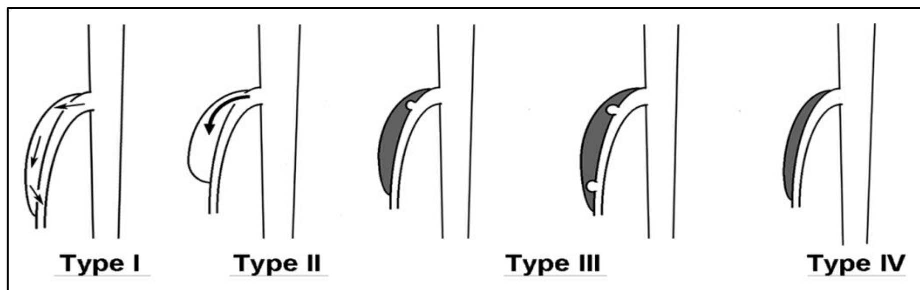

Figure 2. *Classification of patients with SMA dissection based on imaging findings by Sakamoto et al.*

3. Discussion

The clinical manifestation of SMA dissection is often sudden-onset abdominal pain. The pain may result from arterial rupture causing intraperitoneal hemorrhage or from intestinal ischemia. Additionally, inflammation around the dissected SMA may affect the visceral nerve plexus, contributing to pain (9). Computed tomography plays a crucial role in diagnosis, allowing comprehensive classification of spontaneous ISMAD and facilitating treatment stratification (10). According to Sakamoto et al., SMA dissections are classified into four types based on imaging findings: Type I, patent false lumen with both entry and re-entry; Type II, 'cul-de-sac' shaped false lumen without re-entry; Type III, thrombosed false lumen with ulcer-like projection (ULP); and Type IV, completely thrombosed false lumen without ULP (Figure 2) (10).

Management options for ISMAD include observation (blood pressure control, bowel rest, parenteral nutrition without anticoagulants/antiplatelets), medical therapy (anticoagulants or antiplatelets), surgical intervention (SMA thrombectomy, resection of infarcted bowel, and distal aortomesenteric bypass), and endovascular treatment (self-expanding stent placement in the true lumen, thrombolytic therapy via intubation tube in thrombosed SMA, coil embolization of pseudoaneurysm in dissected SMA). Treatment plans should be individualized based on disease classification and patient characteristics.

Current literature and consensus reports recommend a conservative approach as the first-line treatment for spontaneous isolated superior mesenteric artery dissection in the absence of intestinal ischemia, arterial rupture, or progressive aneurysmal dilatation

(2,5,8,9). In particular, hemodynamically stable patients with Sakamoto type III–IV dissection have been reported to achieve favorable outcomes with close clinical monitoring, blood pressure control, and antiplatelet therapy (9,10). Numerous European- and Asian-based reviews and systematic analyses emphasize that conservative management is a safe option with a high technical success rate and a low risk of complications (5,8). Nevertheless, regular clinical and radiological follow-up remains crucial for the early detection of potential disease progression.

Many studies and guidelines recommend conservative treatment for patients without acute intestinal necrosis (6). However, in cases of possible bowel infarction or arterial rupture, urgent surgical intervention is mandatory. Medical-antiplatelet therapy may be applied in asymptomatic patients or those classified as Type IV with transient symptoms, as in our case. Long-term antiplatelet therapy and regular clinical-radiological follow-up are essential. Long-term antiplatelet use has been reported to resolve thrombosed false lumens in many patients. However, surgical intervention should be considered in cases of persistent abdominal pain despite medical therapy, signs of bowel infarction/arterial rupture, severe compression/occlusion of the true lumen, or aneurysmal dilation of the SMA. Endovascular stenting is preferable in suitable patients (12, 13).

4. Conclusion

This case demonstrates that conservative management may be an appropriate option for symptomatic patients with Sakamoto Type IV ISMAD without intestinal ischemia. Nevertheless, patient-based decisions and regular clinical-radiological follow-up are mandatory.

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