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Spontaneous Rupture of an Inferior Mesenteric Artery Aneurysm in a Young Female with Systemic Lupus Erythematosus: A Rare Case

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ABSTRACT
Background: Inferior mesenteric artery (IMA) aneurysms are an exceptionally rare form of visceral artery aneurysm, often linked to degenerative processes. Autoimmune causes, such as vasculitis in systemic lupus erythematosus (SLE), are infrequently reported.
Case Presentation: We report a case of spontaneous retroperitoneal hemorrhage due to rupture of an IMA aneurysm in a 30-year-old woman with known SLE.
Management and Outcome: Emergency surgical ligation of the ruptured artery was performed without revascularization. The patient recovered fully without complications.
Conclusion: This case highlights a rare but life-threatening vascular complication of SLE. Clinicians should maintain a high index of suspicion in similar presentations, and prompt surgical intervention is essential for a favorable outcome.
Introduction.
Keywords: Inferior mesenteric artery, visceral artery aneurysm, systemic lupus erythematosus, retroperitoneal hemorrhage, vascular surgery.

INTRODUCTION

Visceral artery aneurysms are rare vascular abnormalities, occurring in less than 2% of the general population [1]. Among them, inferior mesenteric artery aneurysms are the least commonly reported [2]. Most documented cases are degenerative in origin, while inflammatory or autoimmune causes are rarely described. We present a rare case of a ruptured IMA aneurysm in a young woman with known SLE, a clinical association that has been scarcely reported in the literature.

CASE PRESENTATION

A 30-year-old woman was admitted to the nephrology service with complaints of polyarthralgia, facial rash, oral ulcers, and progressive renal dysfunction. Laboratory investigations revealed elevated erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP), a positive antinuclear antibody (ANA) test, and negative rheumatoid factor. Urinalysis showed proteinuria, red blood cells, and granular casts. Imaging studies revealed bilateral renal calculi and a right ovarian cyst. Based on clinical and serological findings, a diagnosis of systemic lupus erythematosus was established, and the patient was started on corticosteroids, aspirin, and supportive therapy.

On the third day of hospitalization, the patient developed acute abdominal pain, followed by abdominal distension and signs of hypovolemic shock, tachycardia (180 bpm), hypotension (70/40 mmHg), and severe pallor. Hemoglobin level dropped to 3.9 g/dL. Emergency resuscitation was initiated, and a contrast-enhanced CT scan revealed a large retroperitoneal hematoma primarily surrounding the left kidney **(Figure 1)**.

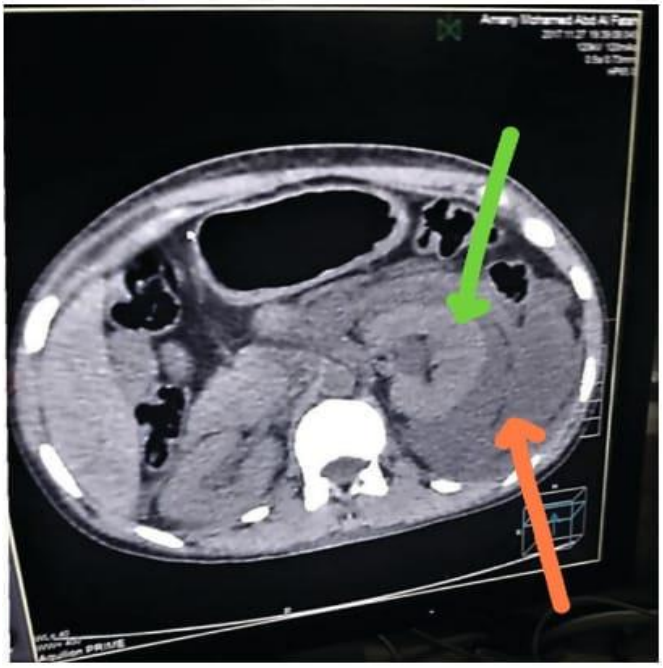

Figure 1: Retroperitoneal hematoma (orange arrow) displacing Left kidney (green arrow)

An urgent exploratory laparotomy was performed via a midline incision. The retroperitoneum was accessed through a transperitoneal approach. Initial inspection of the aorta and major visceral arteries (SMA) and renal arteries revealed no abnormalities. Further dissection of the IMA uncovered two small saccular aneurysms. The distal aneurysm, located approximately 7 cm from the IMA origin, was ruptured, while the proximal one was intact **(Figure 2)**. Given the ongoing blood transfusion and early signs of coagulopathy, the bleeding artery was ligated proximally and distally, without reconstruction.

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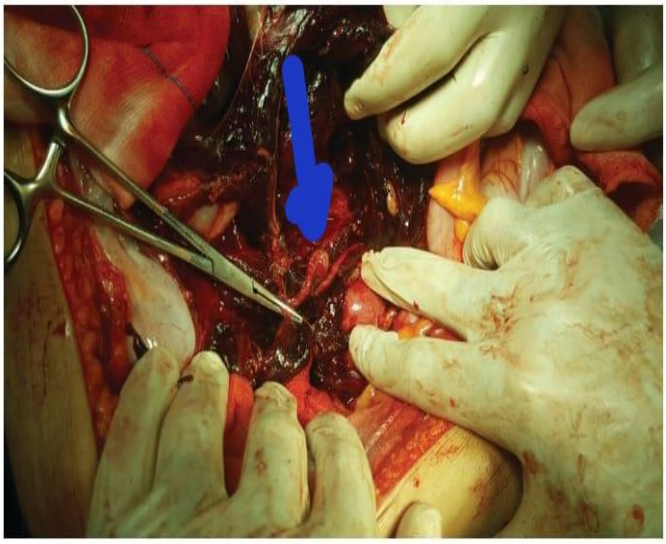

Figure 2: Intraoperative exploration revealing huge retroperitoneal hematoma, with IMA aneurysm (Blue arrow)

Postoperatively, the patient showed no evidence of colonic ischemia. She had an uneventful recovery and was discharged in stable condition.

Ethical Considerations

This case report was conducted following approval from the Mataria Teaching Hospital. Written informed consent was obtained from the patient for participation and for the publication of relevant clinical data and images, with all efforts made to maintain confidentiality and privacy. The work complies with the ethical standards of the Declaration of Helsinki and its subsequent amendments for research involving human subjects.

DISCUSSION

Aneurysms rarely affect visceral arteries, but when they do, they can be lethal. Because inferior mesenteric artery aneurysms are typically asymptomatic and are detected by abdominal computed tomography or ultrasonography scans, their prevalence has increased over the past few decades as these diagnostic techniques have become more widely accessible **(Tables 1 and 2)**.

It is extremely rare for visceral artery aneurysms to be associated with systemic lupus erythematosus (SLE). Approximately 30% of patients with systemic lupus erythematosus have intestinal involvement. Systemic lupus erythematosus frequently manifests gastrointestinal symptoms, including anorexia, nausea, vomiting, and abdominal pain. These patients may have vascular abnormalities including vasculitis, thrombosis, and thickening of the intima or mural, and they exhibit signs and symptoms of intestinal ischemia instead of bleeding [3]. Nearly half of reported cases of inferior mesenteric artery aneurysms are asymptomatic, while the other half present with a pulsatile abdominal mass, abdominal pain, low back pain, or hemorrhagic shock, as observed in our patient [4]. The majority of reported IMA aneurysms are located in the proximal trunk of the artery. Even when visceral artery aneurysms are asymptomatic, they should be treated electively upon diagnosis, as this approach is associated with significantly reduced morbidity and mortality. Endovascular intervention has emerged as a treatment option for these aneurysms. However, many of these aneurysms remain technically challenging to treat and may not be suitable for endovascular approaches [5].

Table 1: The incidence of visceral artery aneurysm [3]

Artery Aneurysm	Incidence (% of total)
Splenic artery	60
Hepatic artery	20
Superior mesenteric artery	6
Celiac artery	4
Jejunal, ileal, colic arteries	4
Pancreaticoduodenal artery	2
Gastroduodenal artery	2
Inferior mesenteric artery	<1

Table 2: Etiology of visceral artery aneurysms [3]

Etiology
Degenerative
Vasculitis
Trauma
Pancreatitis
Pregnancy (splenic artery aneurysms)
Fibromuscular dysplasia, segmental mediolytic arteriopathy
Atherosclerosis
Infection (SMA and hepatic artery aneurysms)
Iatrogenic: surgery, percutaneous or transarterial catheterization
Liver disease, portal hypertension, or splenomegaly (splenic artery aneurysms)
Polyarteritis nodosa; systemic lupus erythematosus; Ehlers–Danlos syndrome; neurofibromatosis; Behçet's disease
Poststenotic (pancreaticoduodenal aneurysms due to celiac axis or SMA stenosis)

SMA: Splenic artery aneurysms.

CONCLUSION

Spontaneous rupture of an IMA aneurysm in the context of SLE is exceedingly rare. Clinicians should consider visceral aneurysm rupture in patients with autoimmune disease who present with acute abdomen and hemodynamic instability. Prompt surgical management can be lifesaving, with favorable outcomes even in the absence of arterial reconstruction.

Conflict of Interest

The author declares no conflict of interest.

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