



SUPERIOR MESENTERIC ARTERY ANEURYSM: A CASE REPORT OF SURGICAL REPAIR WITH DACRON PATCH PLASTY

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ABSTRACT

Superior mesenteric artery (SMA) aneurysms are rare visceral arterial aneurysms with potentially life-threatening complications, including rupture, intra-abdominal hemorrhage, thrombosis, and mesenteric ischemia. Early diagnosis and appropriate intervention are therefore essential, even in patients presenting without rupture. We report a case of a patient diagnosed with a superior mesenteric artery aneurysm who underwent open surgical aneurysm repair with Dacron patch angioplasty. The aneurysm was identified on vascular imaging, and the patient was planned for operative management. Following adequate exposure and proximal and distal vascular control, the aneurysmal segment was opened, and arterial reconstruction was performed using a Dacron patch. The postoperative course was monitored with particular attention to bowel perfusion, hemodynamic status, renal function, and graft patency. The patient had an uneventful postoperative recovery and was discharged on appropriate medical therapy and follow-up. This case highlights the importance of early recognition of SMA aneurysms and the role of open surgical reconstruction in selected patients with suitable anatomy.

KEYWORDS : Superior Mesenteric Artery Aneurysm, Visceral Artery Aneurysm, SMA Aneurysm, Dacron Patch Angioplasty, Vascular Reconstruction, Mesenteric Ischemia

INTRODUCTION

Superior mesenteric artery aneurysms are uncommon vascular lesions and account for a small proportion of visceral artery aneurysms. Although rare, they are clinically important because rupture can result in catastrophic intra-abdominal hemorrhage, while thrombosis or distal embolization can cause acute or chronic mesenteric ischemia.

The etiology of SMA aneurysms includes atherosclerotic disease, degenerative changes, infection, inflammatory disorders, trauma, connective-tissue disorders, and iatrogenic causes. The clinical presentation is variable and may range from an incidental radiological finding to abdominal pain, mesenteric ischemia, gastrointestinal symptoms, or acute hemodynamic compromise secondary to rupture.

Contrast-enhanced computed tomography angiography (CT angiography) plays an important role in diagnosis and operative planning by defining the location, morphology, size, branch involvement, and relationship of the aneurysm to adjacent visceral structures.

Management depends on the aneurysm's size, symptoms, etiology, anatomy, and risk of rupture. Endovascular techniques are increasingly used in appropriately selected patients; however, open surgical repair remains an important option, particularly when branch vessels are involved or when anatomical reconstruction is required.

We present a case of SMA aneurysm treated successfully by open aneurysm repair with Dacron patch angioplasty.

Case Presentation

Patient Details

A 40 year-old male patient presented to the Department of cardiothoracic and vascular surgery, SMS medical college and hospital with complaints of abdominal pain since 4 months.

There was no significant history of previous vascular intervention. Relevant comorbidities included hypertension.

Clinical Examination

On examination, the patient was conscious, oriented, and hemodynamically stable.

- Pulse: 92/min
- Blood pressure: 136/90 mmHg
- Respiratory rate: 22/min
- SpO₂: 98% on room air
- Temperature: 36.9°C

There were no clinical features of acute mesenteric ischemia or peritonitis.

Routine hematological and biochemical investigations were within acceptable limits.

Radiological Evaluation

Contrast-enhanced CT angiography of the abdomen was performed.

CT angiography demonstrated an aneurysmal dilatation involving the superior mesenteric artery measuring approximately 18*26mm]

The aneurysm was located at distal SMA.

The proximal and distal SMA segments were patent with preserved flow in the distal mesenteric branches.

There was no evidence of rupture or extravascation of dye. Based on the clinical and radiological findings, a diagnosis of superior mesenteric artery aneurysm

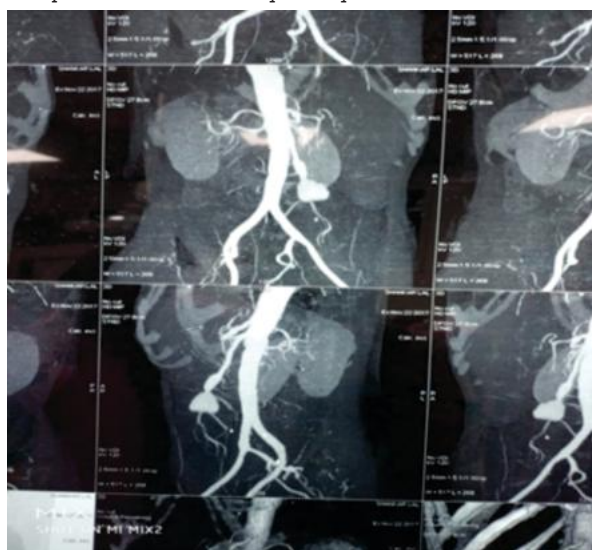


Figure 1: Preoperative CT Angiography Demonstrating the Superior Mesenteric Artery Aneurysm.

Preoperative Planning

Considering the location and morphology of the aneurysm, the patient was planned for open surgical aneurysm repair with arterial reconstruction using Dacron patch angioplasty.

The patient and relatives were counselled regarding the nature of the disease, need for vascular reconstruction, and possible complications including:

- Bleeding
- Mesenteric ischemia
- Bowel infarction
- Anastomotic/graft thrombosis
- Graft infection
- Need for bowel resection
- Renal dysfunction
- Cardiopulmonary complications
- Recurrent aneurysm
- Mortality

Written informed consent was obtained.

Operative Procedure

The patient was taken up for surgery under general anesthesia.

A midline laparotomy was performed and the abdominal cavity was systematically explored.

The small bowel and transverse colon were mobilized to obtain adequate exposure of the mesenteric root. The superior mesenteric artery was identified, and adequate proximal and distal vascular control was obtained.

The aneurysmal segment of the SMA was carefully dissected from the surrounding structures. Particular care was taken to preserve the mesenteric branches and avoid injury to adjacent bowel and venous structures.

After systemic anticoagulation with unfractionated heparin, vascular clamps were applied proximally and distally.

The aneurysmal segment was opened. The lumen was inspected for mural thrombus and involvement of branch vessels.

Following adequate preparation of the arterial wall, reconstruction was performed using a Dacron vascular patch.

The Dacron patch was fashioned to an appropriate size and sutured to the healthy arterial margins using continuous/interrupted vascular sutures.

After completion of the patch angioplasty, the vascular clamps were released sequentially.

Hemostasis was secured.

The reconstructed SMA demonstrated satisfactory pulsatility and flow, with preservation of distal mesenteric perfusion.

The bowel was inspected for evidence of ischemia and was found to be adequately perfused.

The abdomen was closed in layers after confirming satisfactory hemostasis.

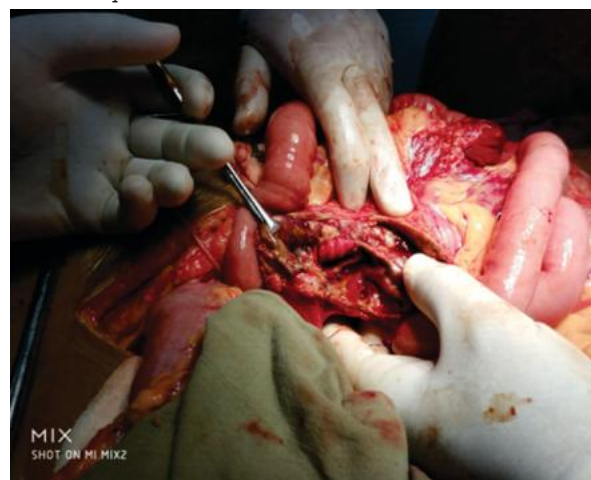


Figure 2: Intraoperative Photograph Showing Exposure of the SMA Aneurysm.

Postoperative Course

The patient was shifted to the postoperative intensive care unit for close monitoring.

Postoperative management included:

- Hemodynamic monitoring
- Serial abdominal examination
- Monitoring of bowel perfusion
- Urine output monitoring
- Serial hemoglobin and lactate estimation
- Antiplatelet/anticoagulation therapy as indicated
- Analgesia
- Antibiotic prophylaxis
- Early enteral nutrition as tolerated
- Monitoring for graft thrombosis or mesenteric ischemia

The patient remained hemodynamically stable following surgery.

There was no evidence of postoperative bowel ischemia, peritonitis, or significant bleeding.

Oral/enteral feeds were gradually introduced and tolerated well.

The patient was mobilized gradually and showed satisfactory clinical improvement.

Follow-up

At discharge, the patient was clinically stable and tolerating oral feeds.

The surgical wound was healthy with no evidence of infection.

The patient was advised:

- Regular vascular surgery follow-up
- Continuation of prescribed antiplatelet therapy
- Control of cardiovascular risk factors
- Clinical surveillance for recurrent abdominal symptoms
- Follow-up vascular imaging as advised to assess the reconstructed SMA

At regular follow-up, the patient remained asymptomatic with satisfactory clinical status.

DISCUSSION

Superior mesenteric artery aneurysms are rare but potentially life-threatening visceral arterial lesions. Their clinical significance arises primarily from the risks of rupture, thrombosis, distal embolization, and mesenteric ischemia.

The etiology should be carefully evaluated. Atherosclerotic degeneration, infection, trauma, inflammatory conditions, and connective-tissue disorders have all been described as potential causes.

CTA is the investigation of choice in most patients because it provides detailed information regarding aneurysm morphology, location, proximal and distal arterial anatomy, involvement of SMA branches, mural thrombus, and associated visceral vascular disease. This information is particularly important when selecting between endovascular and open surgical treatment.

Treatment is individualized according to symptoms, aneurysm characteristics, anatomy, and patient factors. Endovascular approaches, including covered stent placement and embolization, may provide a less invasive alternative in anatomically suitable lesions. However, open repair remains valuable when branch preservation is necessary, when the anatomy is unsuitable for endovascular treatment, or when durable arterial reconstruction is required.

In the present case, open surgical repair was selected because of the anatomical characteristics of the aneurysm. Dacron patch angioplasty allowed reconstruction of the arterial lumen while maintaining continuity of the SMA and preserving mesenteric perfusion.

A major concern during SMA aneurysm surgery is maintaining adequate intestinal blood flow. Prolonged arterial occlusion can result in mesenteric ischemia and bowel infarction. Therefore, meticulous vascular control, minimizing ischemic time, preservation of important SMA branches, and confirmation of distal perfusion are critical components of the procedure.

Postoperative surveillance is important because complications may include graft thrombosis, infection, recurrent aneurysm formation, and intestinal ischemia.

CONCLUSION

Superior mesenteric artery aneurysm is a rare but potentially catastrophic vascular condition requiring timely diagnosis and appropriate intervention.

CTA provides essential anatomical information for treatment planning. Although endovascular therapy has become increasingly important, open surgical reconstruction remains an effective option in selected patients.

In this case, open SMA aneurysm repair with Dacron patch angioplasty provided satisfactory arterial reconstruction with preservation of mesenteric perfusion and an uncomplicated postoperative recovery.

Early recognition, careful operative planning, meticulous vascular reconstruction, and postoperative surveillance are essential for achieving favorable outcomes.

Declarations

Patient Consent: Written informed consent for publication of the case and relevant clinical/radiological images was obtained from the patient.

Conflict of Interest: The authors declare no conflict of interest.

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