



Reconstruction of Blood Flow in the Treatment of Acute Mesenteric Ischemia

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Abstract

Aim: To evaluate thrombectomy outcomes in acute mesenteric ischemia (AMI) of arterial and venous origin.

Methods: Thirty-nine patients (59–89 years) underwent surgical or endovascular thrombectomy of the superior mesenteric artery (SMA) or vein (SMV), diagnosed by laparotomy or contrast-enhanced CT.

Results: Early SMA revascularization frequently enabled bowel preservation or limited resection with primary anastomosis and favorable recovery. Endovascular therapy was effective in selected cases. However, recurrent ischemia with high mortality occurred in advanced disease. SMV thrombectomy reduced resection length and supported safe anastomosis.

Conclusions: Prompt diagnosis and revascularization are critical for survival and bowel salvage in AMI.

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Aim: To evaluate the results of thrombectomy from mesenteric vessels in the treatment of acute mesenteric ischemia (arterial and venous causes).

Material and Methods: The results of treatment of 39 patients with acute mesenteric ischemia were analyzed. These patients underwent surgical and endovascular interventions on the superior mesenteric artery (SMA) or superior mesenteric vein (SMV) to restore blood flow. The age of the patients ranged from 59 to 89 years. In 6 patients, acute mesenteric ischemia was diagnosed during laparotomy due to peritonitis (2007-2010), in 27 patients based on clinical data and CT with bolus enhancement (2011-2022). Impaired mesenteric circulation in all patients was not associated with heart failure.

Results: In the 2 case, balloon thromboembolectomy performed from the lumen of the SMA using 4 Fr Fogarty catheter. The restoration of blood flow in the SMA region made possible to clearly visualize the viable part of the small intestine. Then, an extensive resection of the small intestine was performed, and a primary entero-enteroanastomosis was formed. Both patients have recovered.

In 6 cases, surgical balloon thromboembolectomy from the lumen SMA was performed, which made possible to preserve the intestine and avoid its resection. All these patients have recovered (Fig.1-4).



Figure 1: Ischemic Small Intestine at Laparotomy

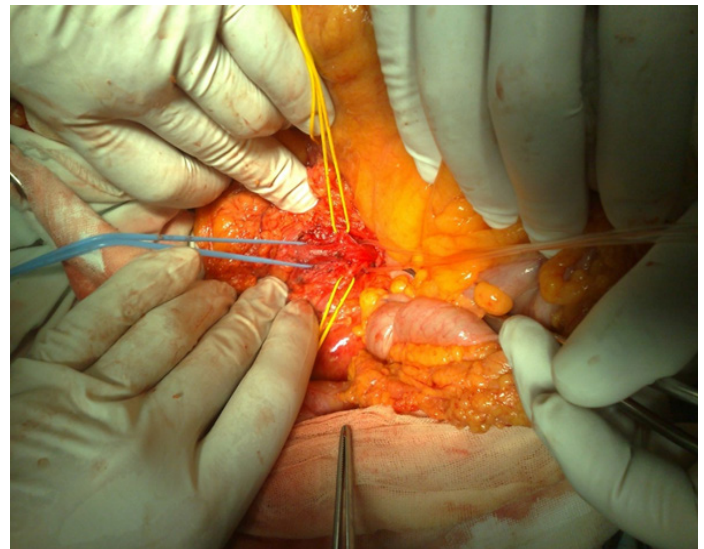


Figure 2: Dissected SMA (Blue Tourniquet) and Artery Colica Media (Yellow Tourniquet)

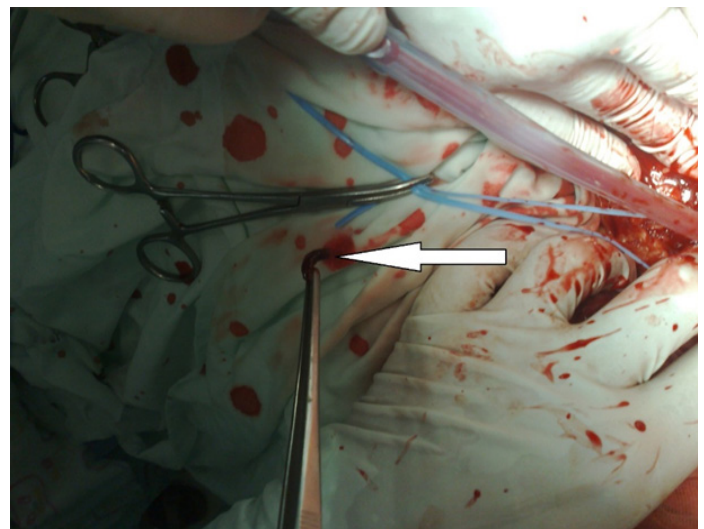


Figure 3: Thrombus Removed from SMA (White Arrow)



Figure 4: “Second Look”: View of the Small Intestine After Surgical Intestinal Revascularisation

In 2 cases, endovascular thrombectomy and SMA stenting were performed. After restoration of blood flow, the ischemic intestine restored its viability, no additional interventions were required. Both patients have recovered (Fig.5-7).

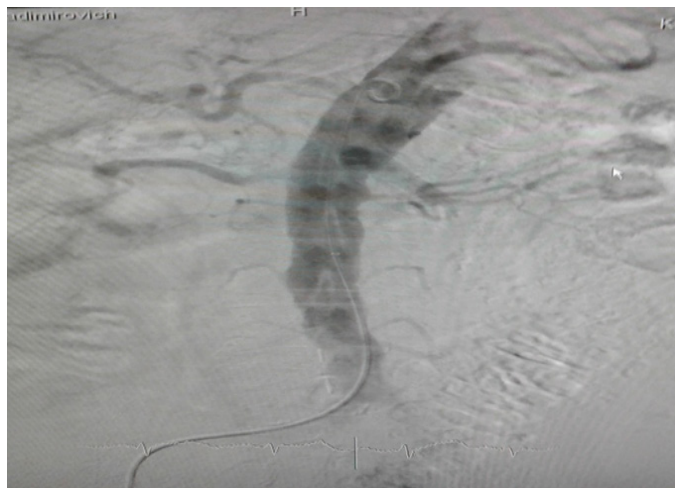


Figure 5: CT view of SMA Acute Occlusion.

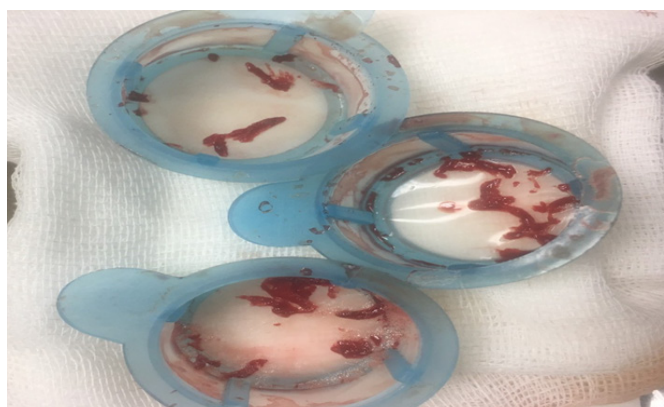


Figure 6: Thrombus Aspirated from SMA.

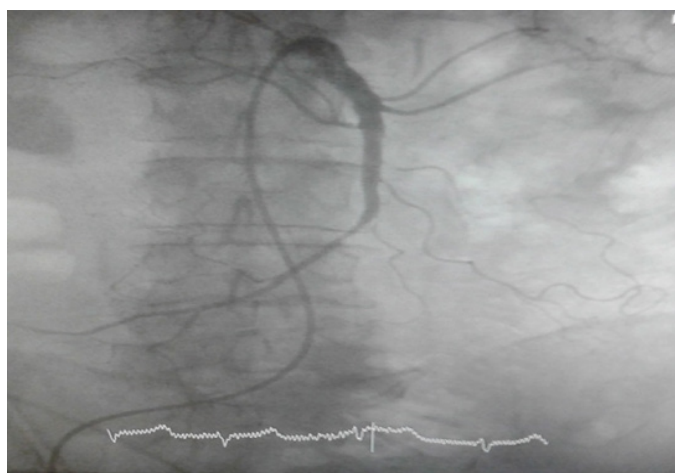


Figure 7: Angiography Control: Restoration of Blood Flow in SMA and its Branches

In 2 cases, after thrombectomy from the SMA on

days 2-3, second-look relaparotomy was performed with resection of the non-viable ileum and primary anastomosis. Both patients have recovered.

In 4 cases, thrombectomy from the SMA was performed, which made it possible to preserve the intestines. In the postoperative period, these patients faced the problem of cardiovascular insufficiency, which in all cases led to deaths not associated with intestinal gangrene.

In 21 cases, surgical (20) and endovascular thrombectomy (1) from the trunk of the SMA and resection of the affected intestine did not lead to relief of acute ischemia. After 2-3 days, despite adequate anticoagulant therapy, retrombosis, intestinal gangrene, peritonitis and death occurred in all these patients.

In 2 cases, thrombectomy was performed from the superior mesenteric vein. This made it possible to reduce the volume of resection of the small intestine and complete the operation with a primary entero-entero-anastomosis. Both patients recovered without further events.

Discussion

A limitation of this study is its non-randomized nature. However, the obtained results demonstrate that early admission of a patient with acute mesenteric ischemia to a surgical hospital with access to CT and interventional operations increases his chances of survival. Visualization of the nature of the intestinal lesion using CT and restoration of mesenteric blood flow contribute to better treatment outcomes [1-4].

Conclusions

Surgical interventions in acute abdominal arterial ischemia must necessarily include restoration of blood flow through SMA using surgical or endovascular approaches. This algorithm allows to save the intestines in some patients. If conditions require bowel resection due to its necrosis, restored blood flow allows safely make primary inter-intestinal anastomosis. In the case of venous gangrene of the intestine, thrombectomy from SMV, performed through its tributaries, identified during resection of the necrotic part of the intestine, can reduce the length of the resection of the small intestine and safely make a primary inter-intestinal anastomosis.

References

1. Klemptner J, Grothues F, Bektas H, Pichlmayr R (1997) Long term results after surgery for acute mesenteric ischemia. *Surgery* 121: 239.
2. Björck M, Koelemaya M, Acosta S, Bastos Goncalves F, Kölbl T, et al. (2017) "Management of the Diseases of Mesenteric Arteries and Veins. *Eur J Vasc Endovasc Surg* 53: 460-510.
3. Ihnatovich I, Vasilevich A (2023) Advance In the Management of Acute Mesenteric Ischemia Over the Past 10 Years: A Case Study Demonstration. *International Surgery Case Reports* 5.
4. Bakó E, Erik P, Pengermä P, Karjalainen J, Halonen J, et al. (2026) Endovascular First Approach for Embolic Acute Mesenteric Ischaemia: a 15 Year Single Centre Retrospective Study. *European Journal of Vascular & Endovascular Surgery* 19: S1078-S5884.