

Endovascular manual aspiration thrombectomy of acute superior mesenteric artery thromboembolic occlusion: the good, the bad, and the ugly

The outcome of endovascular treatment in acute superior mesenteric artery (SMA) thromboembolic occlusion is variable at best. We describe three patients who underwent urgent endovascular manual aspiration thrombectomy of the SMA, illustrating the good, the bad, and the ugly.

The good: a 63-year-old male patient was admitted to our hospital for acute abdominal pain. Contrast-enhanced multidetector computed tomography (MDCT) showed total occlusion of the SMA with just air distension of the bowel. From the right femoral artery, he underwent emergency angiography that confirmed the diagnosis of total occlusion of the SMA (Fig. 1a). A manual aspiration thrombectomy was performed into the SMA, using a Luer-lock 60-mL syringe, connected to a 7 F catheter (Mach-1, Boston Scientific, Natick, Massachusetts, USA) to generate a vacuum effect (Fig. 1b). The clots were aspirated and removed from the SMA; six passes of the guiding catheter were made. The final control demonstrated patency of the SMA, distal arcades, and vasa rectae (Fig. 1c). Intravenous heparin (1000 IU/hour) was administered for 48 hours. The patient did not need a bowel resection.

The bad: a 76-year-old female patient was admitted to our hospital after two days of acute and progressive abdominal pain. MDCT showed total occlusion of the SMA with signs of mesenteric ischemia (pneumatosis intestinalis). From the right femoral artery, she underwent emergency angiography, confirming the diagnosis of total occlusion of the SMA (Fig. 2a). A manual aspiration thrombectomy was performed into the SMA, using a Luer-lock 60-mL syringe, connected to a 7 F catheter (Mach-1, Boston Scientific; Fig. 2b). Some clots were removed, but no patency of the SMA was noted; three passes of the guiding catheter were made. During these maneuvers and a SMA postorigin dissection, the distal ileal vascular arcade was accidentally perforated. So, an angioplasty and stenting of the postorigin segment of the SMA, and consequent distal ileal vascular arcade metallic-coil embolization, were performed. The final control demonstrated partial patency of the SMA and continued occlusion of the distal arcades and vasa rectae (Fig. 2c). Due to the vascular perforation, catheter-directed thrombolysis was not performed, and intravenous heparin was given at dose of 1000 IU/hour. The patient underwent urgent abdominal bowel resection surgery and SMA thrombectomy, but she died 72 hours later.

The ugly: a 71-year-old male patient was admitted to our hospital with progressive abdominal pain. MDCT showed

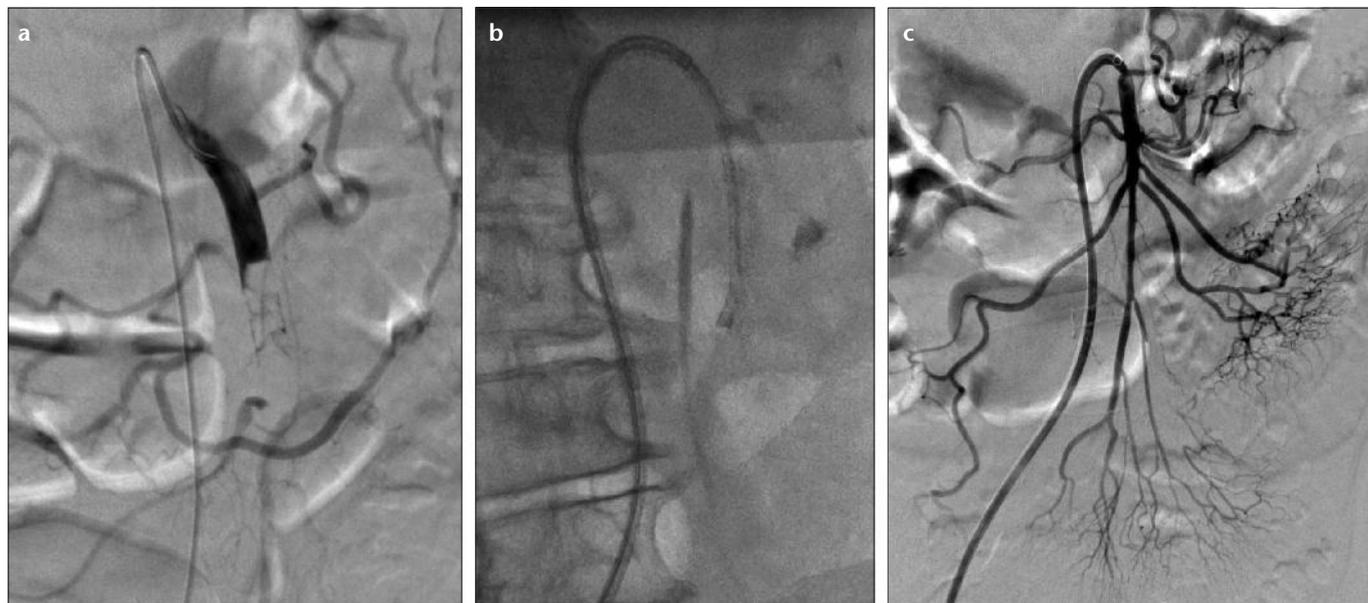


Figure 1. a–c. Selective angiography of the superior mesenteric artery (a) demonstrates its postorigin total occlusion. The 7 F thromboaspiration catheter in the superior mesenteric artery (b) is seen. The final selective angiography of the superior mesenteric artery (c) demonstrates its patency to the distal arcades and vasa rectae.

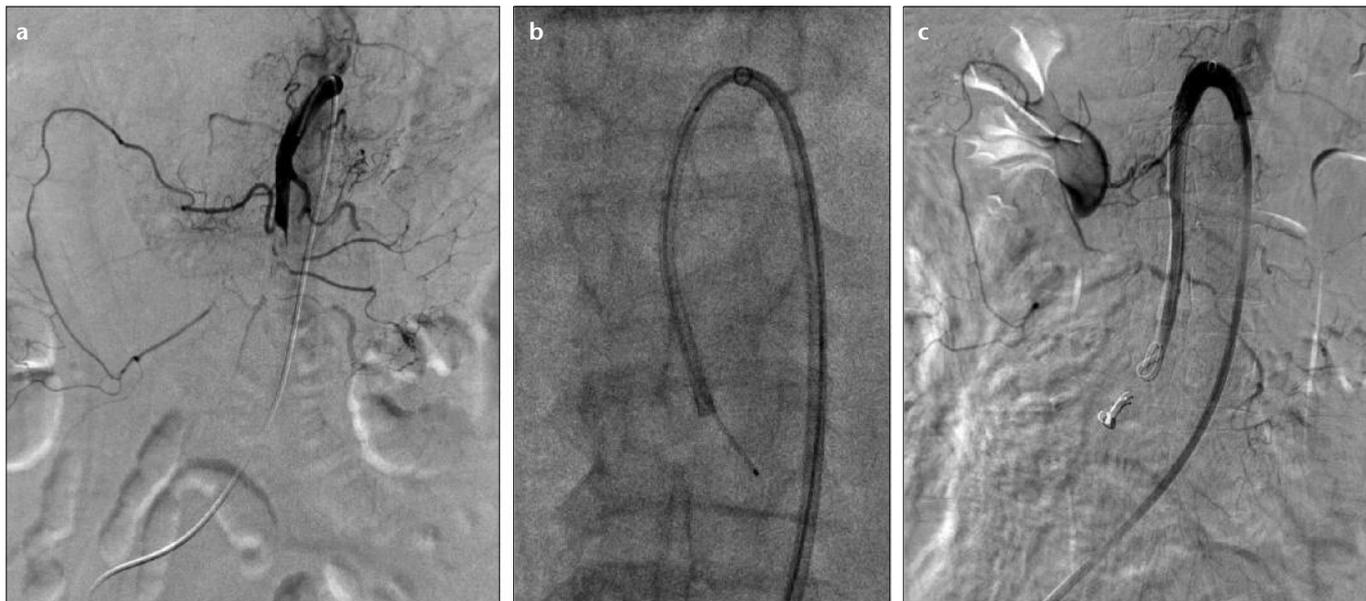


Figure 2. a–c. Selective angiography of the superior mesenteric artery (a) demonstrates its postorigin total occlusion. The 7 F thromboaspiration catheter in the superior mesenteric artery (b) is seen. The final selective angiography of the superior mesenteric artery (c) demonstrates partial patency, with continuing occlusion of the distal arcades and vasa rectae.

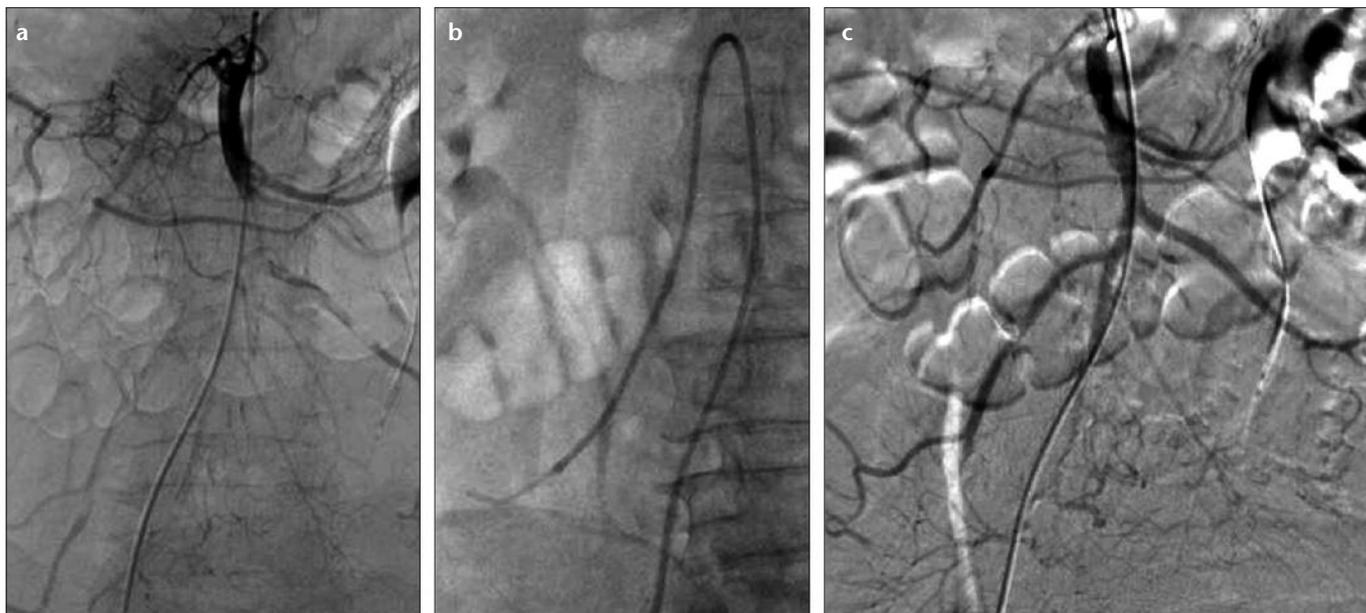


Figure 3. a–c. Selective angiography of the superior mesenteric artery (a) demonstrates its postorigin total occlusion. The 6 F thromboaspiration catheter in the superior mesenteric artery (b) is seen. The final selective angiography of the superior mesenteric artery (c) demonstrates partial patency, with continuing occlusion of the distal arcades for the ileum.

total occlusion of the SMA, with initial signs of mesenteric ischemia (delectated and thickened small bowel loops). From the right femoral artery, he underwent an emergency angiography that confirmed the diagnosis of total occlusion of the SMA (Fig. 3a). A manual aspiration thrombectomy was performed into the SMA, using a Luer-lock 60-mL syringe, connected to a 6 F catheter (Mach-1, Boston Scientific; Fig.

3b). Almost all clots were aspirated and removed from the SMA; seven passes of the guiding catheter were made. The final control demonstrated patency of the SMA, with continuing occlusion of the distal arcades for the ileum bowel (Fig. 3c). Transcatheter selective thrombolytic therapy was started with a 200 000-IU bolus of urokinase (Abbott Labs, North Chicago, Illinois, USA) followed by 70 000 IU/hour, for

12 hours. Heparin infusion was given simultaneously via a peripheral venous catheter, at a dosage of 1000 IU/hour. Then, 24 hours later, the patient underwent resection of 75 cm of ileum bowel.

Acute SMA thromboembolic occlusion is a rare and potentially fatal vascular emergency that requires rapid restoration of mesenteric blood flow as well as early diagnosis (1). This vascular

emergency has a high mortality rate (1, 2). Percutaneous endovascular manual aspiration thrombectomy for acute SMA thromboembolic occlusion, as demonstrated in vessels in other anatomical regions (3, 4), is a simple, rapid, and valuable alternative to surgical thrombectomy in cases where thrombolysis is not indicated (1, 2). However, this percutaneous technique must be performed by experienced physicians due to the possible complications.

Conflict of interest disclosure

The authors declared no conflicts of interest.

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Umberto G. Rossi, Paolo Rigamonti, M'Hamed Dahmane, Maurizio Cariatì

From the Department of Radiology and Interventional Radiology (U.G.R. ✉ urossi76@hotmail.com, P.R., M.C.), San Carlo Borromeo Hospital, Milano, Italy; the Department of Radiology and Interventional Radiology (M.D.), IRCCS San Martino University Hospital, National Institute for Cancer Research, Genova, Italy

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