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Primary Percutaneous Revascularization Using Coronary Stent in a Patient with Acute Mesenteric Ischemia

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Acute mesenteric ischemia (AMI) is an uncommon disorder with serious morbidity and mortality caused by acute obstruction of the intestinal vessels. The obstruction is generally due to cardiac thromboembolism or, less frequently, by the acute thrombosis on an existing atherosclerotic plaque. The most commonly involved vessel is the superior mesenteric artery (SMA).Surgical revascularization and resection is still the treatment of choice. Although percutaneous transluminal revascularization has been found to be as effective as surgical revascularization in chronic mesenteric ischemia, there is not enough evidence in literature for its use in acute cases.

A 70-year-old female patient presented to our emergency department with an ongoing abdominal pain of 12-hour duration, nausea, vomiting and palpitation. She had a previous medical history of cerebrovascular accident (CVA), hypertension, chronic obstructive pulmonary disease, type 2 diabetes mellitus and atrial fibrillation (AF). She was under treatment with aspirin and warfarin for CVA and AF. On physical examination, the blood pressure was 80/50 mmHg and pulse rate 142 per minute. The heart sounds were normal and rhonchus was heard over bilateral lungs fields. The abdomen was tender and rebound pain was present. ECG was normal except for AF with high ventricular response. Laboratory results showed normal values of ALT, AST, amylase, lipase and troponin I, but leukocyte count and CRP were high (leukocyte: 20200/mm^3, CRP: 237 mg/L). Her INR was 2.4. On abdominal computed tomography, diffuse increased wall thickness of the ileum and mesenteric edema were seen, and acute mesenteric ischemia was confirmed. Because of the patient's clinical conditions, accompanying systemic diseases and the extended ischemia of the intestines, surgical mortality was considered very high. Percutaneous transluminal angioplasty was contemplated as is carried out in acute myocardial infarction. After obtaining written informed consent from the patient, celiac angiography was performed via the right femoral artery approach. A 100% occlusion was seen in the proximal SMA (Figure 1). Right Judkins catheter was used to engage the ostium of the SMA. The total occlusion was crossed with the floppy guide wire. After predilatation with a 2.75x30 mm balloon, two bare metal coronary stents of 4.5x24 mm and 4.5x20 mm were implanted end to end at 18 atm (Figure 2).

Figure 1. Totally occluded superior mesenteric artery

A good distal flow was achieved (Figure 3). In addition to antibiotic and antiarrhythmic medications, heparin infusion was started. Clopidogrel loading and maintenance doses of 600 mg and 75 mg and acetyl salicylic acid 300 mg were also prescribed. Abdominal pain began to subside dramatically after the procedure and disappeared completely after one week. At the two-month follow-up, the intestinal functions have recovered and tomography taken at the 3-month follow-up

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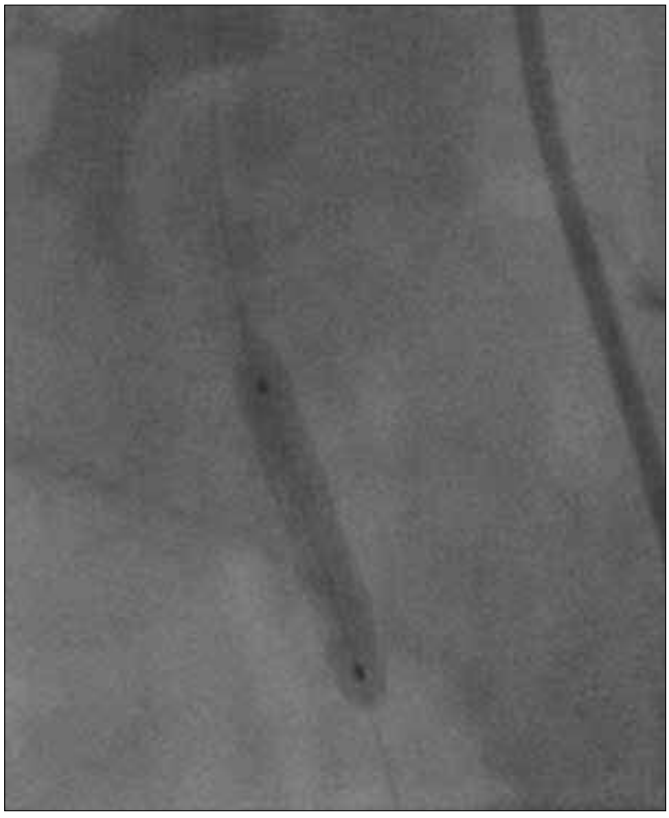

Figure 2. Implanting the stent

Figure 3. Superior mesenteric artery angiogram after stenting

showed that the SMA was patent and the thickness of the intestinal wall had returned to normal.

Acute mesenteric ischemia is a rare disorder with serious morbidity and mortality caused by acute obstruction of the intestinal vessels. The obstruction is generally due to cardiac thromboembolism or, less frequently, by acute thrombosis on an existing atherosclerotic plaque. Although abdominal pain is severe in the early phase, tenderness is typically absent on initial physical examination. With ongoing ischemia and intestinal tissue damage, tenderness appears. Thus, the diagnosis is often made late. As ischemia has already occurred by the time of diagnosis, the treatment of choice is surgery, and the resection of the bowels is often inevitable. Successful angioplasty or stenting of mesenteric artery in the absence of intestinal necrosis have been reported in literature (1, 2). Percutaneous transluminal angioplasty has been found to be as effective as surgical treatment (3, 4). However, in acute cases, timely diagnosis and revascularization before necrosis is often impossible. As a result, stenting of acute occlusion is not widespread. In the literature, only a few cases of early diagnosis with successful thrombectomy and angioplasty have been reported (5-7). In our patient, the diagnosis was made early and successful angioplasty and stenting was carried out because of severe comorbidity. In short, mesenteric ischemia has high morbidity and mortality despite treatment. Primary angioplasty and stenting before intestinal necrosis may be life-saving, especially in patients at high surgical risk.

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