CASE REPORT

Report of a case of ischemic colitis with bilaterally patent internal iliac arteries after endovascular abdominal aortic aneurysm repair

Hyangkyoung Kim, Tae-Won Kwon, Yong-Pil Cho, Ki-Myung Moon

Department of Surgery, Chung-Ang University Hospital, Chung-Ang University College of Medicine, Division of Vascular Surgery, Department of Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea

During endovascular aneurysm repair (EVAR), interruption of the internal iliac arteries (IIAs) or the inferior mesenteric artery by stents or embolization is thought to cause colon ischemia. To minimize this risk, attempts have been made to preserve the IIAs using iliac branch devices or IIA revascularization. Here we present our experience of colon ischemia after EVAR in a patient with bilaterally patent IIAs without evidence of embolism. A 70-year-old man had abdominal pain and a ruptured abdominal aortic aneurysm was found. We performed EVAR with custom-made tube grafts preserving the bilateral IIAs. On postoperative day 2, the patient complained of abdominal pain, a sigmoidoscopy was performed revealing colon ischemia. On laparotomy, transmural infarction of the sigmoid colon was found and resected. Because IIA preservation cannot guarantee protection against colon ischemia, surgeons should maintain a high level of suspicion and use surveillance liberally after EVAR for early diagnosis of colon ischemia, even if both IIAs are preserved.

Key Words: Abdominal aortic aneurysm, Ischemic colitis, Iliac artery, Inferior mesenteric artery

INTRODUCTION

Left colon ischemia after both open and endovascular aneurysm repair (EVAR) is well documented. The incidence of clinically significant colonic ischemia has been reported to be as high as 6% after EVAR, and the mortality rate associated with transmural bowel necrosis is high [1]. Because direct visual assessment of colonic perfusion, which is possible with open repair, is not available to the endovascular surgeons, determination of perioperative risk factors as predictors of ischemia is of critical importance. Proposed major causes of colon ischemia after EVAR include interruption of the inferior mesenteric artery (IMA) and internal iliac arteries (IIAs), and embolization [1]. Many endovascular surgeons worry about colon ischemia when bilateral IIA occlusion is necessary during EVAR to treat concomitant bilateral common iliac aneurysms. Bilateral IIA embolization has been reported to result in a high incidence of pelvic ischemic symptoms. Among these, buttock claudication and colonic ischemia...
Colon ischemia with bilaterally patent IIAs

are two common examples. Theoretically, ischemic complications may be reduced in patients who receive IIA revascularization, IIA preservation through an iliac branch device, or sequential embolization to enhance collateral flow across the pelvis [2]. However, there are little data to support a direct association between the proposed risk factors and colonic ischemia, and contradictory results have been reported for the impact of IIA exclusion on colonic perfusion [3].

Atheroembolism has been implicated as the major etiology of colon ischemia in patients with preserved bilateral IIA circulation [4]. Here, we present a case of colonic ischemia after EVAR in a patient with bilaterally patent IIAs without evidence of embolism.

CASE REPORT

A 70-year-old man presented with acute abdominal pain and was diagnosed with a ruptured infrarenal abdominal aortic aneurysm (AAA). On arrival, he was alert and oriented, and his blood pressure was 148/78 mmHg. He had hypertension and end-stage renal disease and was receiving regular hemodialysis. He had a history of a cerebrovascular accident 23 years prior and acute myocardial infarction 12 years prior, both of which were treated by percutaneous transluminal coronary angioplasty.

A computed tomography (CT) scan showed a 38-mm infrarenal abdominal aortic aneurysm without iliac artery dilation and a hematoma that was confined to the retroperitoneal cavity around the aneurysm. The aneurysm ended 18 mm proximal to the iliac bifurcation. IMA, both IIAs, and the celiac and superior mesenteric artery were patent (Fig. 1). The aorta and the iliac arteries were severely calcified. An arteriogram was performed with the patient under general anesthesia, and leakage of contrast accompanying a drop in blood pressure to 70/45 mmHg was observed. Tube grafts (28 × 80 mm, 26 × 60 mm; SEAL, S&G Biotech Inc., Seongnam, Korea) were inserted through the right femoral artery. Because we deployed the wider graft first, there was a significant amount of endoleak between the two different size endografts. We deployed another tube graft (28 × 80 mm, SEAL, S&G Biotech Inc.) between the two other tube grafts, thereby successfully excluding the AAA with complete preservation of both iliac arteries. On the second postoperative day, the patient complained of diffuse abdominal pain and his C-reactive protein level was elevated at 31.18 mg/dL. Sigmoidoscopy revealed severe ischemic colitis from 20 cm proximal to the anal verge to the sigmoid colon. On laparotomy, there was transmural ischemia and infarction of the sigmoid colon, but no evidence of perforation (Fig. 2A). A colonic resection with formation of Hartmann’s pouch and colostomy was performed (Fig. 2B). Pathologic examination revealed transmural infarction without evidence of atheroembolism. Postoperatively, it was difficult