

Ischemic Complications of Endovascular Aneurysm Repair and How to Prevent and Treat Them*

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Purpose

Limb and pelvic ischemia are known complications following endovascular aneurysm repair (EVAR). The objective of this paper is to present our experience with the incidence, presentation, and management of such complications.

Methods

During a 9-year period, 356 patients with aortic aneurysms underwent EVAR. A retrospective review identified 28 patients (7.9%) who had ischemic complications.

Results

Among 28 patients with ischemic complications, 21 had lower extremity (LE) ischemia and 7 had pelvic ischemia: colon (n = 4), buttock (n = 2), and spinal cord (n = 2). Of these 21 patients, 15 had limb occlusions (71%), 3 were owing to embolization (10.7%), and 3 were a result of common femoral artery thromboses (10.7%). Limb occlusions presented with severe acute arterial ischemia (n = 6), ischemic rest pain (n = 3), intermittent claudication (n = 5), and decreased femoral pulse (n = 1). Limb occlusions were managed as follows: 4 underwent thrombectomy and stent placement, 7 underwent femoral-femoral bypass, 1 was eventually explanted owing to a persistent endoleak, and 3 were managed expectantly. The 3 patients managed expectantly all presented with intermittent claudication and have subsequently improved. The 6 patients with LE ischemia from embolization or common femoral artery injury presented acutely and were managed with thromboembolectomy and/or femoral artery endarterectomy and patch angioplasty. One patient suffered a subsequent cardiac arrest and went on to require distal bypass and ultimately an above-knee amputation. Among the 7 patients with pelvic ischemia, 2 had unilateral hypogastric artery embolization prior to their original surgery. Among 4 patients with colonic ischemia, 3 presented immediately postoperatively and required colectomy and colostomy. Two of the patients who required urgent colectomies proceeded to develop multiorgan failure and died in the perioperative period. One patient presented with abdominal pain 1 week following surgery, was managed with bowel rest, and improved. Two patients developed spinal cord ischemia immediately following surgery, resulting in persistent hemiplegia. Two patients developed buttock ischemia, 1 of whom required fasciotomy for gluteal compartment syndrome and suffered transient renal failure.

Conclusions

Ischemic complications are not uncommon following EVAR and may exceed the incidence with open surgical repair. Limb ischemia is most often a result of limb occlusion and can be successfully managed with standard interventions. Pelvic ischemia often results from atheroembolization despite preservation of hypogastric arterial circulation. Colonic and spinal ischemia are associated with the highest morbidity and mortality. Although the treatment of the ischemic complications of EVAR continues to be individualized, it remains difficult to predict or prevent these complications.

*Reproduced with permission from the Journal of Vascular Surgery, Adelman MA, et al. Ischemic complications after endovascular abdominal aortic aneurysm repair. 2004;40:703-9.