

Clinical Challenges

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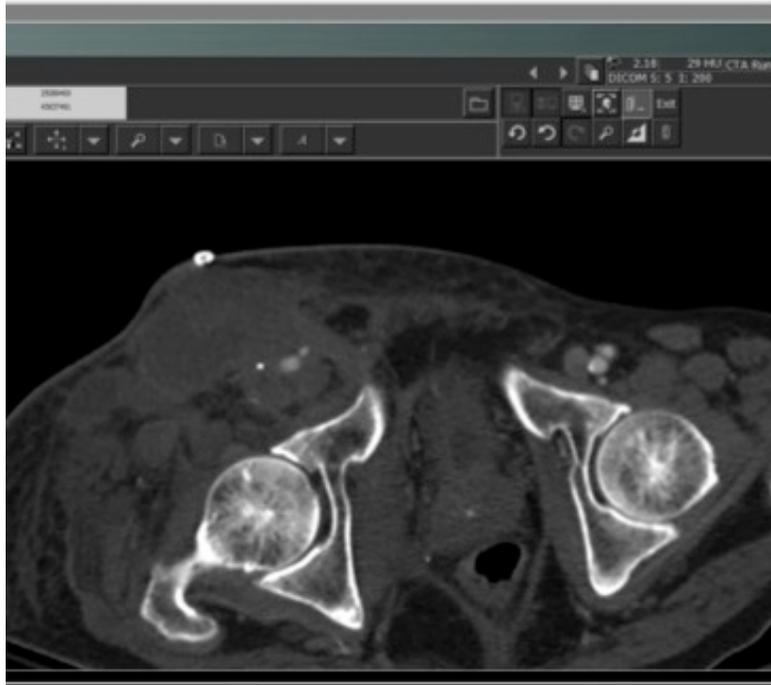
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Tackling the Infected Aortic Endograft: A Feared Complication with a Multidisciplinary Solution

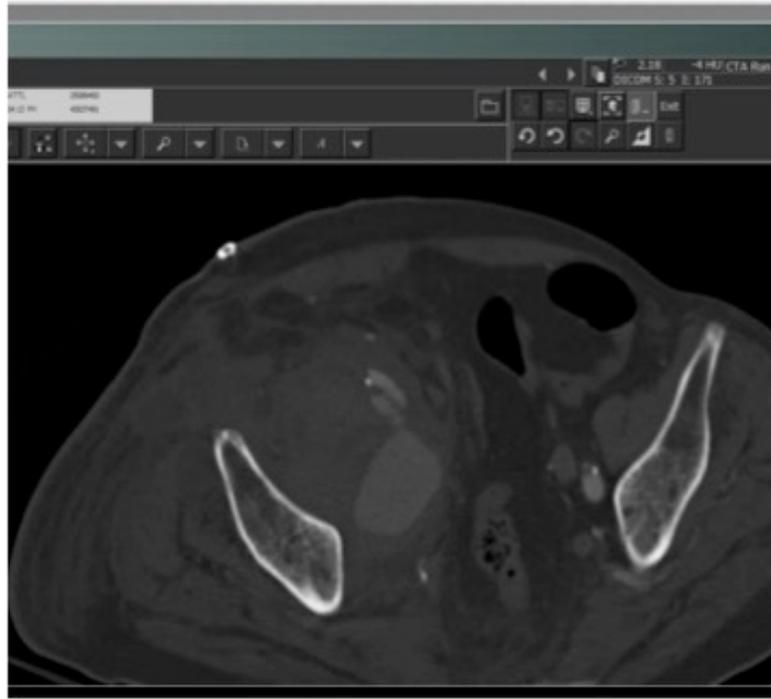
Enlargement of the aorta in the abdomen (referred to as an abdominal aortic aneurysm, or AAA) is the cause of approximately 10,000 deaths per year in the United States. The most common method of treatment employs a stentgraft, deployed through small punctures in the femoral arteries, to exclude the blood flow from the enlarged portion and prevent rupture. Although the chances of infection of the stentgraft are only about 1%, patients whose grafts become infected are at a very high risk of death from infection (50-100% mortality). Treatment of the patient with an infected endograft often requires careful planning and the involvement of multiple medical and surgical specialties to provide salvage and rehabilitation from a life-threatening disease.

A 76-year-old man with hypertension and a remote history of smoking was brought from a skilled nursing facility to the UC San Diego Emergency Department for vascular surgery evaluation. Two months prior to his presentation, he underwent endovascular aneurysm repair (EVAR) for an infrarenal abdominal aortic aneurysm at another hospital in the community. Unfortunately, he suffered a series of complications postoperatively that required multiple additional endovascular and open surgical procedures of the right iliac and femoral arteries. By his time of presentation to UC San Diego, he had developed a large infection of the groin with ascension to the right retroperitoneal space; and an infection of his native right iliac artery and his endograft, a condition that carries a high risk of serious complications and death.

Groin infection

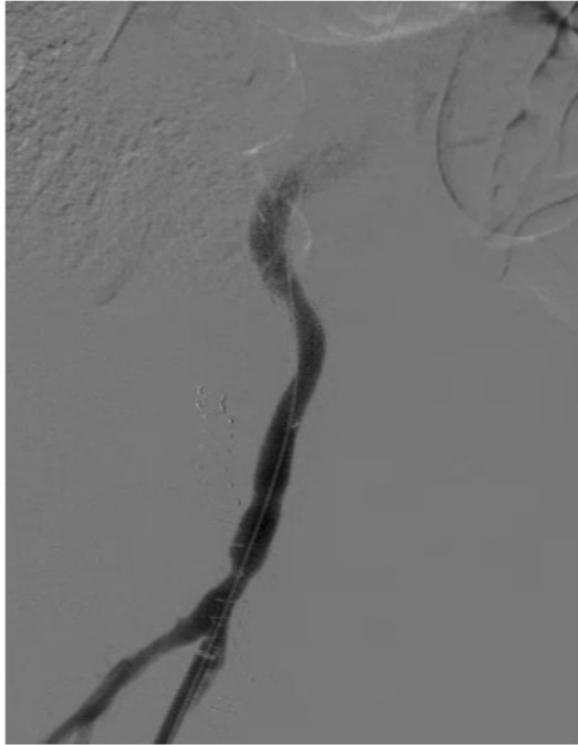


Iliac infected pseudoaneurysm



Fortunately, the patient was otherwise a fairly healthy man, so even though he arrived septic from his groin infection and malnourished from prolonged hospitalizations, he was ready to undergo staged intervention for his complex aortic infection. The first of his procedures was performed immediately upon arrival: he underwent endovascular coverage of the large infected iliac pseudoaneurysm and aggressive debridement of the groin infection. Coverage of the pseudoaneurysm required covered stent-graft placement to the level of the common femoral artery, with the plan that we would return to remove these stents at the time of the EVAR stent-graft explantation. The stent-graft placement was performed from a right thigh cutdown to the SFA, away from the existing groin infection.

Stent to femorals



Cultures of the wound were obtained and his antibiotic coverage was tailored to the results (multiple organisms including multidrug-resistant *Morganella morganii* and *Candida* sp. were detected). His abscess was drained percutaneously in addition to the open debridement, and he received perioperative supplemental nutrition to help combat his baseline malnutrition.

In a staged fashion, the patient returned to the operating room for creation of an axillo-femoral-femoral bypass graft. Due to the infected right groin, a cadaveric bypass conduit was used for the femoral-femoral portion of the extra-anatomic bypass. Once the axillo-femoral-femoral bypass had been created, the infected endograft was removed, his proximal aorta and iliac arteries were excluded, and the infected iliac artery stents and

retroperitoneal hematoma were removed. The right femoral artery was then reconstructed and the bypass connected to the newly reconstructed femoral bifurcation.

Closure of his groin wounds was addressed in a multidisciplinary team approach, working closely with UC San Diego plastic surgery services. Sartorius muscle flaps were mobilized to cover his anastomoses, both on the reoperative groin as well as prophylactically on the left-hand side. A negative pressure wound therapy (NPWT) dressing was used to cover the right groin flap and large drains were left in the retroperitoneal space.

Postoperatively the patient required 3 weeks of care in the hospital for NPWT dressing changes and physical therapy. He was maintained on IV antibiotic therapy tailored to his microbiologic cultures for 4 months until his wound cultures were negative. His extra-anatomic bypasses remain patent in the medium term. He returned home approximately 6 weeks after his initial admission for his endograft infection, having healed his wounds without subsequent sequelae.

The Bottom Line

Aortic endograft infections are rare events that are likely to become increasingly prevalent as the number of endograft repairs for aortic aneurysms increase. Prompt recognition of the problem with referral to a multidisciplinary medical and surgical team at a tertiary-level hospital is critical to optimizing patient outcomes.