Bovine Pericardium as New Technical Option for In Situ Reconstruction of Aortic Graft Infection.

Abstract:

Alloplastic aortic graft infection is a devastating complication following aortic surgery. It is associated with excessively high mortality and morbidity caused by anastomotic rupture or septicemia. Many authors consider in situ replacement after complete surgical graft removal as the method of choice. However, there is an ongoing debate about the most suitable material for reconstruction. We present our first experiences with replacing the descending and infrarenal aorta using custom-made bovine pericardium grafts. From January 2013 to 2015, 13 patients (10 male, median age 70 years, range 53-84) were treated for 5 early-graft infections after open reconstructions and 7 late graft infections (1 TEVAR, 2 EVAR, and 4 open reconstructions), and 1 patient was treated for mycotic aneurysm. Septicemia was evident in 8 patients, whereas 5 patients were presented with low-grade infection. In all cases, graft infection was proven by a synopsis of clinical findings, laboratory tests, imaging, and microbiologic tests (positive pathogen detection in 11 patients). Cutaneous and aortoenteric fistulae were present in 3 and 4 patients, respectively. All patients received an in situ replacement using a hand-sewn xenoprosthesis or patch made from a bovine pericardium sheet. Follow-up was routinely performed 3, 12, and 24 months after discharge.
bifurcated grafts, and 2 large patches were implanted in situ. Technical success was 100%. Median length of hospital stay was 44 days (range, 20-136 days), with an in-hospital mortality rate of 7.7% (n = 1). Major procedure- and disease-related complications were temporary (n = 2) and permanent dialysis (n = 1), limb loss (n = 1), and long-term ventilation (n = 5). Complete infection control and initial healing could be achieved in 75% (n = 10). During the follow-up (median 9 months, range: 1-27 months), primary graft patency was 100%, and mortality was 41.7%. We observed 2 secondary ruptures due to reinfection at 4 and 7 months. Custom-made bovine pericardium grafts provide a good option for in situ replacement following early or late aortic graft infection. Despite of its high biocompatibility, pericardium provides not an absolute protection against ongoing retroperitoneal infection. For the treatment, the principles of septic surgery need to be applied and close follow-up is mandatory.