Introduction

Acute endocarditis, especially that caused by organisms which have acquired tolerance to antibiotics, remains a serious condition. Prosthetic valve replacement is usually performed despite the high frequency of fatal postoperative prosthetic valve endocarditis. We successfully treated a patient with MRSA aortic valve endocarditis with an annular abscess using a combined patch: a Dacron graft lined with pericardium using vancomycin-containing fibrin glue. Although complete healing of the infected leg wound was slow, no prosthetic valve endocarditis has been detected in the 11 months since operation. (Ann Thorac Cardiovasc Surg 2004; 10: 252–4)

Key words: MRSA, endocarditis, annular abscess, vancomycin

Case Report

A 40-year-old man was admitted with a diagnosis of MRSA aortic valve endocarditis. He was treated conservatively with clindamycin and vancomycin for three days, but embolism occurred into the brain and the right lower limb, and urgent aortic valve replacement was performed. Resecting an aortic annular abscess resulted in a huge defect of the root. The defect was reconstructed with a combined patch: a Dacron graft lined with pericardium using vancomycin-containing fibrin glue. Although complete healing of the infected leg wound was slow, no prosthetic valve endocarditis has been detected in the 11 months since operation. (Ann Thorac Cardiovasc Surg 2004; 10: 252–4)

Key words: MRSA, endocarditis, annular abscess, vancomycin
ing field with saline and changing all the equipment and sponges we had used until then, we created a combined patch, lining a section of a Dacron graft (Gelseal, Vascutek, Renfrewshire, UK) with pericardium using vancomycin-containing fibrin glue (VFG): 0.5g of vancomycin/3 ml of fibrin glue (Beriplast, Aventis Pharma, King of Prussia, USA). We also made a strip of pericardium, folding a rectangular piece of pericardium in half with the fold parallel to the short side and sandwiching VFG between the top and bottom parts. The combined patch was cut to the appropriate size and shape and sewn to the edge of the defect with 4-0 Prolene horizontal mattress sutures, and a subsequent continuous suture reinforced it by buttressing the sutures over the pericardial strip (Fig. 2). A 21 HP mechanical valve (St. Jude Medical, Inc., St. Paul, MN) that had been incubated in a vancomycin solution was implanted with 2-0 Ticron horizontal mattress sutures with the pledgets on the patch and with 2-0 Ticron single intermittent sutures. The aortotomy was closed with a continuous 4-0 Prolene suture using the combined patch, as in Nick’s procedure.

Infection in the right lower leg required fasciotomy followed by frequent debridement. A DDD pacemaker was implanted due to persistent complete A-V block on the seventh POD. A cranial CT performed on the 17th POD because of slightly abnormal behavior from time to time revealed a brain abscess. Postoperative intravenous administration of vancomycin 2 g/day for four weeks and clindamycin 1,200 mg/day for two weeks was followed by p. o. of levofloxacin for three weeks. The patient was moved to another hospital where the wound in the leg was closed, and discharged four months after the initial operation. At the present time, 11 months after the operation, he is seeing patients ordinarily at his hospital without neurological deficits or any evidence of relapse of infection.

Discussion

The principle of operations for acute infective endocarditis should be complete debridement of the infected tissue and painstaking irrigation of the field. However, the fear of residual microorganism must remain because we have no tool to detect it during surgery. Therefore, we look for additional artifices such as using a patch with a local antiseptic effect to prevent relapse of infection. Glutaraldehyde-treated autologous pericardium, bovine pericardium and shielded Dacron polyester sheet have been used for patch enlargement of aortotomy. Also, fresh autologous pericardium is sometimes used after reinforcement with Gore-Tex or Dacron sheet. Although Garcia-Bengoechea et al. reported glutaraldehyde-fixed bovine pericardium is superior to Teflon in terms of bacterial adherence, the best suited patch material for infective endocarditis patients is still controversial. Nonautologous fibrin glue combined with antibiotics has shown continuous diffusion of the antibiotics for up to five to seven days and inhibition of S. aureus growth in vitro. On the basis of this study, VFG was recommended for use around the aortic root in cases of acute aortic valve endocarditis.
We used the VFG to fold and secure a fresh autologous pericardial strip and to line a Dacron sheet with fresh autologous pericardium, expecting longer antibacterial effects on the prostheses. Once completely clotted it coalesced into one sheet (strip) we could easily handle thereafter. Furthermore, there was no danger of emboli of glue clots because of the consistency of the fibrin polymer. Although a homograft is now thought to be the valve of choice for complex aortic valve endocarditis, it is not easy to obtain a homograft yet because of lack of donors and imperfect distribution system in Japan. The method we used in this case is acceptable as an urgent countermeasure.

References


