Successful Treatment of Aortic Root Aneurysm After Orthotopic Heart Transplantation: Case Report

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ABSTRACT

Aortic root aneurysm after orthotopic heart transplantation (HTx) is rare. It may originate from cystic medial necrosis of the donor heart aorta. Herein we have reported a 64-year-old man who received an orthotopic HTx due to dilated cardiomyopathy. Although asymptomatic, follow-up echocardiography revealed dilatation of the aortic root and severe aortic regurgitation at 3 years after the transplantation. He underwent a Bentall procedure with a prosthetic valved conduit. The post-operative course was uneventful. This case demonstrated that a heart-transplant recipient with a late aortic root aneurysm can be successfully treated with an excellent outcome.

HEART TRANSPLANTATION (HTx) is a recognized surgical treatment option to provide effective therapy for end-stage cardiomyopathy. The purpose of the operation is to restore normal cardiac function by implantation of a functionally normal heart. Our surgical technique for orthotopic HTx is essentially the same as that described by Lower and Shumway1 in 1960. Complications directly related to the surgical procedure are rare. The donor aorta has received extensive attention as the possible site of complications.2 Aortic root aneurysm after orthotopic HTx, which is rare, may originate from cystic medial necrosis of the donor aorta.3,4 Herein we report a case in which severe dilatation of the donor aorta developed 3 years after orthotopic HTx.

CASE REPORT

A 64-year-old man underwent orthotopic HTx because of New York Heart Association (NYHA) functional class IV dilated cardiomyopathy. The donor was a 23-year-old tall, thin man who died in a car accident. Mild aortic root dilatation (35 mm) was noted during organ procurement; otherwise the donor heart was in good functional condition. The HTx proceeded smoothly, and the patient was followed up regularly in the outpatient department. Dilatation of the aortic root (70 mm) and severe aortic regurgitation were noted during follow-up echocardiography at 3 years after HTx. Although the aneurysm was asymptomatic, we performed a Bentall procedure with a prosthetic valved conduit 23-mm valve, and 26-mm graft diameter. Intraoperatively, we observed aneurysmal dilatation of the aortic root. A piece of the aortic wall was sent for pathologic examination, which revealed cystic medial necrosis compatible with marfanoid changes. No evidence of mycotic infection was found at bacteriologic examination. Follow-up echocardiography revealed normal heart function and aortic size. The patient is well at 9 years after the Bentall procedure.

DISCUSSION

Heart transplantation is the solution for end-stage cardiomyopathy, with one-year survival greater than 90% and five-year survival greater than 75%. Most post-HTx complications are associated with the donor aorta and include aortic rupture, infective pseudoaneurysm of the aorta, and aortic dissection.2 Aneurysmal change in the donor aorta owing to cystic medial necrosis after HTx is not common; only a few cases have been reported.3,4 Further development of aortic dissection may require an emergency operation. The Bentall procedure is considered the treatment of choice; however, few successful cases have been reported.6–8 Because of the scarcity of donors, use of suboptimal organs is justified to expand the donor pool.9 Several studies have shown that survival with a suboptimal heart can be similar to that with a standard donor heart.10–12 Furthermore, using a suboptimal donor heart does not increase the rate of primary graft dysfunction.13 In this case, although we observed mild dilatation of the donor aorta at the time of harvesting, we did not exclude the organ from HTx because heart function was normal. However, follow-up with echocardiography is mandatory to make an early diagnosis of aortic aneurysm, such as marfanoid change, before an

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aortic dissection develops. With proper surgical treatment, the patient may live a normal life.

In conclusion, because of the scarcity of donors, use of suboptimal organs is justified to expand the donor pool. Proper surgical intervention such as the Bentall procedure may provide a good long-term outcome for patients who develop late complications after receiving hearts from suboptimal donors.

REFERENCES