Successful treatment of atypical type A aortic dissection after heart transplantation

Shenglei Shu, Lan Cheng, Jing Wang* and Chuansheng Zheng

INTRODUCTION

Aortic dissection is a rare but fatal complication following orthotopic heart transplantation (HTx) that may occur in both early and late period [1]. Only few case reports have reported aortic dissection in HTx patients [2, 3]. In this case report, we described a rare case of type A aortic dissection sparing the donor aorta 2 years after HTx.

CASE REPORT

A female patient underwent HTx for end-stage dilated cardiomyopathy in 2018 at the age of 56. The patient was successfully discharged 3 weeks after HTx and received immunosuppression including tacrolimus, mycofenolate mofetil and corticosteroids. Candesartan and low-dose diuretics with oral potassium chloride were prescribed to control blood pressure. Insulin glargine and insulin mendon were regularly given for the treatment of type 2 diabetes. Since July 2020, the patient experienced low back pain without other severe symptoms compatible with aortic dissection including chest pain. Several chest computed tomography scans performed before the onset of low back pain also showed no abnormality of the aorta. Two months later, she was referred to lumbar spine magnetic resonance examination for low back pain discovered the aortic dissection which was confirmed by following computed tomography angiography. The patient received surgical treatment including total arc replacement and thoracic aortic endovascular repair and recovered well.

Keywords: Aortic dissection • Heart transplantation • Surgical repair

Abstract

We report a case of a 58-year-old female with Stanford type A aortic dissection sparing the donor aorta 2 years after heart transplantation. Lumbar spine magnetic resonance examination for low back pain discovered the aortic dissection which was confirmed by following computed tomography angiography. The patient received surgical treatment including total arc replacement and thoracic aortic endovascular repair and recovered well.

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The postoperative recovery was complicated by pulmonary infection and pleural effusion. At present, the patient is doing well 3 months after surgical treatment.

**DISCUSSION**

Aortic dissection following HTx has been reported in several cases with type A dissection involving the donor aorta or type B dissection restricted to native aorta. As far as we know, we report the first case of chronic type A dissection following HTx sparing the donor aorta. It was believed to be the first report of successful treatment of type A aortic dissection in HTx patient combining the use of total arc replacement and thoracic endovascular aortic repair.

Aortic dissection in HTx patients has been attributed to technical mistakes in early phase after transplantation and degenerative processes in late period [4]. The type A dissection sparing donor aorta in our patient was more likely related to hypertension and immunosuppression. The condition of diabetes was also believed to be a risk factor [5]. Other than chest pain or dyspnoea reported previously [3], the complaint of our patients was low back pain. The atypical symptom may be caused by dilation of aorta, patency of main branches of aorta may help prevent severer symptoms. Echocardiography was helpful in detecting asymptomatic type A dissection involving donor aorta [1]. As aortic root was free of involvement in our patient, the dissection may be difficult to detect with echocardiography. There is a silver lining that the magnetic resonance examination for lumbar spine discovered the dissection and led to the confirmative computed tomography angiography scan.

The abdominal aorta in axial localizer images showed the presence of double-lumen separated by linear low signal, indicating aortic dissection.

Figure 2: The tear originated at lesser curve of aberrant right subclavian artery (D), the distal portion of ascending aorta was involved (C), but the aortic root was free of involvement (B). The dissection crossed the aortic arc and extended the whole descending aorta with spontaneous recanalization at terminal of left iliac artery (A, E).
The treatment of aortic dissection in HTx recipients follows the same principles applicable to general population. As the donor aorta and aortic valve were free of dissection, total arc replacement was adopted to repair the tear site and the false lumen was obliterated by thoracic endovascular aortic repair.

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REFERENCES
[1] D’Addese L, Komarlu R, Zahka K. Incidental finding of type A aortic dissection in a paediatric heart transplant recipient. Cardiol Young 2019;29:1219–21.
[2] Audenaert T, De Pauw M, Francois K, De Backer J. Type B aortic dissection triggered by heart transplantation in a patient with Marfan syndrome. BMJ Case Rep 2015;2015:bcr2015211138.
[3] Korkut AK, Wellens F, Foubert L, Goethals M. Successful treatment of acute dissection of the donor aorta after orthotopic heart transplantation. J Heart Lung Transplant 2003;22:701–4.
[4] Kesler KA, Hanosh JJ, O’Donnell J, Faust S, Turrentine MW, Mahomed Y et al. Heart transplantation in patients with Marfan’s syndrome: a survey of attitudes and results. J Heart Lung Transplant 1994;13:899–904.
[5] Vigano’ M, Rinaldi M, D’Armini AM, Pederzoli C, Minzioni G, Grande AM. The spectrum of aortic complications after heart transplantation. Ann Thorac Surg 1999;68:105–11.