Donor congenital ventricular septal defect heart transplantation in one case

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Abstract: The receptor of the heart transplantation was a patient with terminal dilated cardiomyopathy, the donor was a patient with congenital ventricular septal defect, in situ double-chamber heart transplantation was performed, and the result of the four-year follow-up was satisfactory. At present, donor is deficient, and those donors with congenital defect can also obtain satisfactory clinical application effects after appropriate handling.

CASE INTRODUCTION

A 59-year-old male patient was diagnosed having dilated cardiomyopathy at the local hospital due to 8 years of progressive chest distress and short breath. Accompanying abdominal distension and obviously limited activity, his symptom exacerbated in the half year prior to admission. His smoking history was 30 years. Chest X-ray displayed that the heart size was normal, and the cardiothoracic ratio was 0.7; electrocardiography demonstrated myocardial damage and low voltage; echocardiography demonstrated that the heart dilated obviously accompanying with left ventricular wall activity inhibition, the internal diameter of left ventricle was 69 cm at the end-diastole, the internal diameter of left auricle was 57 cm, the internal diameter of right auricle was 73 cm, the internal diameter of right ventricle was 43 cm, papillary muscle dysfunction accompanying with moderate mitral insufficiency and mild aortic insufficiency, pulmonary artery pressure was 76 mm Hg, ejection fraction was 0.38; Swan-Ganz catheterization demonstrated that the pulmonary artery pressure was 74/52 mm Hg before oxygen inhalation and was 48/29 mm Hg after oxygen inhalation, the small pulmonary artery wedge pressure was 25 mm Hg, cardiac index was 1.6 L/min/m^2, pulmonary vascular resistance after adequate oxygen inhalation was 5.8 Wood units, he was finally diagnosed as terminal dilated cardiomyopathy, cardiac function was class Ⅳ (NYHA), and severe pulmonary hypertension.

The heart transplantation surgery was done on March 20th 2004. The donor was male, 30 years old, and he was healthy and was not found having cardiovascular disease before. When trimming the donor heart, doctors found that the heart dilated obviously and existed congenital supracristal ventricular septal defect, the diameter of the defect was 1.2 cm, and the main manifestation was compensatory right ventricular hypertrophy. Operators restored the defect with patch firstly and then performed cardiac anastomosis. The warm ischemia time of donor heart was 4 minutes, cold ischemia time was 132 minutes, *in situ* double-chamber heart transplantation was performed, the aortic obstruction time was 180 minutes, the heart return to sinus rhythm after 4 times of defibrillation at 10, 20 50 J levels and successfully ended the extracorporeal circulation, the time of extracorporeal circulation was 226 minutes.

On the 1st day following transplantation, tracheal intubation tube was removed, ciclosporin A, mycophenolate mofetil and dehydrocortisone were used in immunosuppression treatment, patient ate liquid diet on the 2nd day following transplantation, floating catheter was removed and patient began to exercise out of bed on the 5th day following transplantation, patient exercised out of room at two weeks after transplantation; echocardiography at one week after transplantation demonstrated that the internal diameter of sinus aortae was 33 cm, the internal diameter of left ventricle was 56 cm at the end-diastole, the internal diameter of left auricle was 42 cm, the interventricular septal thickness was 14 cm, the ejection fraction was 0.63; the patient discharged on the 28th day after transplantation.

CASE ANALYSIS

The donor of this transplantation had severe pulmonary hypertension (76 mm Hg), alprostadil was pumped by venous pump before transplantation to relieve pulmonary artery pressure, and the donor had congenital ventricular septal defect, good right ventricular compensation overcame pulmonary artery hypertension to some extent, the patient did not appear manifestations of right heart failure after removing drug assistance in a short period following transplantation.

The patient had pulmonary infection at 5 months after transplantation, the main manifestations were fever and poor oxygenation function, and he was cured after anti-bacterium + anti-virus + anti-protozoon + anti-fungus drug treatment.

Follow-up was done at 12 months after transplantation, mild diastolic murmur could be heard in aortic valve area, echocardiography demonstrated that the internal diameter of sinus aortae was 36 cm, mild aortic insufficiency, the internal diameter of left ventricle was 62 cm at the end-diastole, the internal diameter of left auricle was 50 cm, the interventricular septal thickness was 14 cm, the ejection fraction was 0.65.

The patient accepted surgical treatment for right oblique inguinal hernia at 22 months after transplantation. Echocardiography demonstrated that the internal diameter of sinus aortae was 36 cm, mild aortic insufficiency, the internal diameter of left ventricle was 67 cm at the end-diastole, the internal diameter of left auricle was 53 cm, the interventricular septal thickness was 14 cm, and the ejection fraction was 0.60.

The patient accepted pulmonary lobectomy for lung cancer at 3 years after transplantation. Echocardiography demonstrated that the internal diameter of left ventricle and left auricle had an increase trend accompanying with aortic insufficiency, and it needs further study that whether it is correlated with myocardial damage or dilation of heart caused by rejection. Endocardial biopsy is the golden standard to identify acute rejection, but when the patient accepted routine endocardial biopsy at 1 month after transplantation, catheter could not past through the aortic valve. We judged the patient through non-invasive examination in the follow-up period.

We have followed up for 4 years, at present, the patient's cardiac status is good, he can do common physical activity, his basal heart rate is 80 times/min, cardiac rhythm is regular, moderate diastolic murmur could be heard in aortic valve area; now, he takes ciclosporin A 75 mg per time, once every 12 hours; mycophenolate mofetil 500 mg per time, once every 8 hours; he does not take dehydrocortisone now; the blood concentration of ciclosporin A maintains at 200–300 mg/L level; the indexes of liver and kidney function are basically normal, blood pressure and blood glucose are normal, cardiothoracic ratio is 0.54.

CONCLUSION

The donor of this transplantation was a patient with congenital ventricular septal defect, and the result of the four-year follow-up was satisfactory. At present, donor is deficient, and those donors with congenital defect can also obtain satisfactory clinical application effects after appropriate handling.

供体先天性室间隔缺损心脏移植 1 例

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摘要：本例心脏移植受者为终末期扩张性心肌病患者，供体为先天性室间隔缺损患者，进行原位双腔心脏移植，随访 4 年结果满意。在当前供体紧缺的情况下，对于一些存在先天性缺陷的供体，适当处理后应用也能取得满意的临床效果。

关键词：心脏移植；室间隔缺损；器官移植

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