Letter to the Editor

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Homograft replacement of the aortic valve after liver transplantation

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Sir: Endocarditis can be a severe long-term complication that is associated with a high mortality rate in transplanted patients. Valve replacement can be performed either with a bioprosthetic valve (as is done in our department when a patient is over 70 years of age) or with a mechanical replacement device (when the patient is less than 70 years of age) or a homograft (in patients younger than 70) in aortic position. Homografts have several advantages over other devices, namely: (1) there is no need for anticoagulation; (2) there is no noise, which patients often find annoying; (3) there is longer durability; and (4) there is a lower incidence of endocarditis [3, 8] with, consequently, a lower incidence of reoperation.

We report on a 62-year-old man who underwent a liver transplantation in April 1990 because of hepatocellulary carcinoma. He had been maintained on a triple immunosuppressive therapy. The patient was in good health and had no complications after the operation. In September 1990, however, the patient experienced an onset of fatigue, chest pain, lower leg edemas, and increasing dyspnea. In October 1991 he was admitted to a hospital with congestive heart failure and bilateral pleural effusions. Conservative treatment did not result in any significant improvement, and so there was further evaluation. Cardiac catheterization was performed; this revealed combined aortic valve incompetence grade III and stenosis grade I–II, mitral valve incompetence grade II with no coronary stenoses. The transplanted liver showed normal laboratory parameters.

On 24 November 1991 cardiac surgery was performed with a cryopreserved aortic homograft. This was implanted according to the technique described by Ross and colleagues [7]. The postoperative course was uneventful and immunosuppression was continued. Postoperative echocardiography showed regular homograft valve function. Postoperative serial liver function tests were also performed. Except for once, on the 2nd day, the direct bilirubin in serum increased up to 1.56 mg/dl; all liver tests showed normal parameters.

Nine months have elapsed since the aortic valve replacement. We had two follow-up check-ups, at 3 and 6 months post-transplantation. Both times echocardiography (valve incompetence grade I), red and white blood count, and X-rays of the chest showed no pathologic findings. The patient is clinically in class I, according to the New York Heart Association. Since the valve replacement there have not been any episodes of endocarditis and no further invasive procedures. The post-transplant follow-up is generally not done in our hospital, so we contacted the clinic in which this is performed. The patient had his last follow-up examination in July 1992. All post-transplant liver parameters were within the normal ranges.

Heart valve operations have been performed after cadaver renal transplantation in many cases [5, 9]. To our knowledge, there has been no homograft transplantation in liver-transplanted patients. In a review of the literature we could not find an exact percentage of incidence of heart valve operations in pre- or post-transplant patients; we did, however, find that there is a higher incidence of marantic endocarditis [4] and bacterial endocarditis [6] in post-transplant patients. Complications of "nonhomograft" valves jeopardize transplanted patients because of a higher thromboembolic complication rate and a fives times higher risk of prosthetic valve endocarditis in the first 9 postoperative months [1].

We think the use of homografts in aortic valve replacement after or before organ transplantation is one of the few absolute indications to use this type of aortic valve. We also consider this in patients who undergo bone marrow transplantation and who have similar problems. Because of the longer durability of homografts compared to bioprosthetic valves and the lower incidence of endocarditis [3, 8], there are fewer followup operations necessary [2]. The increasing need for homografts, not only in cases of endocarditis but also to avoid anticoagulant-related complications (anticoagulation is not required for homografts), and the annoying noise of mechanical devices make building up hospital-based homograft banks a must in more hospitals.

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