regurgitation were noted. On the 18th postoperative day the patient was discharged home.

Comment

Long-term survival of heart transplant recipients has increased significantly over the past decades, mainly because of the improvement of surgical techniques and the increasing availability of effective immunosuppressive drugs. The incidence of cardiac allograft vasculopathy and valvular disease and the need for reoperation long after HTx have consensually increased [1].

TR is the most common valvular heart disease. It is frequently observed within the first months after HTx and seems to be correlated with pulmonary hypertension. Although TR can be severe in the acute phase of HTx, it usually improves over time. Conversely, late TR is mainly the consequence of multiple endomyocardial biopsies and frequently requires surgical treatment [1]. Left-sided valve disease after HTx occur less frequently [1–3].

Most early left-sided valve disease consists of valvular regurgitation. It occurs as a consequence of abnormal atrial configuration or valvular edema in the first postoperative days or bacterial endocarditis weeks or months after HTx [2, 3].

Late left-sided valve disease is very uncommon because grafted aortic and mitral valves seem to be less susceptible than grafted coronary arteries to degenerative processes [2, 3]. Very few cases of aortic and mitral valve replacement have been reported in the literature [4, 5].

Nevertheless, when reintervention is needed, it should be considered that heart transplant recipients represent a special cohort with high operative risk for conventional surgical procedures because of their specific characteristics and comorbidities. In our case, the patient’s risk profile was prohibitive because of the 2 previous cardiac operations, the presence of left ventricular dysfunction, and the preexisting comorbidities.

TAVI has become a safe and effective treatment for patients with severe aortic valve stenosis who are considered at high or prohibitive surgical risk. Recently TAVI has been extended to high-risk patients with severe aortic regurgitation. There are 2 published cases of degenerative aortic stenosis successfully treated with TAVI, in 1 case using the transapical approach and in the other case using transfemoral access [6, 7]. In another case, the patient underwent transfemoral TAVI for severe aortic regurgitation secondary to Impella device (Abiomed, Inc, Danvers, MA) placement early after HTx [8].

To our knowledge, this is the first reported case of successful transfemoral TAVI performed in a heart transplant recipient because of late degenerative aortic valve regurgitation. TAVI seems to represent a safe and effective therapeutic option for aortic valve disease in high-risk or inoperable heart transplant recipients; however, longer follow-up and more experience are necessary to recommend it worldwide.

References


Sutureless Percival Aortic Valve Replacement in Aortic Homograft

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We report a case of aortic valve replacement with a sutureless valve in a degenerated aortic homograft. This technique allows rapid aortic valve replacement in a heavily calcified aortic root. It avoids the problems of postoperative prosthetic disinsertion frequently encountered after aortic valve replacement in a calcified annulus. It is particularly suitable in redo procedures for homograft degeneration. It avoids performing a redo Bentall operation with its known morbidity.


Homografts and pulmonary autografts are mostly used in the aortic position in adults, although they account for less than 1% of aortic valve replacements in most large databases. Homografts are subject to structural valve dysfunction. A propensity-matched analysis found that homografts did not provide better...
durability than the pericardial bioprosthesis, and a randomized trial showed superior durability of the stentless bioprosthesis over the homograft [1, 2]. Mediterranean time to reoperation for structural valve dysfunc-
tion is age dependent and varies from 11 years on average in a 20-year-old patient to 25 years in a 65-
year-old patient [3]. Technical concerns, limited availability, and increased complexity of reoperation restrict the use of homografts [4]. Although debated, the main indication for homografts is acute infective endocarditis with perivalvular lesions [5]. Reoperation after a procedure to place an aortic homograft can be challenging, especially after total root replacement. This is mainly because of the calcifications on the homograft, which precludes homograft clamping and suturing.

We report the case of a reoperation after homograft failure, with aortic implantation of a sutureless bioprosthesis (Perceval S bioprosthesis, Sorin Biomedica Cardio Srl, Sallugia, Italy). The design of the Perceval S prosthesis stems from the intention to offer an alternative to traditional flexible prostheses (stented and stentless biological valves) using conventional open heart surgical procedures.

A 62-year-old man presented with dyspnea on exer-
tion 12 years after implantation of a total root 23-mm aortic homograft. Echocardiography revealed a pro-
lapsed right coronary leaflet as well as some degree of leaflet calcification. The left ventricular ejection frac-
tion was 45%, with telesystolic left ventricular enlargement of 62 mm and telediastolic left ventricular enlargement of 68 mm. A preoperative computed tomographic scan showed massive calcification of the homograft (Fig 1). Coronary angiography produced normal results.

The patient preferred to have a new bioprosthesis inserted. We decided to implant a stentless sutureless valve to avoid suturing in the calcified annulus of the homograft.

The Perceval S prosthesis has a special feature—it does not have to be surgically sutured into the implant site because this function is performed by the armature, which in addition to supporting the valve edges, adapts itself to the aortic root to which it is anchored.

Exposure of the aorta was performed in the native aorta above the homograft suture line. Examination of the root showed it was very calcified with a prolapsed noncoronary cusp (Fig 2). After removal of the 3 leaflets, a 24-mm sizer was fitted through the annulus. A 25-mm Perceval S bioprosthesis was introduced intraannularly (Fig 3). After aortic closure and air removal, declamping was performed after 42 minutes. Intraoperative echocardiography showed a normal functioning sutureless valve with 1+ central aortic regurgitation.

The postoperative course was uneventful, and the pa-
tient was discharged after 7 days. He was seen in the outpatient clinic 6 months after operation and was classified as New York Heart Association class I. Echocardiography revealed a transaortic gradient of 2 mm Hg with a normal functioning sutureless valve and trace central aortic insufficiency.
Sutureless valves offer improved hemodynamics and low gradients [6]. Our early experience at 2 different institutions in Europe suggests extremely secure valve positioning with the Perceval S, with a very low gradient, including a small annulus, and with excellent hemodynamics [7, 8]. Compared with stented bioprosthesis, this sutureless valve can be implanted with reduced cross-clamp time and extracorporeal time. In this case, the advantage of inserting a sutureless valve is the ease of insertion despite massive aortic and annulus calcification. Once the adequate sizer is fitted, the valve can be optimally deployed in an intrannular position. The aorta can be opened well above the homograft, which avoids clamping and suturing of the calcified homograft.

A percutaneous stented aortic valve was discussed before the operation. It was decided not to attempt such a procedure because the leaflets themselves were not calcified and therefore we could not be sure that the valve would be anchored sufficiently in the annulus. Certainly, in the case of a heavily calcified annulus, a percutaneous approach could be attempted.

In conclusion, reoperation for homograft degeneration can be very challenging because of massive calcification. Reoperation for a failed homograft valve can be made simpler by using a sutureless aortic stentless valve. Correct sizing of the valve is critical to minimize paravalvular leakage, and this should be performed with transesophageal echocardiography and intraoperative sizing.

References


Type A Intramural Hematoma in the Setting of Acute Type B Aortic Dissection

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Type A intramural hematoma (IMH) is an uncommon entity, the pathophysiology of which is thought to be related to a contained hemorrhage within the medial layer of the aorta as a result of either rupture of the vasa vasorum or an atherosclerotic plaque. We present a case of type A IMH in the setting of acute type B aortic dissection with suspicion for malperfusion syndrome and discuss the treatment algorithm of this uncommon entity.


Type A intramural hematoma (IMH) is a contained hemorrhage within the medial layer of the aorta that results from either rupture of the vasa vasorum or an atherosclerotic plaque [1]. Acute type A IMH is now recognized as a distinct clinical entity in the spectrum of acute aortic syndromes, which also includes acute...