Re: Low-profile bioprosthesis for mitral regurgitation associated with idiopathic hypertrophic subaortic stenosis

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Editor.—

After reading the paper by Duda et al,[1] we thought that it might be useful to communicate our experience with the treatment of severe mitral regurgitation associated with idiopathic hypertrophic subaortic stenosis (IHSS) using a low-profile bioprosthesis (LPB) (Liotta) instead of a tilting-disc mechanical prosthesis.

IHSS with severe mitral incompetence requires a septal miectomy and mitral valve replacement.[2] The left ventricular cavity in these patients is small and only a low-profile mechanical (tilting disc) prostheses with all its inherent problems can be employed.[3,4] Bioprostheses are widely used because of their many advantages[5,6]; yet, those that are currently available have a heavy bulk and protruding struts that can create problems in the small left ventricular cavity.

Materials and methods

From January 1980 to December 1982, 8 patients underwent surgery for IHSS. Of these, 4 (2 men and 2 women; age range, 53 to 59 years [mean age, 50.2 years]) also had associated severe symptoms of mitral regurgitation. Two patients had dyspnea, angina, and syncopal episodes, and 2 had dyspnea and angina. Two patients were New York Heart Association functional class III, and 2 were functional class IV. Pre-

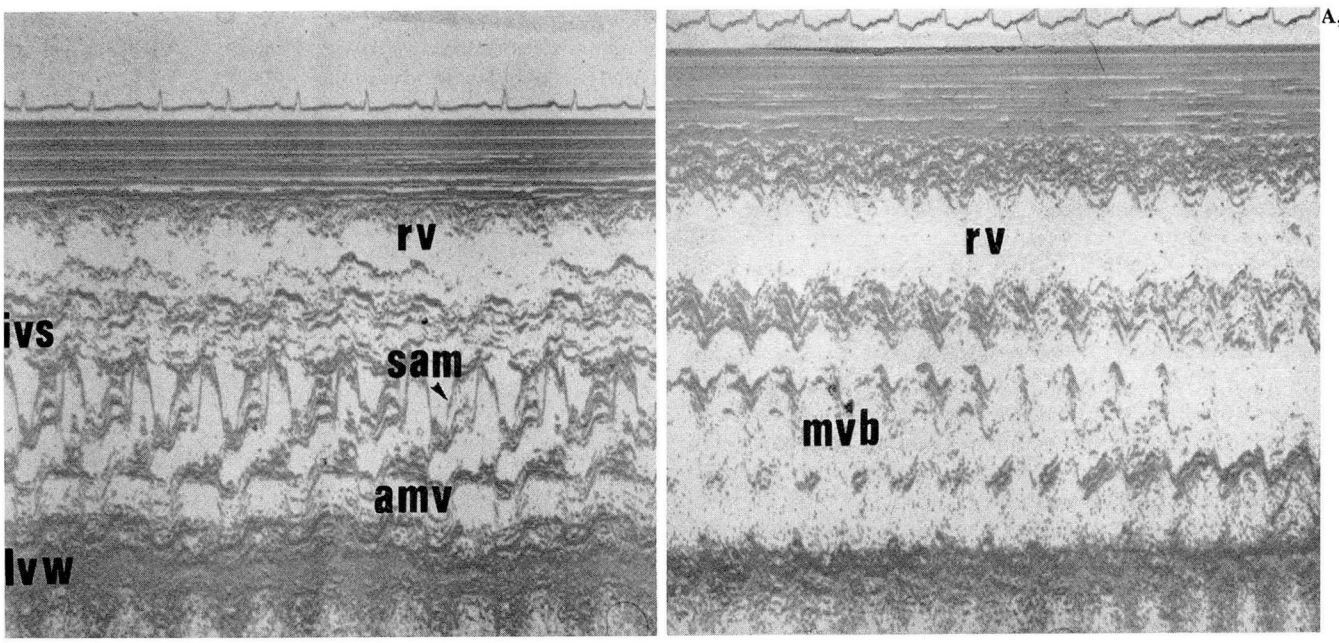

Fig. 1. Preoperative (**A**) and postoperative (**B**) echocardiograms of a patient with IHSS and mitral valve incompetence. *amv* = annulus mitral valve, *lvs* = intraventricular septum, *lvw* = left ventricle wall, *mvb* = mitral valve bioprosthesis, *rv* = right ventricle, and *sam* = systolic anterior movement.

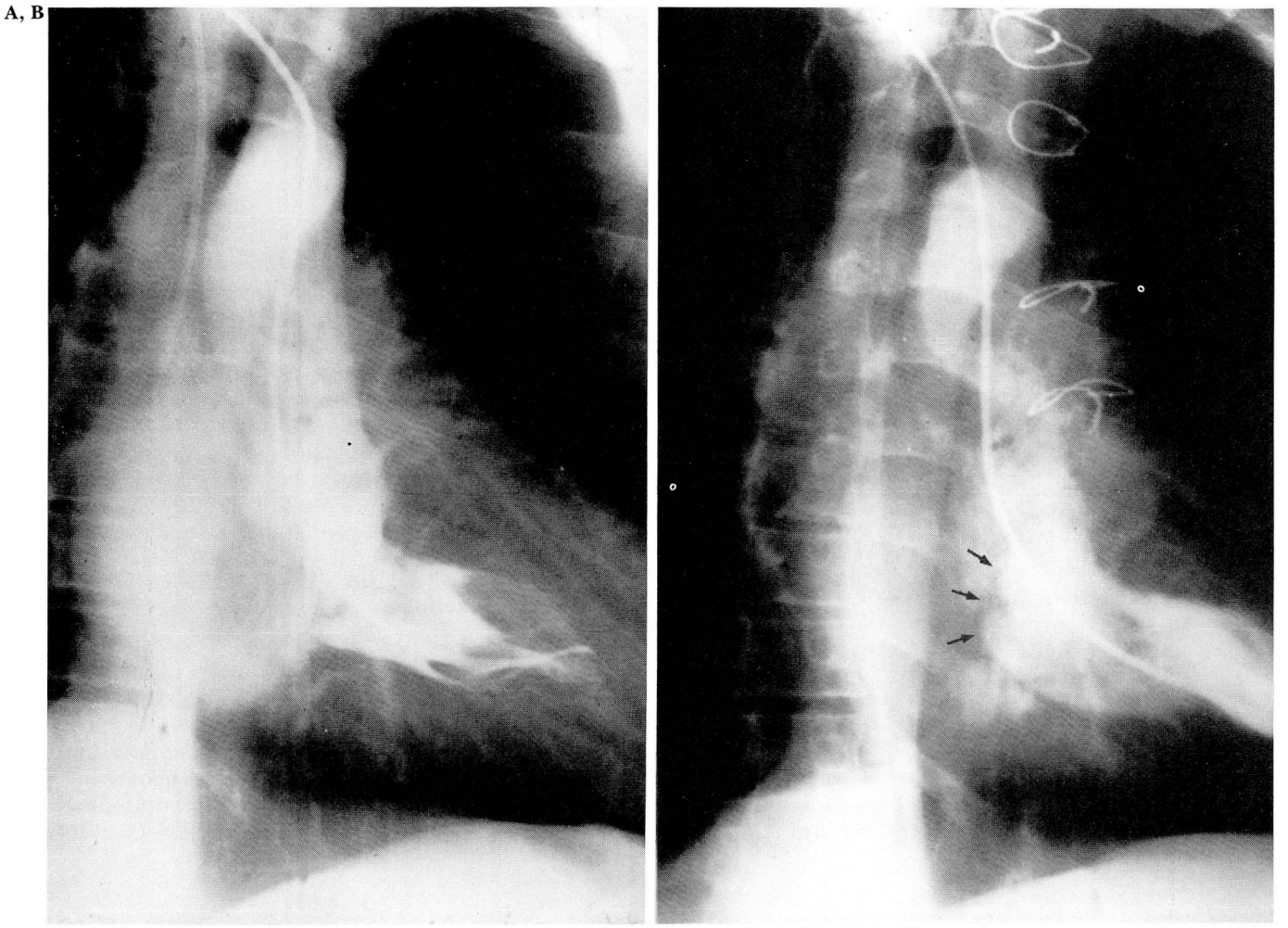

Fig. 2. Preoperative (**A**) and postoperative (**B**) left ventricular angiogram, obtained during systole, of a patient with IHSS and mitral valve incompetence. Although the LPB (indicated by arrows) does not have a radio-opaque stent, the atrial position of the valve can be determined.

operative catheterization showed subaortic stenosis (with a mean left ventricular gradient of 120 mm Hg), severe mitral incompetence, and moderate aortic incompetence in all 4. No coronary artery disease was demonstrated by selective coronary angiography. The operation was performed with hemodilution and moderate hypothermia (25–27 °C). Myocardial protection was achieved with cold potassium cardioplegia and topical cooling. A miectomy was carried out through an oblique aortotomy using a modified Morrow technique.[7] The mitral valve was replaced with an LPB using interrupted buttressed mattress sutures with pledgets placed into the left atrium. In all cases, the aortic valves were fibrotic, moderately incompetent, and showed typical "jet lesions." Therefore, the aortic valves were also replaced with an LPB using the same technique. Cardiopulmonary bypass was discontinued without incidence, and the postoperative course was uneventful.

Results

Follow-up ranged from 27 to 40 months. There were no hospital deaths, but 1 patient died two months after the operation due to acute bacterial endocarditis. The other patients were in excellent condition (functional class I).

The echocardiogram showed good valve motion and a wide-open left ventricular outflow tract during systole in all cases (*Fig. 1*). Cardiac catheterization, performed a mean of six months postoperatively, showed good ventricular function, no gradient in the left ventricle, and good bioprosthesis performance (*Fig. 2*).

Discussion

LPBs have been marketed recently.[7] The reduced height of the prosthesis and the particular design of the sewing ring allow the valve to sit mainly in the left

atrium; the valve does not protrude into the ventricle and therefore does not obstruct its outflow tract.

Our results are encouraging; however, longer follow-up will more clearly assess the long-term performance of all bioprostheses.

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