unlikely. Most reported pedigrees could fit into autosomal dominant or recessive inheritance with variable and incomplete penetrance. Inheritance of DSS in dogs suggests either polygenic or autosomal dominant inheritance with modifiers.^{E2} Follow-up of siblings and offspring of patients in large pedigrees might help in revealing the underlying inheritance pattern.

We used the LVOT peak pressure gradient as a surrogate marker for the degree of subaortic stenosis. Age, independent of sex, was found to be a significant predictor of peak pressure. This is first time that any such relationship is being reported. This emphasizes the fact that screening for cardiac murmurs and their timely echocardiographic evaluation can lead to early diagnosis of a majority of cases of DSS. Although the exact mode of inheritance of subaortic membranous stenosis is not clear yet, documented familial clustering implies that at least the first-degree relatives of every patient with DSS and those

with systolic murmurs should be evaluated for subclinical disease.

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A simple method of preparing artificial chordae for mitral valve repair

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Mitral valve repair has become a standard operation for myxomatous mitral valve disease. Carpentier¹ suggested a variety of methods to treat leaflet prolapse of which quadrangular resection for posterior leaflet prolapse has received widespread acceptance. However, chordal transfer or chordal shortening to correct anterior leaflet prolapse is not used often because of the complexity of the technique and the varying results.² Vetter and colleagues³ suggested re-establishing the subvalvular support by constructing neochordae with expanded polytetrafluoroethylene (ePTFE; Gore-Tex; W. L. Gore and Associates, Flagstaff, Ariz) sutures. After implantation, ePTFE chordae are covered by host fibrosa and an endothelium layer that looks very similar to the host chordae.⁴ Herein we describe a simple and reproducible technique of making the artificial chordae of predetermined length.

Operative Technique

The technique of neochordal construction provides support to any segment of the mitral valve. Usually 3 or 4 neochordae are sufficient

to correct the prolapsing segment. An appropriately sized annuloplasty ring is used if annular dilatation is present. Leaflet coaptation is normalized by correcting the prolapsing segment of the mitral leaflet.

The mitral valve is exposed in a standard manner. Mitral valve anatomy is assessed, and the prolapsing segment is identified. A nonprolapsing segment of the mitral valve is used as a reference segment (Figure 1, A). The measured chordal length of this segment is used as a reference length to construct the neochordae. A caliper is used to measure the length of the reference chordae. We use a 4-0 ePTFE suture to create loops (Figure 1, B-F) around the caliper (Figure 1, G). Nonsliding knots are thrown at the end of each loop while still on the caliper (Figure 1, B and C). After making a desired number of loops, the needles are passed through the loops and tied (Figure 1, D). Two needles at the end of the sutures are then passed through an ePTFE pledget (Figure 1, E), which is now ready to be secured to the papillary muscle. The ePTFE chordae are then secured at the tip of the papillary muscle with 2 pledgets and attached to the edge of the prolapsing mitral leaflet with 5-0 ePTFE sutures (Figure 1, F).

Clinical Summary

We applied the above technique in 9 patients with severe mitral insufficiency and bileaflet mitral valve prolapse. After the repair, all patients were asymptomatic and had only trivial or mild mitral regurgitation on short-term follow-up that ranged from 4 to 18 months (mean, 11 months).

Discussion

Mohr and Oppell⁵ first described an elegant method of measuring and making loops of ePTFE sutures with a predetermined length that can be used as chordae. This technique, however, requires

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Received for publication July 4, 2006; accepted for publication July 12, 2006.

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J Thorac Cardiovasc Surg 2006;132:1486-7

0022-5223/\$32.00

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doi:10.1016/j.jtcvs.2006.07.029

Figure 1. The distance between the tip of the papillary muscle and the non-prolapsing normal part of the leaflet is measured (A). Artificial chordae are prepared (B-E) by using a measuring device (G). The chordae are secured to the tip of the papillary muscle with 2 pledgets and attached to the free margin of the leaflet with 5-0 ePTFE sutures.

several passes through a small pledget. When using this approach, care has to be taken to avoid damage to the previously placed sutures in the pledget. It is also time consuming and requires some practice. We describe a simplified method of making neochordae with only one pass through the pledget.

The technique described herein is simple, provides an effective support to the prolapsing leaflet of the mitral valve, and might be a useful addition to the armamentarium of every cardiac surgeon.

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