DISCUSSION OF CASE SIX

Mitral regurgitation is a common finding on echocardiography, with "physiologic" (trace) regurgitation found in up to 70% of healthy subjects. With the virtual elimination of rheumatic fever as a cause for adult valvular heart disease, mitral regurgitation is most commonly associated with mitral valve prolapse ("myxomatous degeneration"). Ischemic heart disease (with or without myocardial infarction) is also responsible for a significant percentage of mitral regurgitation. Other possible etiologies include: endocarditis, cardiomyopathy (hypertrophic as well as dilated), collagen vascular disease, mitral annular calcification, and trauma (flail mitral leaflet).

The natural history of chronic mitral regurgitation is one of progressive left ventricular enlargement as a compensatory response to volume overload. Similarly, increased left atrial volume leads to atrial dilatation and predisposes to atrial arrhythmias and atrial fibrillation. Ultimately, pulmonary artery and right ventricular pressure increases as well, resulting in biventricular heart failure. The current indications for surgery include: symptomatic patient with severe MR, NYHA classes II-IV heart failure, in addition to echocardiographic abnormalities including: end systolic dimension > 5.5 cm (or end systolic dimension >4.0 cm with any reduction in ejection fraction below 60%), and left atrial enlargement >4.0 cm. A ventricular end-diastolic measurement of 6 cm. or greater is also considered high risk but is not currently part of the criteria for surgery in this condition.

Echocardiographic estimation of the severity of mitral regurgitation is important to risk assessment, but is limited by the increasingly complicated measurements required and the substantial inter-observer variability in interpretation. Many cardiologists will accept "severe" or "not severe" as the best answer when reviewing Doppler echo results in mitral regurgitation.

Overall, mortality in mitral regurgitation has been cited at 1%/year. However, progression of disease and prognosis in mitral regurgitation is, for the most part, related to the underlying etiology. In mitral valve prolapse, clinicians at the Mayo Clinic found overall and cardiac-specific survival correlated to a number of risk factors, including ejection fraction (high risk <50%), degree of regurgitation (high risk moderate or greater), left atrial diameter (high risk >4.0 cm), atrial fibrillation, and age (high risk >50). Absence of risk factors resulted in a 95% 10-year survival, whereas the presence of 2 or more risk factors decreased survival to 55-70% at 10 years. Prognosis in CAD and cardiomyopathy is determined by the underlying disease process. With flail mitral leaflet, 10 year survival approaches 80% after surgical repair.

REFERENCES

Otto CM. Etiology, clinical features, and evaluation of chronic mitral regurgitation. In: www.Uptodate.com.

Avierinos JF et al. Natural history of asymptomatic mitral valve prolapse in the community. Circulation 2002;106:1355-1361.

Grayburn PA. Grading severity of mitral regurgitation by echocardiography: science or art? J Am Coll Cardiol img 2010;3:244-246.

Gaasch W, Meyer TE. Left ventricular response to mitral regurgitation: implications for management. Circulation 2008;118:2298-2303.