Bioprosthetic Mitral Valve Malfunction Due to Thrombus Formation: Diagnosis and Treatment

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Bioprosthetic valve thrombosis is uncommon and the diagnosis is often elusive and confused with valve degeneration. We report our experience with mitral bioprosthetic valve thrombosis, and suggest a new therapeutic approach. Between 2002-2011, 149 consecutive patients undergoing mitral valve replacement with a bioprosthesis at a single center were retrospectively screened for clinical or echocardiographic evidence of valve malfunction. Valve thrombus was diagnosed in 9 (6%) patients; all 9 had their native valve preserved, representing 24% of those with preserved native valves. Five patients (group 1) presented at 16.4+12.4 months after surgery with symptoms of heart failure. Echocardiogram revealed homogenous echodense masses on the ventricular surface of the bioprosthesis with elevated trans-valvular gradient. Two underwent reoperation; valve thrombus was confirmed by histologic examination. The subsequent 3 patients received anticoagulation treatment with complete resolution of symptoms, as well as the echocardiographic findings: mean mitral gradient decreased from 23+4 to 6+1mmHg, and tricuspid regurgitation gradient decreased from 83+20 to 49+5mmHg. In 4 asymptomatic patients (group 2) routine echocardiogram showed a discrete mass on the ventricular aspect of the valve: 1 underwent reoperation to replace the valve, 3 received anticoagulation with complete resolution of the echocardiographic findings.

In conclusion bioprosthetic mitral thrombosis occurs in about 6% of cases. In our experience, onset is early, before anticipated valve degeneration. Clinical awareness followed by an initial trial with anticoagulation is warranted. Echocardiography may have diagnostic significance. Surgery should be reserved for those not responsive, or patients in whom the hemodynamic status does not allow delay. Non-resection of the native valve at the initial operation may play a role in the etiology of this entity.