

Commentary

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This article by Yusuf et al. confirms, first of all, the renewed interest in repair of prolapse of the posterior leaflet. So far, because of the apparent simplicity of the surgical techniques (quadrangular resection, with or without sliding plasty and ring annuloplasty), and the excellent results obtained in expert centres, repair of the posterior leaflet has often been presented as a “straightforward” technique.

This article compares two surgical techniques for repairing posterior leaflet prolapse: the traditional quadrangular resection technique and repair without resection using PTFE neochordae to correct the prolapse. Long-term results of this

“respect rather than resect approach” have been published [1]. A prospective randomized study comparing the two approaches has confirmed that preservation of leaflet tissue is associated with a significantly higher surface of coaptation [2]. It is worth noting that quadrangular resection, considered by many as the technique of choice to treat posterior leaflet prolapse, requires classically an annulus plication inducing a deformation of the subvalvular region of the left ventricle. In contrast, triangular resection is not associated with this drawback and removes less normal tissue, and as a consequence, in my opinion, should be preferred.

Despite those standardized techniques showing excellent long-term results, mitral valve repair rates seem to be suboptimal even for prolapse of the posterior leaflet. In 2003

a European Survey from Iung et al. reported a 46.5% repair rate among patients operated on for mitral regurgitation, attributing this disappointing repair rate to “a lack of local competence” [3]. Whatever the reasons might be, one should not ignore the fact that prolapse of the posterior leaflet is not always anatomically simple, concerning only the middle portion of P2. On the contrary, there is a great variability in the location and the extent of the prolapsed area, which can make the repair difficult, especially if it involves one commissural area. Apart from the location and extent of the prolapsed area, the issue of the amount of leaflet tissue complicates even more the anatomical aspect of prolapse of the posterior leaflet. Degenerative mitral valve disease is often subdivided into two entities depending on the excess of tissue: fibroelastic deficiency, for which there is no excess of tissue, and the Barlow valve, for which there is no real definition, and which is characterized by excess of tissue. More pragmatically, clinical observation teaches us that degenerative mitral valve disease is a continuous spectrum of disease. One can identify few patients with no excess of tissue, and at the other end of the spectrum few patients with generalized excess of tissue; the vast majority of patients present with more or less localized excess of tissue.

It is obvious that the complexity of posterior leaflet prolapse anatomy is often ignored, and underestimated. Considering the well described advantages of mitral valve repair over valve replacement, our ambition as surgeons should be to repair 100% of posterior leaflet prolapses, especially if we accept the responsibility to operate on asymptomatic patients. To oppose two surgical techniques, as presented in this paper, each of them carrying their own flaws and restrictions, is too rigid and cannot match the complexity of posterior leaflet prolapse. A large spectrum of repair techniques is required, and instead of blindly implementing surgical techniques a surgeon should rather concentrate on the goal of the repair: to remodel the posterior leaflet so as to re-establish a smooth, regular and vertical surface of coaptation, located in the inflow of the left ventricle. If the tissue of the posterior leaflet is suitable, isolated implantation of artificial chordae can be effective in

correcting the leaflet prolapse and also in maintaining the surface of coaptation in the inflow. However, tailored and limited triangular resection may be necessary to achieve a smooth and regular surface of coaptation and it is usually, in this situation, necessary to implant subsequently artificial chordae to correct the leaflet prolapse and to maintain the posterior leaflet in the inflow:

- When exuberant deposits of myxoid degeneration render the surface of the posterior leaflet irregular with bulging deformations that need to be resected to obtain a regular surface of coaptation.
- When excess of tissue affects not only the height of the posterior leaflet, but also its width, transforming the normally rectangular P2 into a trapezoidal element. Implantation of the annuloplasty ring may result in folds of excessive leaflet tissue of the posterior leaflet, altering the smoothness of the coaptation surface. Again, in such a situation, a localized triangular resection is necessary to reshape the posterior leaflet.

Repair of posterior leaflet prolapse, guided by the quest for an optimal surface of coaptation, should become a patient-specific spectrum of techniques ranging from “respect to resect”. The modern approach is not as schematic as resect or respect; it should become “respect rather than resect” and if “resect” is needed it should be done with respect.

References

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