

RESPECT OR RESECT: A SINGLE STRATEGY DOES NOT FIT ALL

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December 30, 2020

Abstract

Mitral valve (MV) repair for mitral regurgitation (MR) due to posterior leaflet (PL) prolapse is achieved nowadays with a great success rate and a good survival, similar, in certain subgroups. In this paper, Sakaguchi et al describe their results in two groups of patients with PL prolapse. Some patients underwent resection (resection group) and others chordal replacement with/out limited resection (respect group). Results were similar in terms of survival and MR recurrence. Our goal is to eliminate, as much as possible, MR when a patient with degenerative MR is operated on. Reduction of the mitral orifice and consequently an increase of the transmitral gradient is the rule. MV repair for degenerative MR provides great results, but there is not a single surgical technique. A close evaluation of the anatomical findings will allow us to choose the best strategy for the individual patient. An open mind is the most important characteristic that a surgeon should have to repair a prolapsing PL without residual regurgitation and dangerous gradients.

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Mitral valve (MV) repair for mitral regurgitation (MR) due to posterior leaflet (PL) prolapse is achieved nowadays with a great success rate and a good survival, similar, in certain subgroups, to that of the normal population¹. Carpentier et al.² defined the terms and put the principles which, with some modifications, are still followed by many surgeons. Their vision, along with the concept of annuloplasty³ and the advent of artificial chords⁴, are the pillars on which MV repair stands. There is no doubt that nowadays a high percentage of repair can be achieved in specialized centers, but it is as well true that a huge variety of techniques are used to obtain a competent valve. Most of these have only midterm results, often very good, which justify the optimistic prevision for a high long-term patency rate.

In this paper, Sakaguchi et al.⁵ describe their results in two groups of patients with PL prolapse. Some patients underwent resection (resection group) and others chordal replacement with/out limited resection (respect group). Results were similar in terms of survival and MR recurrence. The main difference was a higher ring size and a higher effective orifice area in the respect group. The clinical significance of this finding in the long term was not however explored.

In our opinion, this study raises some issues that should be addressed. Is it really necessary to have a dichotomous approach to PL prolapse? Should we divide ourselves in surgeons who resect and surgeons who respect? Our group, as others, had a progressive and spontaneous transition from resecting to respecting techniques. In 2006 we published a paper⁶ where 41 (29%) out of 141 patients had no resection. In 2011, another study of ours⁷ reported 60 cases where 39 (65%) had no resection. Finally, in 2014, we described a technique able to correct PL prolapse without using artificial chords even in case of chordal rupture⁸. Nevertheless, there are always cases where an excessively redundant PL needs to be reduced, often with a triangular resection. For these cases, Antunes coined an interesting term: “resect with respect”⁹ (Fig. 1). This means that we must have an open mind to obtain the best result for our patients. Artificial chords can be used or not, resection can be performed or not. What is important is the long-term result and the quality of life. Sakaguchi et al.⁵ followed this line given that some of their patients included in the respect group had limited resection, as a result of some common sense applied during surgery.

There is another important point that arises from this paper. Our goal is to eliminate, as much as possible, MR when a patient with degenerative MR is operated on. Reduction of the mitral orifice and consequently an increase of the transmitral gradient is the rule. But to what extent have we to push our technique to minimize this gradient? In other words, should we change technique in order to use a larger ring/band or to eliminate any possible bulky tissue inside the mitral orifice to obtain the lowest gradient? The Authors seem to prefer the respect technique due to a (modestly) reduced gradient and the (slightly) higher size of the

device used for annuloplasty. This is comprehensible, but the data do not reflect the Authors' point of view. It is true that the mean mitral effective orifice area is higher in the respect group compared to the resection group (1.86 ± 0.48 vs 1.66 ± 0.47 cm², $p < 0.001$). However, around 25% of patients in the respect group and 40% of patients in the resection group had a MV area < 1.5 cm², and severe mitral stenosis (MS) mandates a strict follow-up according to the American and European guidelines^{10,11}. Those areas are definitely smaller than usual.

Indeed, induced MS is the other face of the medal of MV repair. This problem is not negligible in an era when MV repair is proposed to asymptomatic, often young and active, patients. MS can be a serious problem in the early period, reflecting the predominance of surgical techniques. It was cause of reoperation either in the operating theatre¹² or before hospital discharge¹³, being the edge-to-edge technique the predominant cause of early reoperation. In the long term, however, the prevalence of MS as a cause of reoperation seems to be very rare¹⁴.

It is difficult to clarify the exact prevalence of this complication. Chan et al.¹⁵ reported 110 patients who had MV repair for MV prolapse and found that 20% of patients had a MV area $[?]1.5$ cm², with a mean gradient $[?]5$ mmHg. This functional pattern was associated with worse hemodynamics, lower exercise capacity and adverse outcomes. In most patients, a complete rigid ring was used. Kawamoto et al.¹⁶ found that 8% of their patients had a rest mean transmitral gradient $[?]5$ mmHg at discharge, mostly related to a smaller ring size. During follow-up, these patients showed increased tricuspid regurgitation severity, increased pulmonary pressure and a higher onset of atrial fibrillation than patients with lower gradients. Interestingly, even patients where the ring used was true sized can present severe MS. Doi et al.¹⁷ found that 7 out of 20 patients undergoing stress echocardiography after MV repair with a semirigid true sized ring showed peak gradients at effort $[?]15$ mmHg. In general, lacking prospective studies, we can speculate that 10% to 20% of patients with a good repair are discharged with some significant MS, which can affect the long-term outcome.

The problem exists, but long-term results reported by Sakaguchi et al.⁵ are limited to MR recurrence. We have no idea if the early benefit of a lower gradient and a higher mitral orifice in the respect group translated into a better clinical outcome.

MV repair for degenerative MR provides great results, but there is not a single surgical technique. A close evaluation of the anatomical findings will allow us to choose the best strategy for the individual patient. An open mind is the most important characteristic that a surgeon should have to repair a prolapsing PL without residual regurgitation and dangerous gradients.

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