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Commentary: The newer the better is not always true in mitral valve repair

Gilles D. Dreyfus, MD, PhD,^a and Benjamin Essayagh, MD^{b,c}

Forty years ago, Carpentier¹ described in a seminal publication, “The French Correction,” most, if not all, techniques to repair a mitral valve. Since then, many “new” techniques or modifications have been described, some improving the results, others remaining questionable. The main principles for any durable mitral valve repair have remained true for 40 years. The first is to achieve a harmonious closure line parallel to the posterior rim, with three-quarters being the anterior leaflet and one-quarter being the posterior leaflet. The second is to obtain a coaptation height of 7 to 9 mm in between A2-P2 after bypass being weaned. When such principles are respected and achieved, any technique, any approach will work and provide good long-term results.

Many techniques have been challenged, such as quadrangular versus triangular resection, to resect or not the native chord transfer versus artificial chord. Surgeon’s preferences are not important, however; results are.

This article by Nisivaco and colleagues² deals with complex diseases such as anterior or bileaflet prolapse. In order to address such lesions, the authors bring back at the forefront the use of native chord transfer and no use or need for artificial chords.³ They also favor resection, which is more and more challenging. In the light of their long-term results, it is a remarkable publication. The use of native chord transfer was advocated long ago and is often if not

From the ^aDepartment of Cardiac Surgery, Hôpital Européen Georges Pompidou, Paris, France; ^bDepartment of Cardiovascular Medicine, Mayo Clinic, Rochester, Minn; and ^cDepartment of Echocardiography, Cardio X Clinic, Cannes, France. Disclosures: Prof Dreyfus reports speaker fees from Edwards Lifesciences. Dr Essayagh reported no conflicts of interest.

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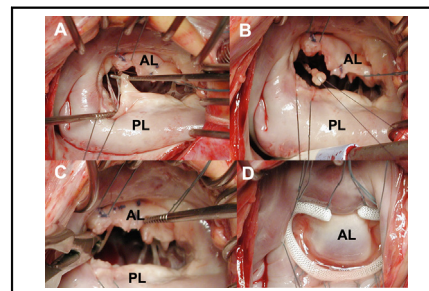
Address for reprints: Gilles D. Dreyfus, MD, PhD, Department of Cardiac Surgery, Hôpital Européen Georges Pompidou AP-HP, 20 Rue Leblanc, 75015 Paris, France (E-mail: gillesdreyfus1@gmail.com).

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Mitral valve chord transfer.

CENTRAL MESSAGE

Anterior and bileaflet prolapse can be addressed by chordal transfer/transposition without the need for artificial chord.

Mitral failure rate is a new criterion to assess long-term results.

always possible in myxomatous valves, whereas it may be more challenging in dystrophic valves. We personally use native chord transfer, native chord translocation, and papillary muscle repositioning in most instances.⁴ If artificial chords seem to be used by many, there are remaining issues, such as how to use them; more than 600 ways have been described, including how to ensure the adequate height, running sutures, or loops. Moreover, some have reported artificial chord ruptures, and more importantly the fate of recurrent mitral regurgitation (MR) after left ventricular (LV) reverse remodeling, thus creating a new prolapse, despite initial good results, as the artificial chord length does not adapt itself to the LV size. This is why the users of artificial chords tend to use shorter chords than those previously used. This fate was never reported with the use of native chord transfer (from posterior leaflet [PL] to anterior leaflet [AL]) or translocation (from AL to AL). The revival of native chord use is very important, as there is no learning curve and no estimation of the adequate length.

Resection has also been debated, especially in minimally invasive approaches, as it can remain quite challenging. This article emphasizes the use of resection as a useful technique to ensure good long-term results. The authors, however, bring up a very questionable point, which is the use of PL resection and an annuloplasty to sort out AL prolapse. They do emphasize that this can only apply to minimal prolapse of the AL of 3 mm. We tend to believe that often when there is excess tissue and that pathology is identified as bileaflet

prolapse, there might be only a PL prolapse and once being addressed, there is only a billowing of the AL, which therefore can be treated only by a PL resection and an annuloplasty.⁵ It seems important not to believe that AL prolapse can in some instances be treated only by PL resection. A significant proportion of so-called bileaflet prolapse is only a PL prolapse, and we do agree that in such cases PL treatment and an annuloplasty can be enough. From a technical standpoint, the use of native chords and resection is useful and allows stable and reliable long-term results.

This manuscript also brings up a new way to assess long-term results. Most publications at 10 years use 3 criteria: mortality, incidence of residual/recurrent MR, and reoperation rate. Mortality is influenced by age and comorbidities and therefore is quite subjective. Similarly, reoperation rate is even more subjective, as a patient with moderate/severe MR can wait either for symptoms or for LV size to increase for reoperation, and such parameters remain imprecise, as there is no threshold value to trigger reoperation. The only reliable parameter is the grade of residual/recurrent MR and the proportion of each grade, which is an objective parameter.⁶ Surprisingly, some recent long-term reports with large numbers do not mention at all their residual recurrent MR rate.⁷ Nisivaco and colleagues² define a new criterion, “mitral failure rate,” which is a composite of both residual recurrent MR more than 2+ and reoperation rate. A recent publication reports a 21% mitral failure rate, which cannot be considered as good despite the authors’ conclusions.⁵

The importance of good long-term results of surgical mitral repair is even more relevant in the current era of percutaneous interventions. Surgery requires one to provide data, especially for primary MR (PMR), which are the best of the best. For the time being, percutaneous treatment with transcatheter edge-to-edge repair, of important survival benefit for patients at risk,⁸ is still far from providing similar results as surgery does in PMR. However, most interventional cardiologists are trying hard to have less than 1+ MR after transcatheter edge-to-edge repair at the index

procedure.⁹ Working hand in hand with the industry will help to shortly reach such a goal. If surgery is unable to provide superior results, surgery will be at risk.

Therefore, this article is very important, and we cannot agree more with the authors’ suggestions. Most surgical teams do not know their own long-term results, which is not acceptable. It is quite cumbersome, it takes time, it costs money, and thus reinforces the concept of Centers of Excellence. Newer techniques may provide good early results, but the issue is not there. Newer techniques are not always the best, and reviving older techniques is going back to the future. Surgery in any way should not compete with percutaneous options; surgical mitral valve repair is a true repair dealing with the leaflets, the prolapse and the annulus. Only patients who are too old or inoperable should be offered percutaneous therapies in PMR, which are not true repairs, but an alternative option.

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