agree completely that the mitral annulus should be supported somehow, but our experience suggests that suture annuloplasty gives good results without any ring.

After our initial experience with suture annuloplasty, published 8 years ago,² we performed several hundred mitral repairs without annuloplasty rings and with good early and midterm results. There are two important factors in achieving a good result with this method. The first is the suture material. Both polypropylene (Prolene; Ethicon, Inc, Somerville, NJ) and polyester (Ethibond; Ethicon) sutures were not reliable. Prolene was too elastic, and in some cases the 3-0 Prolene thread elongated, causing redilatation of the mitral annulus. In a few cases, the Prolene suture ruptured, causing recurrent mitral regurgitation. Ethibond was difficult to use in achieving proper and equal tensions on the suture line and adequate shortening of the annulus. We had superior experiences with expanded polytetrafluoroethylene (Gore-Tex; W. L. Gore & Associates, Inc, Flagstaff, Ariz) sutures, as also reported by others.³ The other important factor is that the sutures be placed properly into the annulus. Neither sutures in the left atrium in the vicinity of the annulus nor sutures in the proximal parts of the valve cusps give good results. This should hold true even with ring annuloplasty.

Suture annuloplasty actually has advantages relative to ring annuloplasty. Transvalvular gradient is significantly lower and mitral valve area is significantly larger, without differences in mitral regurgitation.⁴ The mitral annulus has a natural flexibility, which results a 26% dilatation in diastole.⁵ The natural flexibility of the mitral annulus is conserved with suture annuloplasty. Suture annuloplasty is also a simpler and much cheaper method of achieving stability of the mitral annulus.

In our experience, if mitral repair is done, mitral annuloplasty should be performed, even if the annulus is not significantly dilated. It is not absolutely necessary to use an annuloplasty ring, as Flameng and coworkers recommend¹; suture annuloplasty can give a good result as well. Their statement that "[N]onuse of annuloplasty ring is a risk factor for recurrent mitral valve regurgitation" would be true only if the comparison included suture annuloplasty as well. We

have not compared suture annuloplasty with annuloplasty rings, but in accordance with our experience, we would recommend the following conclusion instead: "Lack of stabilization of the mitral annulus increases the risk of recurrent mitral valve regurgitation."

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References

1. Flameng W, Meuris B, Herijgers P, Herregods MC. Durability of mitral valve repair in Barlow disease versus fibroelastic deficiency. *J Thorac Cardiovasc Surg.* 2008;135:274-82.
2. Nagy ZL, Bodi A, Vaszi M, Szerafin T, Horvath A, Péterffy A. Five-year experience with a suture annuloplasty for mitral valve repair. *Scand Cardiovasc J.* 2000;34:528-32.
3. Duebner LF, Wendler O, Nikoloudakis N, Georg T, Fries R, Schäfers HJ. Mitral-valve repair without annuloplasty rings: result after repair of anterior leaflet versus posterior-leaflet defects using polytetrafluoroethylene sutures for chordal replacement. *Eur J Cardiothorac Surg.* 2000;17:206-12.
4. Dettler C, Aybek T, Kupilik N, Fischlein T, Moritz A. Mitral valve annuloplasty: comparison of the mural annulus shortening suture (MASS) with the Carpentier-Edwards prosthetic ring. *J Heart Valve Dis.* 2000;9:478-86.
5. Ormiston A, Shah PM, Tei C, Wong M. Size and motion of the mitral valve annulus in man. A two-dimensional echocardiographic method and findings in normal subjects. *Circulation.* 1981;64:113-20.
doi:10.1016/j.jtcvs.2008.05.026

Reply to the Editor:

I thank Szentkirályi, Péterffy, and Galajda for their interest in our study on the durability of mitral valve repair in Barlow disease. The point they try to make in their letter is that mitral annuloplasty in myxoid mitral valve degeneration does not necessarily have to be a ring annuloplasty. This might be correct; who knows?

The problem is that, nowadays, when you make a statement, hard data are required to convince the medical and scientific community to agree with you. In our study on the recurrence of mitral valve regurgitation after successful repair of Barlow disease

and fibroelastic degeneration, we presented and analyzed extensive preoperative, intraoperative, and postoperative data, including long-term echocardiographic follow up. In our study, patients received either a ring annuloplasty or no annuloplasty at all. We did not study any other form of annuloplasty, and therefore it would not be correct to draw such a general conclusion as, "Lack of stabilization of the mitral annulus increases the risk of recurrent mitral valve regurgitation." To advocate this statement, one should test every possible form of annuloplasty and compare them all with no annuloplasty. In their own experience, Szentkirályi, Péterffy, and Galajda mention that some materials used for suture annuloplasty, such as polypropylene and polyester sutures, cause recurrent regurgitation. Is this not why the annuloplasty ring was developed?

Before we conclude that "Lack of stabilization of the mitral annulus increases the risk of recurrent mitral valve regurgitation," I invite Szentkirályi, Péterffy, and Galajda to analyze their data on suture annuloplasty in a scientific way and compare them with results of repair procedures without annuloplasty, rather than relying on their own experience, even with several hundred patients. I am well aware of the importance of personal experiences of renowned surgeons such as our Hungarian colleagues, and I appreciate the opportunity to share these experiences. Before introducing a concept into current praxis, however, I prefer data-based, scientific proof.

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Questions on the angular (Gothic) arch configuration and its applicability after type I aortic dissection repair

To the Editor:

I enjoyed the recent article "Angular (Gothic) Aortic Arch Leads to Enhanced Systolic Wave Reflection, Central Aortic Stiffness, and Increased Left Ventricular Mass Late After Aortic Coarctation Repair: Evaluation With Magnetic Resonance Flow Mapping," by Ou and associates¹ in a recent issue of the *Journal*.¹ Why were patients