

See Article page 110.



## Commentary: Don't get lost in the loop

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In the latest issue of the *Journal*, Morisaki and colleagues<sup>1</sup> have presented an interesting paper that assesses the outcome of the loop technique in mitral valve (MV) repair using the intraoperative ink-dot marking test. The loop technique was originally described 20 years ago<sup>2</sup> and consists in using premeasured expanded polytetrafluoroethylene loops. The authors have a long-standing experience with the loop technique and have already previously reported their series of 180 patients requiring this technique,<sup>3</sup> with excellent results in terms of freedom from recurrence of mitral regurgitation and suggesting that this method is especially helpful for bileaflet prolapse.<sup>3</sup>

In the current paper, they report a larger number of procedures and describe an improvement of the technique using the ink-dot marking test, which involves the creation of a dotted line between the rough and the clear zones in the anterior leaflet and the center of the posterior leaflet. This improvement originated from the need of a more reliable way of intraoperative measurement of residual regurgitation: in fact, the commonly used saline test is not always reliable. Ink tests have been previously reported,<sup>4</sup> but the authors of the current study have improved it further and with their ink-dot marking they have been able to achieve a less than mild residual regurgitation at discharge in 99.4% of the cases. These results are even more astonishing if we consider that this study includes posterior, anterior,

### CENTRAL MESSAGE

The loop technique is an effective and reliable mitral valve repair technique. Is there a way to make it even better?

and bileaflet prolapse, different etiologies of MV disease, different surgical approaches, and multiple concomitant procedures: it appears that the authors have found the ideal technique to repair MV. Indeed, the follow-up data show that long-term recurrence of mitral regurgitation was a rare event, with an incidence of 19.8% at 10 years, with no significant differences between the type of mitral valve lesions or the need of additional repair.

One important finding is related to the incidence of need of a second cardioplegic arrest, which occurred in 10% of the patients: this was related to misalignment of the MV height requiring loop adjustment or additional neochordal repair. Although the authors have not found a significant correlation with the ink-dot marking test, they recognize that lack of adjustment in patients with irregular height of leaflet by the ink-dot marking test might increase the need for a second cardioplegic arrest. The importance of a correct measurement of the artificial chordae length and leaflet height should be never underestimated,<sup>5</sup> and Morisaki and colleagues have shown that every detail counts to accomplish an effective MV repair.

Another important intraoperative result to note is the incidence of systolic anterior motion, which was found in 11.7% of the patients: could this be related to this specific technique? The study has limitations, mostly related to the retrospective nature and the confounding effect of different approaches, but surely represent a step forward in the progressive advancement of the loop technique. Moreover, the presence of several different etiologies is an important confounder and probably for the sake of reproducibility, it would have better to focus on degenerative disease only

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but at the same time the study demonstrate that this technique can be used in different types of diseases. The ink-dot marking test seems to significantly help the intraoperative evaluation of the MV repair, therefore providing a more reliable and durable repair.

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