Letters to the Editor

The Editor welcomes submissions for possible publication in the Letters to the Editor section that consist of commentary on an article published in the Journal or other relevant issues. Authors should:

- Include no more than 500 words of text, three authors, and five references
- Type with double-spacing
- See http://jtcs.ctsnetjournals.org/misc/ifora.shtml for detailed submission instructions.
- Submit the letter electronically via jtcvs.editorialmanager.com.

Letters commenting on an article published in the JTCVS will be considered if they are received within 6 weeks of the time the article was published. Authors of the article being commented on will be given an opportunity to offer a timely response (2 weeks) to the letter. Authors of letters will be notified that the letter has been received. Unpublished letters cannot be returned.

Removable clips for mitral valve repair

To the Editor:

An adequate length of artificial chordae is a major concern for surgeons performing nonresective mitral valvulopasties. The technique described by Tam and colleagues[1] is interesting but presents the major drawback that, should the length of the chordae prove to be inadequate, it cannot be modified easily.

Our department has developed a technique that allows modification of the length of the chordae as many times as is necessary by using removable clips (HEM-O-LOK, REF:544220; Weck Laboratories, Inc, City of Industry, Calif). These clips were initially designed for temporary external occlusion of small vessels in vascular surgery.

Once the number and location have been decided, the artificial chordae are implanted in the heads of the corresponding papillary muscle, and the two needles of the thread are put through the free edge of the corresponding part of the mitral valve. The Carpentier ring is then placed in the usual manner. Once the length of the artificial chordae has been determined, using the ring as a reference, the clip is tied on the two thread ends of the same thread to prevent the valve from sliding on the thread when performing the competence test.

The competence test is performed by injecting a saline solution through the aorta to fill the left ventricle. To create an artificial aortic insufficiency, we press the aorta at the level of the aortic valve with the thumb.

The artificial chordae length can be modified by opening the clip and closing it elsewhere on the artificial chordae. When the competence test is satisfactory, the threads are knotted on the clips, which can then be removed.

However, we do not remove the clips but rather tie knots to avoid further sliding of the clip. We leave them in place to

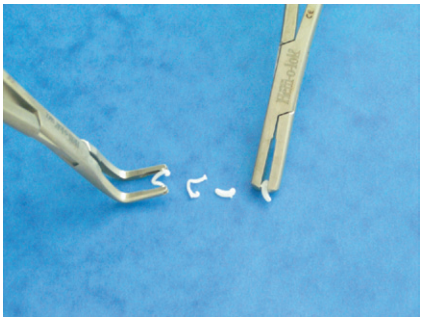

Figure 1. The forceps on the left are used to close the clip, and the ones on the right are used to open it by closing the forceps at the head of the clip. These clips do not alter the polytetrafluoroethylene thread (Gore-Tex thread; registered trademark of W. L. Gore & Associates, Inc, Newark, Del).

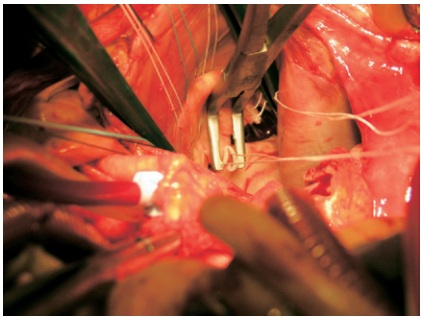

Figure 2. Operative view when closing a clip.

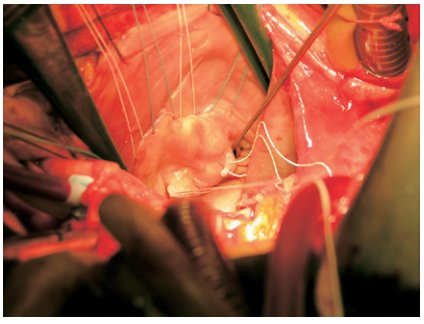

Figure 3. Operative view with 2 clips placed on the anterior leaflet.

equalize the pressure over the entire surface of the clip.

We have applied this technique for 2 years now in 48 patients to correct P2 prolapse, bileaflet prolapse, and even Barlow disease.

In the case of endocarditis, we prefer to use resective techniques rather than the one described here (Figure 1-3).

Sidney Chocron, MD, PhD
Hospital Jean Minjoz
Cardiac Surgery
Bd Fleming
Besancon
France

Reference

1. Tam R, Joshi P, Konstantinov IE. A simple method of preparing artificial chordae for mitral valve repair. *J Thorac Cardiovasc Surg*. 2006;132:1486-7.
doi:10.1016/j.jtcvs.2007.01.032

Intraoperative ablation of atrial fibrillation using bipolar output of surgical radiofrequency generator (diathermy) and reusable bipolar forceps

To the Editor:

My colleagues and I began using bipolar radiofrequency (RF) ablation in August 1996 and published the first clinical study in the *European Journal of Cardiothoracic Surgery*.[1] We used the standard bayonet-shaped bipolar forceps with a 7-mm tip to draw ablation lines, which replaced most of the incisions of the Cox maze III procedure. The larger experience with this technique was published in *Heart, Lung and Circulation*.[2]

A number of bipolar RF ablation devices have been used experimentally and clinically. The results of these studies have been published in this *Journal.* One such study is that by Gaynor and associates.[3] They tried to do exactly what we described in our publication in an indexed journal. Similarly, Gillinov and coworkers[4] have used bipolar RF with different lesion sets. In addition, our letter to Editor[5] clearly defines the advantage of bipolar RF over unipolar RF in avoiding collateral damage. In the abstract to the article by Benussi and associates,[6] the "Objective" section states, "Bipolar radiofrequency proved highly effective in the animal model, but clinical experience is still initial."

I am at a loss to understand the reasons for the omission, in this Internet era, of reference to our original work published much earlier. I am absolutely sure that this omission was not intentional, yet I am led to believe it is a scientific lapse.

Therefore, I believe it would be appropriate to bring to the notice of the readers that intraoperative ablation of atrial fibrillation with bipolar RF is possible with a good success rate without additional costs of special RF equipment and disposable bipolar clamps. The technique is described in detail in reference 2. It is the purpose of this letter to highlight the fact that the standard RF generator with bipolar output can be used with the bayonet-shaped bipolar forceps to effect ablation lines on the atria and achieve a success similar to that of modified maze procedures. Our ongoing work, begun 10 years, ago emphasizes that our approach is highly successful, simple, and eminently cost-effective.

A. M. Patwardhan, MD
CVTS Department
Seth G.S.Medical College and K.E.M. Hospital
Parel, Mumbai, India

References

1. Patwardhan AM, Dave HH, Tamhane AA, Pandit SP, Dalvi BV, Golam K, et al. Intraoperative radiofrequency microbipolar coagulation to replace incisions of maze III procedure for correcting atrial fibrillation in patients with rheumatic valvular disease. *Eur J Cardiothorac Surg.* 1997;12:627-33.
2. Lad VS, Patwardhan AM. Maze III replication using radiofrequency microbipolar coagulation. *Heart Lung Circ.* 2004;13:139-44.
3. Gaynor SL, Diodato MD, Prasad SM, Ishii Y, Schuessler RB, Bailey MS, et al. A prospective single-center clinical trial of a modified Cox maze procedure with bipolar radiofrequency ablation. *J Thorac Cardiovasc Surg*. 2004;128:535-42.
4. Gillinov AM, McCarthy PM, Blackstone EH, Rajeswaran J, Pettersson G, Sabik JF III, et al. Surgical ablation of atrial fibrillation with bipolar radiofrequency as the primary modality. *J Thorac Cardiovasc Surg.* 2005;129:1322-9.
5. Patwardhan AM, Lad VS, Pai V. Esophageal injury during radiofrequency ablation for atrial fibrillation: inherent safety of radiofrequency bipolar coagulation (letter). *J Thorac Cardiovasc Surg.* 2002;124:642.
6. Benussi S, Nascimbene S, Calori G, Denti P, Ziskind Z, Kassem S, et al. Surgical ablation of atrial fibrillation with a novel bipolar radiofrequency device. *J Thorac Cardiovasc Surg.* 2005;130:491-7.
doi:10.1016/j.jtcvs.2006.11.073

Reply to the Editor:

Dr Patwardhan complains that two seminal papers describing his pioneering experience in surgical ablation with bipolar coagulation[1,2] were not given due consideration in articles published by us[3] and by others.

We recognize that Patwardhan's intuitions opened the way to the modern scenario of surgical ablation. Nevertheless, only 2 of 74 articles among PubMed-listed clinical papers focusing on atrial fibrillation (AF) ablation with bipolar radiofrequency (RF) (by matching AF with bipolar RF) quote Patwardhan's works.

There are different possible reasons for this reiterated omission:

First of all, Patwardhan and colleagues reported using a standard electrocautery in the bipolar mode to ablate the atrial myocardium. This is not perceived by us (and probably by most surgeons) as being in accordance with some fundamental safety issues: Power-based RF can lead to charring and to excessive endocardial trauma, potentially leading to an increased risk of thromboembolism. Furthermore, also due to the absence of any feedback controlling energy delivery, electrocoagulation can cause excessive tissue weakening, possibly leading to bleeding. Re-exploration for bleeding occurred in 20% of survivors in Patwardhan's initial series.[1] Temperature and impedance feedback, featured by commercially available bipolar devices, are actually meant to address such problems.

It is then not irrelevant that bipolar electrocautery, despite sharing the same physical principles of commercially available RF ablation devices, is not CE- or Food and Drug Administration–marked for cardiac ablation. As a result, most surgeons, including our group, would rather avoid the "off-label" use of a bipolar electrocautery and indulge in the use of more recognized commercially available alternatives.

Furthermore, Patwardhan's spot-by-spot ablation without tissue feedback can admittedly lead to the creation of incomplete ablation lines, rendering the ablation procedure not reproducible and clinical result possibly suboptimal.

It is finally worth mentioning that Pathwardhan's electrocautery ablation is an open-heart procedure. Electrocautery forceps, in fact, despite being bipolar, do not share the epicardial clamping feature that