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Recurrence of Atrial Fibrillation and Flutter After Atrial Compartment Operation: Modified Atrial Incisions and Role of Amiodarone

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Recurrence of Atrial Fibrillation and Flutter After Atrial Compartment Operation: Modified Atrial Incisions and Role of Amiodarone

To the Editor:

I read with interest the article on the atrial compartment operation by Lo and associates [1] and congratulate them on their excellent work. The biggest virtues of this operation are its simplicity, its conservative nature, and its good control of arrhythmias.

Isolation of the atrium has been achieved by the "corridor" procedure [2] and by the left atrial (LA) isolation procedure [3]. Atrial compartment operations, in most instances, allow connection between the right and left atria [4]. The perplexing issue is "why in the rest, the left atrium, gets isolated?" I believe that extending the posterior end of the LA incision to the mitral annulus occasionally amounts to overzealous dissection of the fat pad in the posterior left atrioventricular groove, thereby uncovering the terminal end of the coronary sinus. A cryolesion at this end, in effect, leads to a cryolesion of an empty coronary sinus, which may ablate fibers behind the sinus. Furthermore, this injury can perpetuate fibrosis in the terminal portion of the sinus and lead to complete LA isolation in some instances over time. In their maze III modification, Cox and associates [5] ensure complete LA isolation and interruption of the fibers around the coronary sinus in a similar manner. Therefore, I believe that limiting the posterior end of the LA incision by 1.5 to 2 cm and using a cryolesion on the endocardial surface to complete the LA incision would prevent the above.

In the study by Lo and co-workers, 87.5% of the patients had attained sinus rhythm at the 1-year follow-up, and in most instances, the connections between the atria were preserved. I believe complete atrial isolation, as achieved in the corridor procedure or LA isolation, is not essential for restoring sinus rhythm. In fact, maintaining the connections between the atria contributes to the preservation of atrial mechanical function, and this, in turn, might translate into a low risk of thromboem-

bolism. The issue of concern, however, is the high incidence of postoperative recurrent atrial fibrillation and flutter and the associated risk of thromboembolism. On the basis of the experience of my colleagues and myself [6] with 84 patients who underwent a modified maze procedure using radiofrequency coagulation and cryoablation, I believe it is prudent to administer amiodarone hydrochloride for 3 weeks postoperatively to prevent early recurrence of these arrhythmias, which can be caused by mechanisms other than chronic atrial fibrillation. Reentry around the superior vena cava [7] and a trigger stimulus from the isthmus between the inferior vena cava and the posterior tricuspid annulus [3] are two important mechanisms for atrial flutter. A modified right atrial incision that blocks these two pathways may prevent this problem.

The optimal lesion set has not yet been defined, although there appears little difference in outcome produced by minor variations. In the near future it is likely that new probes and thoracoscopic staplers will facilitate off-pump epicardial ablation through thoracoscopy. Procedures such as the atrial compartment operation, which involve simpler and fewer incisions, provide a necessary impetus for developing these techniques.

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Direct Coronary Reimplantation for Repair of Anomalous Aortic Origin of Left or Right Coronary Artery

To the Editor:

We read with great interest the article by Romp and colleagues [1] on an unroofing technique for repair of anomalous aortic origin of the left or right coronary artery. Nine consecutive

patients underwent unroofing procedures for the repair of anomalous aortic origin of a coronary artery from the incorrect sinus of Valsalva. The technique was carried out with minimal risk and good anatomic and functional results. In this series, 1 of the patients subsequently underwent aortic valve replacement because of the development of severe aortic insufficiency. At the time of reoperation, the pathological finding noted was prolapse of the intercoronary commissure.

The authors adopted two unroofing procedures, one with and the other without extensive unroofing of the intramural segment. In the patient who later had aortic valve replacement, the unroofing procedure involved takedown and reattachment of the intercoronary commissure. The major unroofing procedure with and without disruption of the commissure used in 7 patients may well weaken the support of the commissure. Therefore, aortic regurgitation might develop in the other 6 patients in the future.

In addition, there are several questions concerning the technique. The location of the neo-ostium must be determined individually because of anatomic variation in the intramural segment of the coronary artery. If the segment is short, the neo-ostium is made near the commissure. Is it difficult to create a neo-ostium under these circumstances? It appears to be very close to the commissure in Figure 4 [1]. Creating a new orifice without major unroofing and disruption of the commissure would be better than creating one with this technique. However, can the technique be performed in all cases of anomaly? Its applicability depend on the anatomy in each instance.

Recently, we [2] had a patient with anomalous origin of the right coronary artery from the left sinus of Valsalva. We performed direct coronary reimplantation and obtained a good result. The patient is doing well 17 months postoperatively.

Reimplantation is difficult because the anomalous artery cannot be excised with a Carrel patch, as its course can be within the aorta initially, and the ostium is often slitlike [3]. Therefore, few reports of such a method are available [4, 5]. In the technique for an anomalous right coronary artery, the segment of the right coronary artery apposing the anterior wall of the aorta should be divided and reanastomosed. However, there is a risk of stretching the artery. Possibly, the divided artery could be reanastomosed, without tension, using extensive dissection and mobilization of the right coronary artery [2]. Also, with the reimplantation technique, the divided artery should be tailored proximally in the shape of a cobra head to avoid ostial stenosis. The reimplantation technique might be problematic for a left coronary artery arising from the right sinus of Valsalva because of difficulties associated with extensive dissection and mobilization of the left main coronary artery, the proximal left anterior descending coronary artery, and the left circumflex coronary artery. However, we believe the reimplantation technique is a true anatomic correction for a right coronary artery arising from the left sinus of Valsalva. Excellent longevity of the directly reimplanted coronary artery can be expected.

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Reply

To the Editor:

I thank Drs Furukawa and Itoh for their interest in our report [1] on surgical repair of anomalous origin of the coronary artery and for sharing their experience with this anomaly. I agree with them that excision and reimplantation of the anomalous coronary artery can be safely accomplished for some of these defects, but it can be difficult to excise the coronary artery button if there is a common orifice with the normally positioned coronary artery. The technique of reimplantation also requires substantially more dissection around the base of the aorta and may invite unintentional injury to the malpositioned coronary artery and possible kinking of that artery. Nevertheless, this is a viable technique.

It has been our practice to perform a simple unroofing of the intramural segment if this segment lies distal to the level of the commissure and to create a neo-orifice if the intramural artery courses at or below the level of the commissure. With this approach, we have seen no postoperative aortic insufficiency, normal coronary blood flow, and no mortality or morbidity. However, Drs Furukawa and Itoh are correct that only time will tell whether this technique predisposes the patient to aortic insufficiency. An important point is that there are few if any indications for coronary artery bypass grafting in patients with anomalous aortic origin of the coronary arteries.

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