isthmus vs. bilateral ablation [14] showed no differences in the incidence of SR after a mean follow-up of 28 months (85% vs. 84%). In any case, it has been demonstrated that the right atrium can participate on the genesis and maintenance of AF, especially among those patients with long standing disease. We only performed bilateral lesions in those cases when surgical repair of the tricuspid valve was necessary. We did not detect a greater AF/flutter incidence in the isolated left side ablation group during the follow-up, but either an insufficient statistical power or short follow-up could explain it.

Postoperative AF was identified once the patients referred with symptoms or either because a routine ECG coincided with an AF episode. Therefore, it is possible that some postoperative AF recurrences might have not been detected. Rhythm in the follow-up was defined according to a 24-hour Holter, so it is also possible that asymptomatic AF episodes, even long ones, might have not been detected. Several limitations of this study need to be addressed. This is a study comprising patients referred to a single center. The size of the sample and the length of the follow-up may be insufficient. The Kaplan–Meier method to describe the risk of AF in the follow-up may not be the most accurate, given the fact that atrial rhythm is not an event but a state [15], so a continuous registry of the rhythm might be more suitable.

In conclusion, in our experience, early postoperative AF recurrence is a risk factor for the procedure long-term failure.

References


eComment: Early and late atrial fibrillation recurrence after the Cox maze procedure

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I have read with interest the article by Maroto et al. [1].
In a series of 106 patients who underwent surgical ablation of concomitant and permanent atrial fibrillation (AF), they found that 59% of cases had at least one postoperative AF episode. At discharge, 32% had AF or VVI pacemaker rhythm. Of interest, multivariate analysis showed that early AF recurrence was associated to late AF recurrence.
I would like to emphasize several concepts. One must keep in mind that the basis of the arrhythmia surgery is that the fibroectes that make up scar tissue will not conduct electricity. This has allowed new energy sources producing burn and scar to be adapted for intraoperative use. Thus, the Cox maze procedure (CMP) III classic cut-and-sew evolved into the easiest and fastest CMP IV in which most of the surgical incisions are replaced by lines burn with any energy source. There are two circumstances in relation to recurrent AF after CMP IV. The first is the inflammatory response and atrial myocardial edema observed in the burn areas by the delivered energy [2]. This can cause early arrhythmia per se. There is evidence that this condition tends to resolve within the first postoperative month when the myocardial edema disappears [3]. In fact, the vast majority of the early postoperative atrial arrhythmias in the CMP IV drop off easily after a few weeks postoperatively [4]. The second is a CMP poorly performed, which has a direct impact on the recurrence of AF in both early and late postoperative periods. The main problem with using any energy source is that there is no way to support with certainty that a lesion is transmural at the time it is created. For a line of complete conduction block to be created, such a lesion must be transmural or else electrical activity can traverse the line of lesion and the procedure is doomed to a high-rate of failure [5]. At the beginning of the CMP, the cut-and-sew method was chosen because one can be absolutely sure that surgical incisions in the atria are completely transmural because one can see it [5]. Continuous AF (as in this work) needs pages 159–165.
References


eComment: Re: The early recurrence is a predictor of late failure in surgical ablation of atrial fibrillation

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Currently, the development of the most effective surgical treatment of concomitant atrial fibrillation (AF) is a priority in modern cardiac surgery. Worldwide trials are studying the effectiveness of different interventions, and also the risk factors affecting the results of operations are clarified. The latter is crucial for determining the indications for surgical ablation and defining the postoperative management of patients. The results of surgical ablation of chronic AF show effectiveness in 60–80% of patients operated on for comorbidity [1, 2].

The factors influencing the success of operations include the size of the left atrium (LA), duration of AF, as well as the choice of method of surgical ablation, which is mostly important in patients with chronic AF [3, 4].

Today, the tactics of postoperative management of patients after surgical ablation of AF do not differ substantially among different medical centers. To restore and maintain normal sinus rhythm in the early postoperative period, aggressive antiarrhythmic therapy is applied, including modern methods of pharmacological and electrical cardioversion. However, after surgical ablation of concomitant chronic forms of AF, more than 60% of patients fail to maintain sinus rhythm in the early postoperative period.

Although approximately 30% of patients have AF after discharge, in many of them restoration of sinus rhythm occurs within three months of follow-up. The incidence of postoperative AF is much higher than observed after performance of the classical maze III procedure. Currently, the cause of this phenomenon is unknown.

In an interesting study, Maroto et al. examined the phenomenon of early relapse of AF after surgical ablation of chronic AF as an independent risk factor of unsuccessful surgical ablation in patients with concomitant valvular heart disease and coronary artery disease (CAD) [1]. Operations were performed in 106 patients, most of whom (85%) had valvular pathology. Bipolar and monopolar RF ablation techniques were used to perform surgical ablation. Mean follow-up was 37 months (12–77 months), and was complete in 99% of patients. Sinus rhythm was observed in 82%, 76% and 68% of patients, respectively at one, two and three years of follow-up. The authors found that in the long-term period, sinus rhythm was rarely observed in patients with early postoperative relapse of AF (P<0.001). Multivariate Cox regression analysis showed that duration of AF and an early relapse of AF were independent risk factors of unsuccessful surgical ablation of concomitant AF. The study design and statistical analysis were of high quality. Nevertheless, for more accurate and reliable evaluation of surgical ablation, it is necessary to study the results in the more remote periods after surgery. In addition, it should be noted that there are obvious disadvantages of monopolar RF ablation, especially in chronic AF patients. Nowadays in our institute the method of intensive ablation using cryotherapy of areas with limited access is applied. Such areas include the coronary sinus, mitral valve fibrous ring, the base of appendage of the left atrium, as well as the posterior wall of the left atrium [3]. According to our data, which are analogous with studies from other institutions, the use of cryoablation significantly increases the effectiveness of surgical ablation [3].

In conclusion, the article reports the actual issues of surgical treatment of AF. Continuation of research in this area will certainly increase the effectiveness of treatment of this challenging arrhythmia.