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eComment. Thoracoscopic maze: unresolved issues

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I have read with great interest the article by Straka et al. [1], and have to acknowledge this great effort by the authors. Since its creation in 1987, the Cox-maze procedure has been a challenge for cardiac surgeons due to its great invasiveness and complexity. Immediately following its establishment, one of the goals has been to perform this procedure through a thoracoscopic approach. However, I wish to point out three major problems related to this article and what I find in the real world: (i) lesion set pattern, (ii) energy sources, and (iii) persistent left atrial appendage.

It is well known that it is preferable to use, where possible, a full biatrial lesion set pattern. Persistent atrial fibrillation maintenance is by means of macro re-entrant circuits in both atria. It is not dependent on triggers in the pulmonary veins. So, the surgical treatment for persistent or long-standing persistent AF must be channelled towards the ablation of macro re-entrant circuits instead of only simple pulmonary vein isolation [2].

The Cox-maze III procedure is so complex that it has been shifting into alternative energy sources in an attempt to replace surgical incisions for burn lines. Nevertheless, penetration depth in atrial tissue is not the same for all energy sources. While bipolar radiofrequency has a very acceptable rate of transmural lesions higher than 90%, unipolar radiofrequency only is transmural in 20% of cases in humans. Epicardial ablation on beating hearts has been even more difficult with rates lower than 7% in transmural atrial burn lines [3].

And finally, the removal of the left atrial appendage is associated with lower rates of postoperative stroke. Indeed, it has been thought that besides the fact that the Cox-maze procedure effectively cures AF, one of the biggest reasons for its acceptance is related to lower rates of stroke [4].

Let me quote the article by Cox [5]: “The ideal atrial fibrillation procedure would be performed through a minimally invasive incision (or endoscopically or robotically), off bypass, in less than 1 hour, and with hospital discharge planned for the next morning.”

After almost three decades in business, we are still very much committed to finding and enabling changes which will make this strategy work.

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References


