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Commentary: Left atrial appendage. To resect, or not to resect, that is the question

Leonid Sternik, MD

Duan and colleagues¹ provide a retrospective study describing 1136 patients who underwent left atrial appendage (LAA) surgical closure by 3 techniques: 362 patients (31.9%) underwent LAA excision, 375 (33.0%) underwent appendage extracardiac ligation, and 399 patients (35.1%) underwent intracardiac suture. The average length of follow-up was 48.7 ± 25.1 months.

The primary outcome was the long-term incidence of ischemic cerebrovascular accidents and all-cause mortality. Annual rates of cerebrovascular accidents in patients who underwent LAA extracardiac ligation and the intracardiac suture were significantly higher than in those who underwent LAA excision.

We find in this article a statistical difference between groups. The excision group has smaller left atrium diameter and less left atrial thrombus. The patients in the excision group underwent more atrial fibrillation ablation and have less postoperative atrial fibrillation. Of course, it can influence the stroke rate, so it would be interesting to look for the anatomical results of the different techniques of LAA surgical closure.

Recent guidelines, including the Society of Thoracic Surgeons (2017) state that at the time of cardiac operations in patients with atrial fibrillation, it is reasonable for thromboembolism prevention to obliterate the LAA surgically (Class IIA, Level C expert opinion), and complete LAA obliteration is recommended in all surgical ablation procedures.^{2,3} Several cohort studies showed the potential benefit of LAA obliteration in patients with atrial fibrillation. Yao and colleagues⁴ found that, among patients undergoing

Leonid Sternik, MD

CENTRAL MESSAGE

In patients with atrial fibrillation undergoing cardiac surgery, left atrial appendage should be closed. Appendage excision probably gets better results, providing there is no residual pouch.

cardiac surgery, concomitant LAA closure reduced the risk of stroke and mortality in comparison to cases without appendage treatment. Friedman and colleagues⁵ reported that older patients with atrial fibrillation and concomitant LAA closure demonstrated a lower risk of thromboembolism over 3 years. However, the concomitant closure of LAA in patients without atrial fibrillation and nonvalvular cases as a primary prevention is not clear, although potentially it may reduce complications associated with postoperative atrial fibrillation.⁶

The failure of closure of LAA can be defined as leaving a residual pouch of >1 cm within the appendage stump or persistent flow (ie, gap) between the left atrium and the appendage. Incomplete occlusion can increase stroke rate.⁷

Cullen and colleagues⁸ reported that a residual gap was found early after surgery in 37% of patients, with a higher failure rate in internal suturing of LAA than in excision or stapler closure.

We should be careful closing the LAA because the circumflex coronary artery is close to the appendage orifice and deep stitches can injure or kink the artery. Also, the appendage wall can be frail. The technique of LAA closure depends also on surgeons' preferences and the type of surgery. For example, in open left atrium the internal oversewing of LAA can be attractive; in aortic valve or coronary surgery, the excision of the appendage can be easier.

From the Department of Cardiac Surgery, Sheba Medical Center, Tel-Hashomer, Israel.

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Address for reprints: Leonid Sternik, MD, Department of Cardiac Surgery, Sheba Medical Center, Tel-Hashomer, Israel (E-mail: Leonid.sternik@sheba.health.gov.il).

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In patients with atrial fibrillation undergoing cardiac surgery, LAA closure should be performed. The excision of the appendage probably gets better results, providing that we do not leave a residual pouch.

References

1. Duan Y, Xu H, Li B, Yuan X, Sun H. Effects of left atrial appendage surgical treatment on the incidence of ischemic cerebrovascular accidents in patients with atrial fibrillation undergoing cardiac surgery. *J Thorac Cardiovasc Surg.* 2022;164:1106-16.
2. Badhwar V, Rankin JS, Damiano RJ Jr, Gillinov AM, Bakaeen FG, Edgerton JR, et al. The Society of Thoracic Surgeons 2017 clinical practice guidelines for the surgical treatment of atrial fibrillation. *Ann Thorac Surg.* 2017;103:329-41.
3. Glikson M, Wolff R, Hindricks G, Mandrolia J, Camm AJ, Lip GYH, et al. EHRA/EAPCI expert consensus statement on catheter-based left atrial appendage occlusion—an update. *EuroIntervention.* 2020;15:1133-80.
4. Yao X, Gersh BJ, Holmes DR Jr, Melduni RM, Johnsrud DO, Sangaralingham LR, et al. Association of surgical left atrial appendage occlusion with subsequent stroke and mortality among patients undergoing cardiac surgery. *JAMA.* 2018;319:2116-26.
5. Friedman DJ, Piccini JP, Wang T, Zheng J, Malaisrie SC, Holmes DR, et al. Association between left atrial appendage occlusion and readmission for thromboembolism among patients with atrial fibrillation undergoing concomitant cardiac surgery. *JAMA.* 2018;319:365-74.
6. Ando M, Funamoto M, Cameron DE, Sundt TM III. Concomitant surgical closure of left atrial appendage: a systematic review and meta-analysis. *J Thorac Cardiovasc Surg.* 2018;156:1071-80.e2.
7. Garcia-Fernandez MA, Perez-David E, Quiles J, Peralta J, Garcia-Rojas I, Bermejo J, et al. Role of left atrial appendage obliteration in stroke reduction in patients with mitral valve prosthesis: a transesophageal echocardiographic study. *J Am Coll Cardiol.* 2003;42:1253-8.
8. Cullen MW, Stulak JM, Li Z, Powell BD, White RD, Ammash NM, et al. Left atrial appendage patency at cardioversion after surgical left atrial appendage intervention. *Ann Thorac Surg.* 2016;101:675-81.

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Commentary: Left atrial appendage excision reduces long-term stroke rates—is it the operation or the treatment of atrial fibrillation?

Alison F. Ward, MD, and Richard Lee, MD, JD, MBA

Surgical management of the left atrial appendage (LAA) reduces the rate of cerebrovascular accidents (CVA).¹⁻⁸ In this edition of the *Journal*, Duan and colleagues⁹ present their findings on the incidence of CVA in 1136 patients with atrial fibrillation (AF) undergoing surgical LAA treatment over a 10-year period. Approximately one third underwent LAA excision, LAA extracardiac ligation, and LAA intracardiac suture, respectively. With an average follow-up of 48.7 months, there was no difference in long-term survival. Annual and calculated 10-year CVA

Alison F. Ward, MD, and Richard Lee, MD, JD, MBA

CENTRAL MESSAGE

Surgical excision of the LAA in patients with AF can prevent long-term strokes, although the comparative effectiveness to other surgical techniques is still unclear.

rates in the LAA excision group were lower than in the other 2 groups.

Our first concern with this study is the lack of detail about the type and treatment of AF. In this cohort, all patients had AF, but there is no breakdown of the type of AF (paroxysmal vs persistent). Radiofrequency ablation (RFA) is listed as an operative variable that fails to tell us what ablation procedure was performed (Maze vs pulmonary vein isolation). Ninety-one percent of patients had their LAA surgically treated, yet only 29% of those underwent RFA. Why was there such a

From the Division of Cardiothoracic Surgery, Department of Surgery, Medical College of Georgia, Augusta University, Augusta, Ga.

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Address for reprints: Richard Lee, MD, JD, MBA, Department of Surgery, Medical College of Georgia, 1120 15th St, BA-4300, Augusta, GA 30912 (E-mail: richardleemdbm@gmail.com).

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