Commentary: The appendage strikes back: The last surgeon

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In this case report, Wehbe and colleagues¹ describe 2 fatal bleeding complications after left atrial appendage (LAA) exclusion due to postprocedure myocardial tearing at the site of exclusion. Because the denominator is not specified, it is not clear what the statistic value of this number is.

Most patients undergoing concomitant or stand-alone surgical atrial fibrillation treatment will have their LAA addressed. Although widely performed, several studies have raised significant concerns regarding classic surgical techniques for LAA closure. In the original maze procedure, LAA obliteration is described as an excision with suture closure. More recently, surgical exclusion of the LAA can be achieved endocardially or epicardially by over-sewing, excision, ligation, stapling, or application of a clip system (AtriClip, AtriCure Inc, Mason, Ohio).

Kanderian and colleagues² assessed long-term surgical LAA closure in a total of 137 of 2546 patients with transeosophageal echocardiography. The transeosophageal echocardiography measurements included color Doppler flow in the LAA and interrogation for thrombus. Patent LAA, remnant LAA (residual stump >1 cm), and excluded LAA with persistent flow into the LAA were identified as unsuccessful closure. Of the 137 patients, 52 (38%) underwent excision and 85 (62%) underwent exclusion (73 suture and 12 stapler). Only 55 of 137 closures (40%) were successful.

Lee and colleagues³ compared in a randomized, prospective pilot study 3 atrial appendage elimination techniques: internal ligation, stapled excision, and surgical excision. Failure of LAA occlusion was defined as above. The overall failure rate was 57%. There were no major complications.

The single-center, randomized Left Atrial Appendage Occlusion Study of 77 patients undergoing concurrent coronary artery bypass grafting showed that occlusion of the LAA by suture or stapling without amputation was incomplete in 44% of cases.⁴

Also, catheter-based percutaneous LAA occlusion fatal complications have been reported. Boersma and colleagues⁵ reported the periprocedural outcomes of up to

Medial view of ostial occlusion of the LAA with a clip visualizing the circumflex artery.

Central Message

LAA management in atrial fibrillation can be associated with fatal bleeding complications. A safe surgical technique with an atraumatic exclusion device should be the preferred approach.

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30 days after LAA closure with the Watchman device. The overall 30-day mortality rate was 0.7%.

Ailawadi and colleagues⁶ demonstrated in 70 patients that atraumatic exclusion of the LAA can be performed during open cardiac surgery with the AtriClip device. There were no instances of damage to the appendage, circumflex artery, or pulmonary artery intraoperatively. None of the patients had bleeding from the appendage, and no additional repair sutures were required. During follow-up, no patient showed any clinical evidence of complication from the AtriClip device. Furthermore, epicardial LAA clip occlusion electrically isolates the LAA and could therefore reduce the recurrence of atrial fibrillation.⁷

Whether the reason for failure of occlusion or bleeding is associated with the surgical technique, the frailty of the atrial tissue or both is difficult to decide, but is solely dependent on the surgeon's judging abilities. Because the LAA should be treated with our uttermost respect, an atraumatic exclusion technique could facilitate the decision making. We strongly believe this should be the method of choice in open and closed access.

This report makes a compelling case that although health care funding remains limited, the increased budget impact with an LAA occlusion device could well be accepted to improve safety and efficacy.

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