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Wehbe and colleagues' present 2 cases of fatal complications secondary to left-atrial appendage exclusion (LAAX). These authors have a large experience of stand-alone and concomitant surgery for atrial fibrillation, including LAAX. They have published their excellent long- and short-term outcomes.2 I commend these authors for sharing their experience with complications and their insights into how to avoid them.1

The reported cases were performed using 2 different techniques. One patient was treated with staple exclusion (Endo-GIA; Medtronic, Minneapolis, Minn). The other patient was treated with endocardial double-running suture closure. Both patients experienced bleeding at the site of left atrial closure that contributed to the fatal outcomes.

LAAX performed during cardiac surgery has been reported to decrease both neurologic events and all-cause mortality in patients with atrial fibrillation (AF).3-4 The 2017 Society of Thoracic Surgeons clinical practice guidelines for the treatment of AF5 now include a class I indication for adding AF ablation when performing cardiac surgery. These not only include mitral and aortic valve procedures but also coronary artery bypass surgeries. LAAX is also recommended in addition to ablation in these guidelines.5

With these evidence-based guidelines in place, more procedures, including LAAX, are likely to be performed. When considering LAAX, the procedure must be both safe and secure to ensure a positive result. If safe and successful closure cannot be ensured, the left-atrial appendage may best be managed nonoperatively. In patients with persistent AF in whom long-term anticoagulation therapy is not an ideal option, transcatheter closure may be considered.6

When determining the ideal method for excluding the left-atrial appendage in a particular patient, there are several details to be considered; for example, staple excision or exclusion may be under tension. In friable atrial tissue this may lead to bleeding, as noted by the authors. Staple exclusion without excision has been reported to be unsuccessful in completely closing the left atrial appendage in as many as 40% of patients in follow-up evaluation.7 This may lead to thrombus formation.

External clipping (AtriClip; Atracure, Inc, Mason, Ohio), as suggested by the authors, may be superior to both internal suture exclusion and external staple excision and exclusion. In my experience, clipping is simple to perform. It is unlikely to injure the circumflex artery. It obviates any disruption of the atrial tissue as in stapling or suturing. This disruption may be the nidus for a tear and subsequent hemorrhage. In the initial report on this device,8 98.4% of patients had successful left atrial appendage exclusion as confirmed by computed tomographic angiography or transesophageal echocardiography imaging.

When eternal exclusion is not feasible, as in minimally invasive, robotic, or reoperative surgery, internal exclusion can be considered. Direct suture closure may not be a secure option. A large series from the Cleveland Clinic6 found that it is only 61% effective. One must also take care to prevent injury to the circumflex artery. Bleeding is a concern as well.

Patch exclusion technique9 may be considered. This avoids undue tension on the closure line, which may have contributed to the bleeding in 1 of the reported cases. Because of lack of tension on the suture line, patch closure may also be less likely to dehisce and lead to failure of the LAAX and possible thrombus formations.

It is clear that LAAX with or without an ablation has become an important concomitant procedure in cardiac surgery. The indications for LAAX are broadening. However LAAX must be safe (ie, performed without risking life-threatening bleeding or coronary occlusion) and secure.
(ie, dependable complete closure). In specific circumstances when LAAX would add more than a small risk to the patient or if complete secure closure cannot be ensured, one should pause and consider nonoperative management.

I thank the authors for drawing attention to the possibility of a fatal complication from LAAX. Its inclusion during cardiac surgery in patients with AF is beneficial. Recent guidelines for the surgical treatment of AF are advocating for LAAX as an addition to many cardiac surgical procedures. With the currently available techniques and devices, and when feasible, LAAX can be performed with an approach that is both safe and secure.

References