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EDITORIAL COMMENTARY

Sinus of Valsalva aneurysms: Stabilizing the repair destabilizing the aortic valve?

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Sinus of Valsalva aneurysm (SVA) is a rare cardiac malformation, frequently originating from the right coronary sinus and less frequently from the noncoronary and left coronary sinuses. Since the first successful repair reported by Lillehei and colleagues in 1957,¹ different surgical techniques including primary closure, patch closure, and different approaches (transaortic, transatrial/ventricular, or combined) have been used with low risk and excellent early and long-term outcomes.² The goals of the repair are to exclude abnormal tissue, to close the aneurysm securely, and to repair any associated defect without distorting the aortic valve cusps or causing heart block. Aortic valve abnormalities and regurgitation are common, with a reported incidence of aortic regurgitation (AR) as high as 41%.³ Recurrent or de novo AR is a critical problem following the surgical repair, although the risk of a recurrent fistula or ventricular septal defect is minimal in the current era. It has been reported that primary suture closure has the potential disadvantages of recurrent rupture due to increased suture line stress, and of deforming the aortic valve complex with eventual aortic incompetence.³ However, Jung and colleagues⁴ reported more recently that transaortic repair may cause postoperative AR by progressive distortion of the aortic sinus geometry. Autopsy studies have shown that

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Central Message

Although the optimal surgical approach still remains controversial, long-term competency of the aortic valve appears to continue to be the major concern following the repair of SVAs.

See Article page 1442.

the deficiency of elastic tissue between the annulus and aortic media extends an average of 4 to 5 mm beyond the apparent rupture hole.⁵ This anatomic substrate raises issues about the optimal technique for closure of the defect, which theoretically should exclude the aneurysmatic tissue.

In this issue of the *Journal of Thoracic and Cardiovascular Surgery*, Dr Komeda reports a modification of transaortic patch repair, excluding the aneurysmal tissue and stabilizing the annulus in 3 patients with satisfactory early

and midterm results.⁶ This concept is as sound as it is practical, and the surgical technique is not more difficult than a standard patch repair. However, the configuration and sizing of the patch should be precise to preserve the geometry and to protect the function of the sinus of Valsalva, as well as to maintain a normal sinotubular junction. One common way of excluding the abnormal tissue is to resect the aneurysmal sac and use subvalvular reinforced sutures as is also described by the author. I believe it would not be appropriate to state this modification as a new technique or as a novel surgical procedure to stabilize the repair site; basically, it is a modification of the patch repair. Leaving dead space between the patch and the residual aortic wall as suggested has the potential of the unwanted consequence of hematoma formation, which might distort the aortic valve resulting in AR.

Whatever method is used, all components of the aortic root complex should be considered, and the technique should be tailored to the individual patient to provide a

long-term durable repair. Although the optimal surgical approach still remains controversial, the long-term competency of the aortic valve appears to continue to be the major concern following the surgical repair of SVAs.

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