Multiple Ventricular Septal Defects – Strategy, Sandwich, and Vanishing Bands

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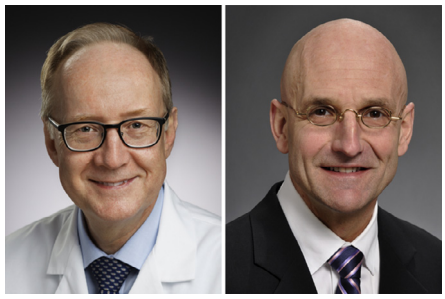
We congratulate the authors on their excellent results with the surgical treatment of multiple VSDs. The data presented are of special value, reflecting nearly 3 decades of experience from an advanced center. Achieved survival and functional benefits, particularly in current era, are encouraging; however, reoperation rate is still significant in this difficult group of patients. The authors advocate a strategy of closure of the dominant defect and adjunct banding with an absorbable band depending on the results of an intraoperative shunt calculation – an approach that in their opinion has resulted in a much lower rate of reoperation.

This retrospective study suffers from typical drawbacks when a heterogeneous group of patients are analyzed which span nearly 3 decades of experience and encompass varying methods of treatment. Therefore, a comparison of methods is problematic and the results are purely descriptive. The authors' conclusion about the superiority of absorbable pulmonary artery band and sandwich technique in reducing reoperations might be misleading. In fact, no statistical attempt has been made to clarify whether the reduction in reoperation rate in the modern era was caused by absorbable pulmonary artery bands, the sandwich technique, or both. Although this is a very interesting descriptive study, one can only speculate about the explanation for reduced reoperation in the current era. Is it closure of the dominant defect, the sandwich technique, and/or the absorbable band? Or is it simply era effect? As the sandwich technique was performed equally between eras for the index case, it is difficult to attribute reduced reoperation to this technique. On the other hand, we agree with the authors that this technique is effective and reproducible.

We agree with the authors that an absorbable band might be an important adjunct to the care of patients with multiple VSDs. It is important, though, to be clear about the simple principles of banding and the potential benefit afforded by an absorbable band. In general, the need for any kind of pulmonary artery band is considered as a proxy for the complexity of morphology of multiple VSDs and/or the procedure itself. Banding is placed to minimize left to right shunt, to optimize timing of surgery, and to "promote" spontaneous closure of VSDs. These goals are achievable regardless of the type of pulmonary artery band (absorbable vs nonabsorbable). The authors claim that use of an absorbable pulmonary artery band was associated with marked improvement in reducing the need for reoperation as 32 of 41 (78%) avoided reoperation. However, underlying this claim is the fact that 63% of patient with an absorbable band underwent concurrent closure of the dominant VSD; whereas, only 8% of patients with a nonabsorbable band had concurrent closure of the dominant VSD. Nonabsorbable pulmonary artery band was placed in 40 patients, and apart from 3 patients, the primary indication for reoperation was the presence of a residual VSD(s). Therefore, the analysis of reoperation with the nonabsorbable pulmonary artery band patients excluded (Figs. 3b and 4b) would seem to be biased by the higher percentage of patients with absorbable banding undergoing concurrent closure of the dominant defect. In fact, this strategy of closing the dominant defect and using an absorbable band may be the important message of this report – smaller VSDs could spontaneous close and the absorbable band could mitigate the need for reoperation on the pulmonary artery. However, the idea that the 2 types of



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Central Message

The sandwich technique with or without a pulmonary artery band provides effective management of multiple ventricular septal defects.

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bands would be associated with different rates of spontaneous VSD closure is not logical.

No doubt that the idea of absorbable pulmonary artery band is a great one and if polydioxanone bands are commercially available, one should consider to use them not only in patients with multiple VSDs but for any other condition for which short to intermediate term banding is required. We commend Daley et al for introducing yet another technique of pulmonary artery banding in patients with multiple VSDs and await further data to verify its effectiveness.[1]

REFERENCE

1. Daley M, Brizard C, Konstantinov I, et al: Outcomes of patients undergoing surgical management of multiple ventricular septal defects. Semin Thorac Cardiovasc Surg 31:89–96, 2019