

**REPLY FROM AUTHORS:
FURTHER
UNDERSTANDING IN
POSTREPAIR
MORPHOLOGY IS
NEEDED TO REFINE
SURGICAL TECHNIQUES
IN ATRIOVENTRICULAR**



SEPTAL DEFECT

Reply to the Editor:

Based on the assumption that aortic annulus-subaortic dimension has a 1-to-1 relationship, we found that the subaortic area assumed a significantly lower z scores after complete atrioventricular septal defect (AVSD) repair that resulted in a more pronounced degree of disproportion between subaortic-annular dimensions.¹ These observations were not specific to any particular technique of repair but observed at a higher frequency following modified 1-patch, suggest that it is not all due to technique, but rather the depth of the septal crest is what matters most.² With this knowledge, the height of the VSD patch used in 2-patch technique is also important to prevent excessive tethering of abnormal subvalvular apparatus in AVSD morphology. A narrower left-sided outflow tract has already been shown to be associated with a deeper ventricular septal scoop by Adachi colleagues.³ Nonetheless, how deep is too deep is hard to quantify, except in the eyeballs of an experienced surgeon. As proposed by Buratto and colleagues,⁴ the presence of a narrow subaortic area may also help guide toward the surgical technique to use. This certainly makes a lot of sense because unlike VSD, the subaortic area is easily measured from preoperative scans and also can be reliably reproduced, as shown by Chandiramani and colleagues.^{1,2} The challenge to define how narrow is too narrow remains because the majority of patients with AVSD had preoperative subaortic z scores within -2 to $+2$, a range that is deemed normal in conventional terms. However, more than half of these patients with AVSD would have a z score <0 and a small proportion (12%) of patients had disproportionate subaortic-annular dimensions before repair.²

Perhaps, the most important findings from our studies were the ones that further define the fundamentals of our current understanding of the left ventricular (LV)

outflow tract AVSD pre- and postrepair. Prerepair, it is well known that an abnormal atrioventricular junction in AVSD would displace the aortic valve and LV outflow tract anteriorly, resulting in a long and narrow outflow tract. Our finding further defines that the LV outflow tract, including aortic annulus (ie, ventriculo-arterial junction) is narrower in AVSD morphology compared with weight-matched VSD cohorts (Figure 1).² Postrepair, the subaortic area becomes more compromised, a phenomenon that was observed early postsurgery. The fact that this area remains unaffected in VSD control confirmed that surgery altered the morphometrics of the LV outflow tract in AVSD (Figure 1).² The precise mechanism that underlies this observation is not understood fully, but suggests that there is still room for us to refine repair techniques for patients with AVSD.

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Conflict of Interest Statement

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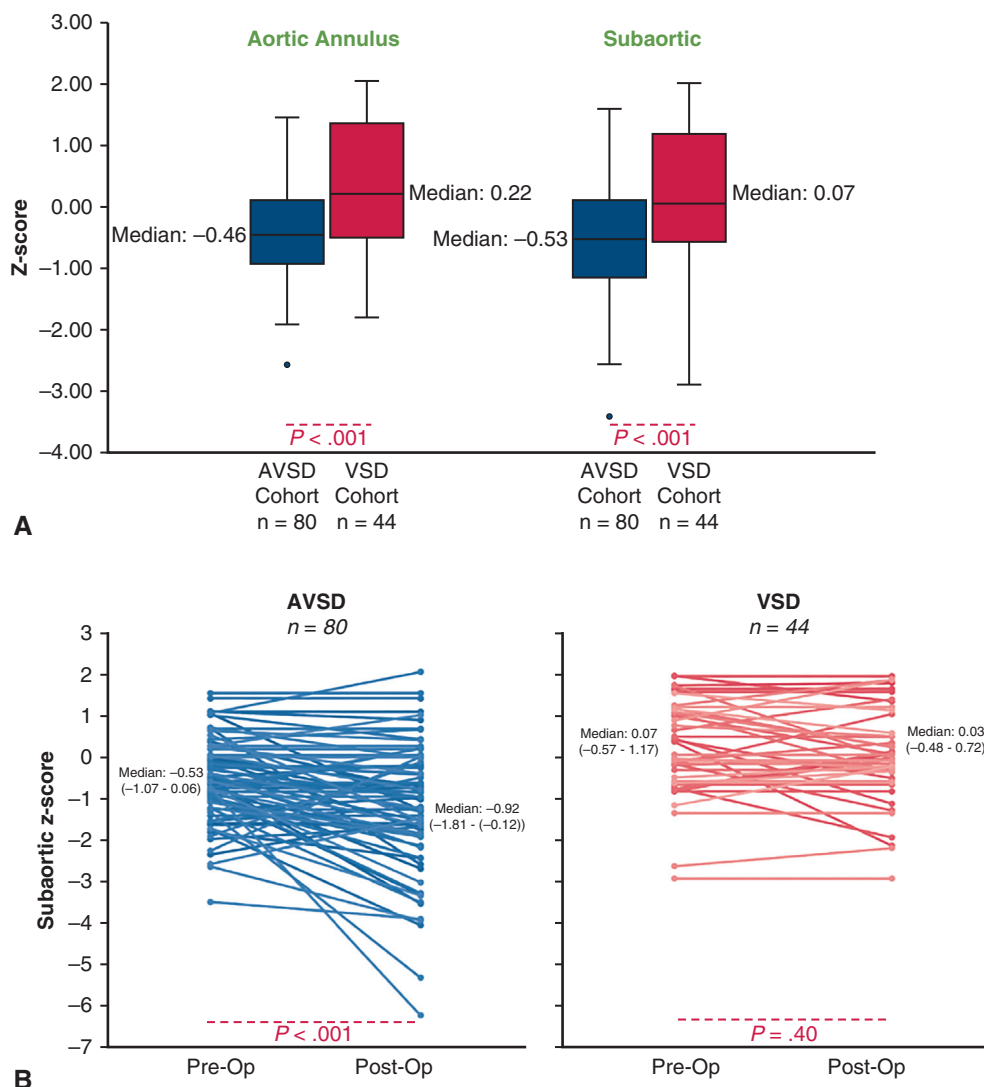


FIGURE 1. A, Prerepair median z scores of the aortic annulus and subaortic areas were lower in the AVSD cohort B, Postrepair, the AVSD cohort had significantly lower subaortic z scores but no difference was observed in the VSD cohort. VSD, Ventricular septal defect.

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