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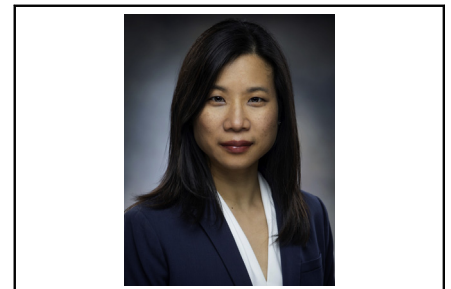


Commentary: The not-so-basic bicuspid

Dawn S. Hui, MD

The simplistic definition of bicuspid aortic valve (BAV) as a semilunar valve with 2 leaflets belies the complexity of this condition. Despite being the most common cardiac valvular abnormality, BAV in many ways remains a mystery. The underlying molecular mechanisms, genetic, and epigenetic phenomena of nonsyndromic BAV and associated aortopathy remain areas of ongoing investigation. In parallel to the deepening scientific understanding of these areas, surgeons have led the way to a more comprehensive understanding of the anatomy of the aortic valve and root in BAV. This is necessary to address the surgical challenges of correcting what is not a uniformly phenotypic expression.¹

While all BAV have in common 2 leaflets, it is a variable condition, with phenotypic variation in leaflet morphology, cusp fusion length, commissure height, and commissural angles. In this edition of *Techniques*, Woo and colleagues² elegantly demonstrate these anatomic relationships in the varying subtypes of BAV. Much as advanced imaging techniques such as echocardiography and computed tomography have informed our knowledge of BAV anatomy, this videographic, although simple, adds a layer of understanding that may inform aortic valve repair techniques. Of particular relevance is the implication for valve-sparing root replacement in Sievers type I BAV. Whether to maintain the native commissural orientation or to place the commissures at a 180°/180° versus native orientation remains an area of investigation. Unequal commissure heights have implications for reimplantation, and the degree of cusp



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CENTRAL MESSAGE

Much as advances in clinical imaging have informed surgical approaches, innovative visual educational tools are useful to enhance understanding of bicuspid aortic valve structural relationships.

fusion affects native leaflet quality and mobility.^{3,4} Finally, although the video depicts the structural relationships, it does not portray important aspects of pathology, such as leaflet prolapse or important tenets of repair such as effective height. However, it provides a solid foundation and framework on which surgeons and scholars of bicuspid aortic valve disease can begin to understand such matters.

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