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## Commentary: A novel surgical strategy for aortic valve replacement in Behçet's disease: Is this the new Silk Road?

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Behçet's disease (BD) is a rare chronic vasculitis, involving both arteries and veins, that can affect almost all organ systems.<sup>1,2</sup> This disorder is found mainly along the ancient Silk Road from the Mediterranean to Korea and Japan. The etiology remains unknown, although a combination of genetic and environmental factors may play a role.<sup>3</sup>

Severe aortic valve regurgitation caused by BD is uncommon, and it is managed by isolated aortic valve replacement or associated with aortic root replacement. Recurrent inflammatory changes of the aortic wall might lead to early prosthetic leakage due to the aortic annulus fragility.<sup>4</sup>

In this issue of the *Journal*, Lee and colleagues<sup>5</sup> have described a modified Bentall technique consisting in a Valsalva graft sutured directly into the left ventricular outflow tract followed by implanting a 25-mm INTUITY rapid deployment valve (RDV; Edwards Lifesciences, Irvine, Calif).

To reduce the incidence of early prosthetic leakage and fatal complications, similar techniques have been previously described.<sup>6,7</sup> However, the relevant component of this procedure is the use of an RDV, which is certainly an



The ancient Silk Road.

### CENTRAL MESSAGE

Modified Bentall procedure with Valsalva graft sutured into LVOT and a rapid deployment valve may be considered a well-planned strategy to prevent prosthesis leakage in patients with Behçet's disease.

interesting novelty for which the authors should be congratulated.

Every innovation in the surgical field always gives rise to great interest but also perplexity and criticisms. A relative contraindication could be a small aortoventricular junction where the Valsalva prosthesis might further narrow the orifice, therefore not allowing the surgeon to implant an RDV of suitable size. Even the possibility of a new ventricular septal defect should not be underestimated due to the involvement of the septum in the suture line. Moreover, as stated by the authors, arrhythmic disorder and the need for a permanent pacemaker might occur. However, these complications might be acceptable considering the high reoperation and mortality rates (78%-100% and 20%-47.3%, respectively) affecting a conventional aortic valve replacement in patients with BD.<sup>8</sup>

The insertion of the inverted Valsalva graft into the left ventricular outflow tract is very attractive, and we agree with the authors' concept that the radial force exerted by the RDV expandable frame may reduce the incidence of prosthesis dehiscence and the proximal anastomosis bleeding. However, it would be assumed that in cases in which the aortomitral curtain is short, the use of an RDV with a high expanded frame width, which is 27.5 mm for the RDV reported in the case report, might interfere with the anterior mitral leaflet dynamic. The RDV may also contribute to shorten the cardiopulmonary bypass time and facilitate an already-challenging procedure.

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The sinus of the Valsalva prosthesis may be occasionally positioned too far below the coronary buttons. In this case, the implant of a low-profile RDV might facilitate the coronary anastomosis.<sup>7</sup>

There is limited evidence to support the choice between mechanical or biological prostheses,<sup>9</sup> and no evidence describing this novel technique in aggressive endocarditis with annular disruption. However, the total exclusion of the annular tissue and the rare myocardium involvement in the inflammatory changes of BD may be the basis to highlight this technique as not a “bailout” strategy rather than a well-planned procedure that seems to trace the new Silk Road for BD.

### References

1. Greco A, De Virgilio A, Ralli M, Ciofalo A, Mancini P, Attanasio G, et al. Behçet's disease: new insights into pathophysiology, clinical features and treatment options. *Autoimmun Rev*. 2018;17:567-75.
2. Hiratzka LF, Bakris GL, Beckman JA, Bersin RM, Carr VF, Casey DE Jr, et al. 2010 ACCF/AHA/AATS/ACR/ASA/SCA/SCAI/SIR/STS/SVM guidelines for the diagnosis and management of patients with thoracic aortic disease. A report of the American College of Cardiology Foundation/American Heart Association task force on practice guidelines, American Association for Thoracic Surgery, American College of Radiology, American Stroke Association, Society of Cardiovascular Anesthesiologists, Society for Cardiovascular Angiography and Interventions, Society of Interventional Radiology, Society of Thoracic Surgeons, and Society for Vascular Medicine. *J Am Coll Cardiol*. 2010;55:e27-129.
3. Verity DH, Marr JE, Ohno S, Wallace GR, Stanford MR. Behçet's disease, the silk road and HLA-B51: historical and geographical perspectives. *Tissue Antigens*. 1999;54:213-20.
4. Poppas A, Coady M. Echocardiographic findings and cardiac surgical implications of aortitis and valvulitis in Behçet's disease. *J Am Soc Echocardiogr*. 2009;22:1275-8.
5. Lee C-H, Je HG, Ju MH. Modified Bentall procedure with a rapid deployment valve in cardiac Behçet's disease: a case report. *J Thorac Cardiovasc Surg Tech*. 2020;2:43-5.
6. Jung Y, Ahn BH, Lee KS, Jeong IS, Kim KH, Na KJ, et al. A novel solution to prosthetic valve dehiscence after aortic valve surgery in Behçet's disease. *Interact Cardiovasc Thorac Surg*. 2017;24:342-7.
7. Chen LW, Wu XJ, Cao H, Dai XF. Valved conduit attached to left ventricular outflow tract for valve detachment in Behçet's disease. *Ann Thorac Surg*. 2017;103:e301-3.
8. Jeong DS, Kim KH, Kim JS, Ahn H. Long-term experience of surgical treatment for aortic regurgitation attributable to Behçet's disease. *Ann Thorac Surg*. 2009;87:1775-82.
9. Ghang B, Kim JB, Jung SH, Chung CH, Lee JW, Song JM, et al. Surgical outcomes in Behçet's disease patients with severe aortic regurgitation. *Ann Thorac Surg*. 2019;107:1188-94.