

## Neochord anterior leaflet treatment to facilitate transcatheter mitral valve replacement with 3D real-time echocardiography

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Discussion forum 4359

#### References

- Nazir S, Ahuja KR, Alamir MA. Is the National Readmission Database the right database to identify valve-in-valve TAVR patients? Eur Heart J 2020;41:4357.
- Hirji SA, Percy ED, Zogg CK, Malarczyk A, Harloff MT, Yazdchi F, Kaneko T. Comparison of in-hospital outcomes and readmissions for valve-in-valve transcatheter aortic valve replacement vs. reoperative surgical aortic valve replacement: a contemporary assessment of real-world outcomes. Eur Heart J 2020;41: 2747–2755.
- Bavaria J. TAVR update: new insights and perspectives from the US national STS/ ACC TVT registry. https://www.sts.org/sites/default/files/102419%201645.%20 Bavaria.%20TVT.pdf (6 February 2020).
- Kaneko T, Vassileva CM, Englum B, Kim S, Yammine M, Brennan M, Suri RM, Thourani VH, Jacobs JP, Aranki S. Contemporary outcomes of repeat aortic valve replacement: a benchmark for transcatheter valve-in-valve procedures. *Ann Thorac* Surg 2015; 100:1298–1304; discussion 1304.
- Zogg CK, Pawlik TM, Haider AH. Three common methodological issues in studies of surgical readmission rates: the trouble with readmissions. JAMA Surg 2018;153: 1074–1076.
- Neupane S, Singh H, Lammer J, Othman H, Yamasaki H, Rosman HS, Bossone E, Mehta RH, Eggebrecht H. Meta-analysis of transcatheter valve-in-valve implantation versus redo aortic valve surgery for bioprosthetic aortic valve dysfunction. Am J Cardiol 2018;121:1593–1600.

#### CARDIOVASCULAR FLASHLIGHT

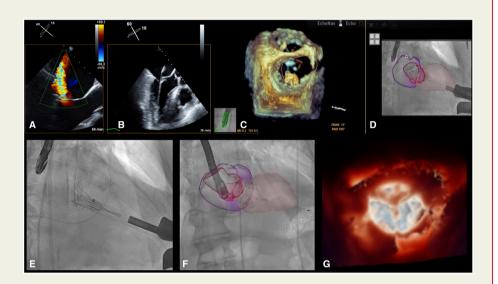
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# Neochord anterior leaflet treatment to facilitate transcatheter mitral valve replacement with 3D real-time echocardiography

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Transapical repair with neochord implantation (Neochord DS1000; Neochord, USA) has emerged as a novel therapy for primary/degenerative mitral valve disease (Panel A). Recently, mitral valve replacement with Tendyne (Abbott, USA) was granted CE approval. The Tendyne valve is a trileaflet porcine pericardial valve within a selfexpanding covered stent implanted and tethered through the left ventricular apex. Implantation of the Tendyne valve may result in neo left ventricular outflow tract (LVOT) obstruction in the presence of a long anterior mitral leaflet, an elongated anterior chordae,



and/or a dynamic septum bulge. We hypothesized that grasping and manually tethering of the anterior mitral valve leaflet (AML) with 1-2 ePTFE neochords would result in a reduced risk of neoLVOT obstruction. The procedure was done in a multi-morbid 69-year-old male with severe mitral regurgitation. Surgery as well as percutaneous edge-to-edge therapy had previously been ruled out due to increased surgical risk and a short posterior mitral leaflet, respectively. Through a reduced anterior lateral thoracotomy, the apex was exposed. Two chords were placed in the central segment of A2 and adjusted to pull the anterior leaflet (*Panels B* and *C*, Supplementary material online, *Videos S1* and *S2*). One of the chords tore the AML in a lampoon split. Through the same transapical access, the introducer sheath of the Tendyne system with a 24-mm Tendyne valve was inserted and the valve deployed in optimal position, with the remaining neochord still tethering AML (*Panels D–G*,elcome Supplementary material online, *Videos S3* and *S4*). After a short period of forward failure resulting from insufficient left ventricular filling, the valve proved competent with normal gradients and no neoLVOT compromise (Supplementary material online, *Videos S5* and *S6*). Follow-up at 6–12–18 months showed excellent valve performance.

Supplementary material is available at European Heart Journal online.

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