

An unexpected finding in a patient with aortic stenosis following TAVI

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August 28, 2022

Abstract

Coronary cusp tear is a very rare complication after transcatheter aortic valve implantation (TAVI). We present the case of an 85-year old male with native aortic valve cusp tear following TAVI. Our case highlights the advantage of transthoracic and transoesophageal echocardiography as an easily accessible and affordable imaging modality to access complications that can occur after TAVI.

An unexpected finding in a patient with aortic stenosis following TAVI

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Abstract -

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KEYWORDS

Transcatheter aortic valve implantation, multimodality imaging.

An 85-year-old male with breathlessness, who was diagnosed with severe aortic stenosis, was referred for transcatheter aortic valve implantation (TAVI).

The transthoracic echocardiogram showed paradoxical low-flow low-gradient severe aortic stenosis (mean/peak PG:21/46mmHg, AVAi:0.6cm/m2).

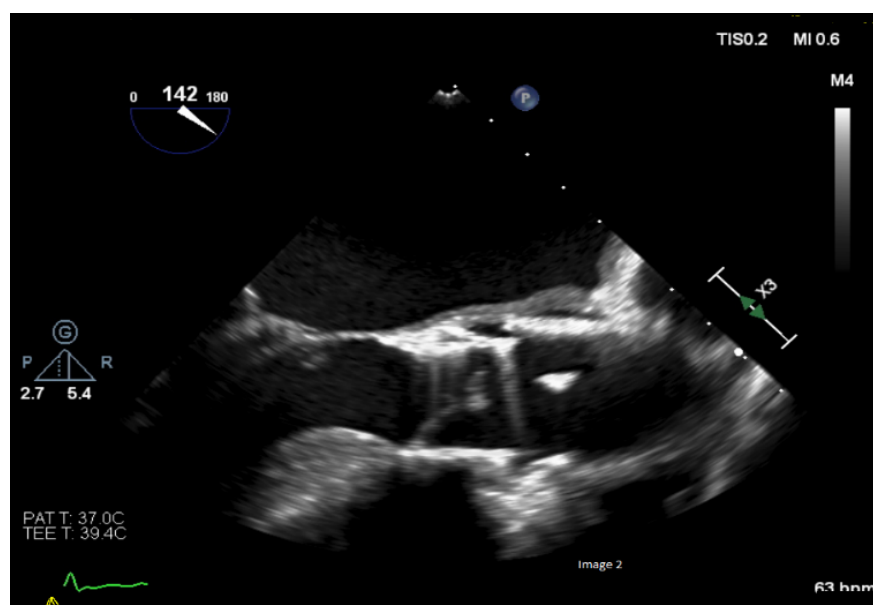
The patient underwent successful TAVI with a balloon expandable 26 mm SAPIEN S3 valve. Post procedural transthoracic echocardiography revealed a stable prosthesis with a mean gradient of 10 mmHg and mild paravalvular regurgitation. A linear structure was noted in the aortic root attached to the annular ring with independent motion compared to prosthesis leaflets (Figure 1). A transoesophageal echocardiogram confirmed the linear structure originating from the annular ring (Figure 2, videos 1, 2, 3).

Cardiac CT also demonstrated the presence of a linear structure (Figure 3). The structure was considered to be a native aortic valve cusp torn apart during the TAVI procedure. Warfarin was commenced due to presumed increased thrombogenicity.

A follow up echocardiogram demonstrated a normally functioning prosthesis with the same degree of paravalvular regurgitation and the linear structure in the aortic root remained unchanged in size and appearance (Figure 4).

Recognized complications related to the TAVI prosthesis include paravalvular leak, annular rupture, aortic dissection, coronary artery occlusion, iatrogenic ventricular septal defect, aorto-ventricular fistula, and atrio-ventricular conduction abnormalities. In our case the echocardiographic and CT findings along with the absence of interval changes with anticoagulation raised the suspicion of a torn native aortic valve cusp which may potentially act as nidus for thrombus formation.

Our case highlights an unusual TAVI complication and the advantage of multimodality imaging in this evolving technique.



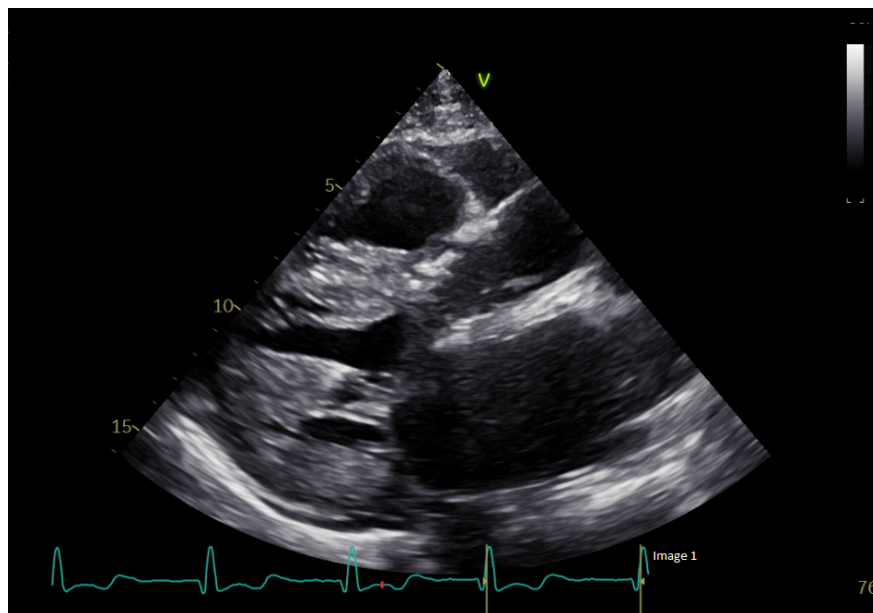
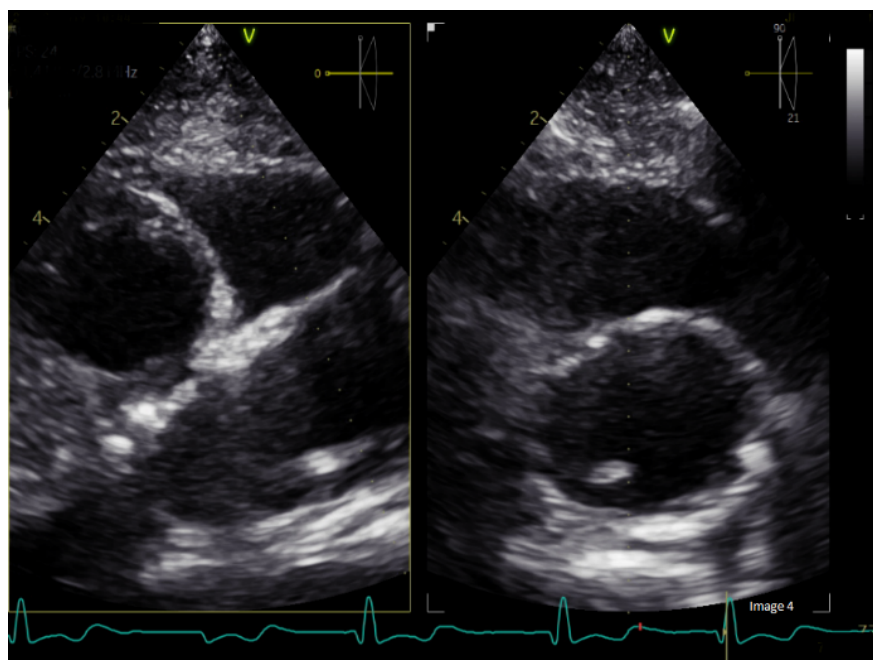


Figure 1 Transthoracic echocardiogram parasternal long axis view Figure 2 Figure 1 Transoesophageal echocardiogram parasternal long axis view



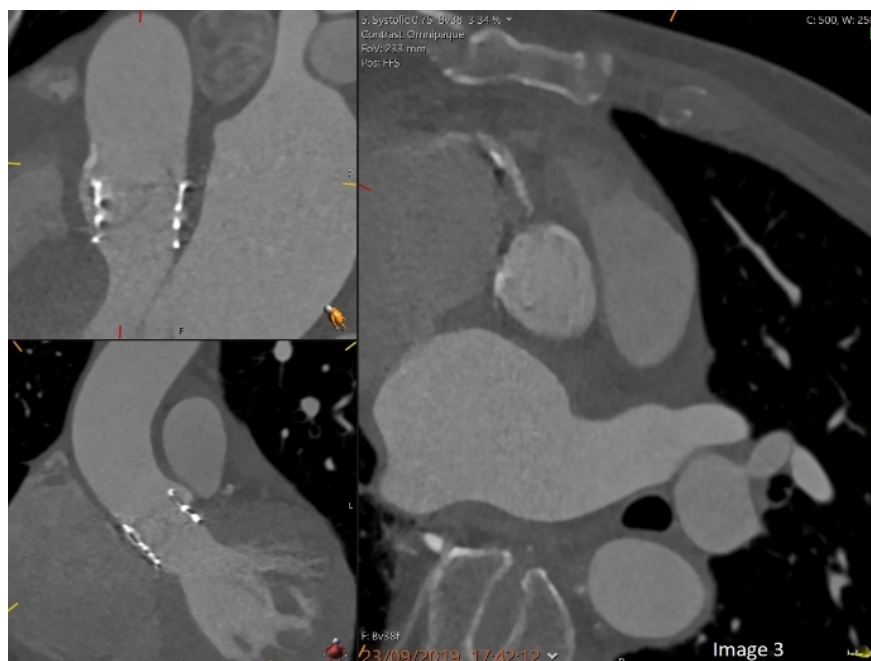


Figure 3 Cardiac computed tomography Figure 4 Transthoracic echocardiogram x plane

Conflict of Interest -There are no conflicts of interest related to this case report for any of the authors.

AUTHOR CONTRIBUTIONS Sandya Nandakumar wrote the manuscript. Georgios Papasozomenos performed the transoesophageal echocardiogram and revised the manuscript. Sergio Lamas performed the transthoracic echocardiogram and revised the manuscript. Rafal Dworakowski revised the manuscript. Konstantina Kipourou, revised the manuscript. Alexandros Papachristidis conceived the idea and revised the manuscript.

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Academic Editors: W. S. Aronow, T. Bharucha, W. Bloch, S. Chia, Y. Furukawa, and Y. Hayabuchi.

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CircCardiovascInterv.2017;10:e004735.DOI:10.1161/CIRCINTERVENTIONS.116.004735.

Supporting information

Additional supporting information may be found in the online version of the article at the publisher's website.

Video legends

1. Short-axis TOE view of the aortic prosthesis
2. Parasternal long-axis TOE view of the aortic prosthesis
3. X-plane mode at the level of the aortic prosthesis