ESC European Society of Cardiology

European Heart Journal - Case Reports (2021) **5**(12), 1–2
https://doi.org/10.1093/ehjcr/ytab507

Visualization of bivalvular endocarditis and transeptal cardiac defect via transoesophageal echocardiography

Ammar A. Hasnie [1]*, Neal Miller[2], and Frank Seghatol-Eslami[2]

[1]Department of Medicine, University of Alabama at Birmingham, 1720 2nd Ave S, BDB 327, Birmingham, AL 35233, USA; and [2]Department of Cardiology, University of Alabama at Birmingham, 1720 2nd Ave S, BDB 327, Birmingham, AL 35233, USA

Received 6 May 2021; first decision 5 July 2021; accepted 30 November 2021; online publish-ahead-of-print 14 December 2021

A 19-year-old female with a complex gastrointestinal history requiring total parenteral nutrition via central venous catheter presented to the emergency department for fevers of 102°F, general malaise, and chills for 1 week. Blood cultures were positive for methicillin-sensitive *Staphylococcus aureus*, and her intravascular catheter was subsequently removed. On Day 7, she had persistently positive blood cultures despite appropriate antibiotic therapy.

A transthoracic echocardiogram (TTE) revealed 2.8 cm × 0.9 cm vegetation on the tricuspid valve (TV), and thus she was referred for evaluation for TV replacement. As a part of her pre-operative evaluation, a transoesophageal echocardiogram (TOE) was performed which revealed an additional 0.3 cm × 0.6 cm vegetation on her mitral valve (MV) and a patent foramen ovale (PFO) (*Figure 1A/B*, *Videos 1–3*, *Video 4 is included in supplementary material*).

She was taken for a TV repair with debridement of her vegetation, MV repair with debridement, and suture closure of her PFO. She tolerated the procedure well and repeat blood cultures showed no growth of bacteria 36 h post-operatively. She was discharged 10 days later with a 6-week course of intravenous antibiotics.

This patient was diagnosed with right-sided native valve endocarditis complicated by left-sided endocarditis. The infected vascular catheter tip located in the right atrium served as a nidus for infection and

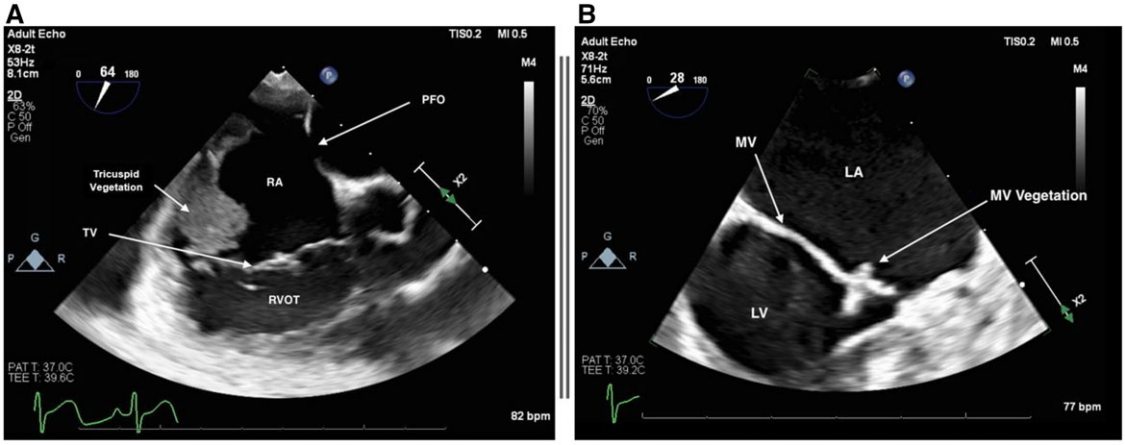
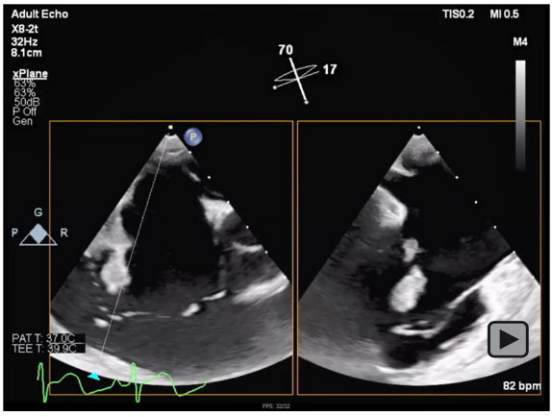
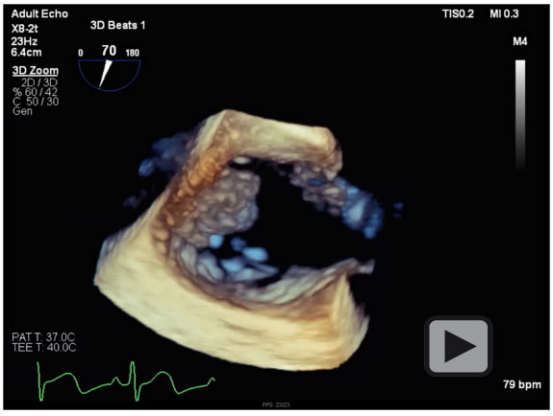


Figure 1 (*A*) Transoesophageal echocardiogram showing a large vegetation measuring 2.8 cm × 0.9 cm attached to the atrial side of a posterior tricuspid leaflet with a patent foramen ovale. (*B*) Transoesophageal echocardiogram showing a small vegetation measuring 0.3 cm × 0.6 cm attached to the anterior mitral leaflet.

* Corresponding author. Tel: 205 934 2490, Fax: 205 975 6424, Email: ammarhasnie@uabmc.edu
Handling Editor: Mark Abela
Peer-reviewers: Arif Anis Khan and Riswan Ahmed

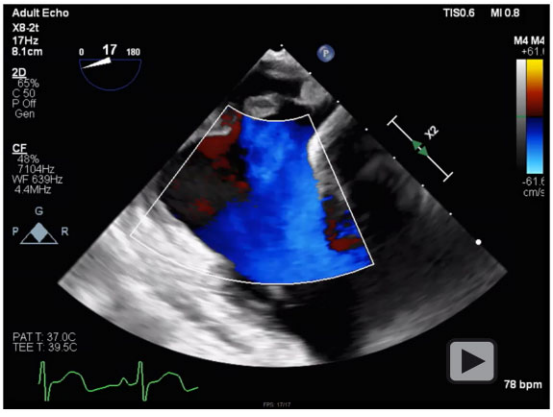


Video 1 xPlane (simultaneous bi-plane) imaging allowing visualization, from two different angles, of a large vegetation measuring 2.8 cm × 0.9 cm attached to the posterior tricuspid leaflet. The vegetation has a large base attached to the lateral right atrial wall and tricuspid annulus. It can be seen prolapsing into the right ventricle.



Video 2 Three-dimensional echocardiography redemonstrating the large vegetation seen on the tricuspid valve.

resulted in a large TV vegetation that was abundantly clear on TTE. However, unexpectedly on TEE, she was found to have additional small vegetation on the mitral valve. The incidence of atrioventricular bivalvular endocarditis is extremely rare, with only isolated case reports.[1–3] We suspect that her presentation was due to persistent bacteraemia which led to seeding on her mitral valve in addition to the initial vegetation on the tricuspid valve; however, its plausible a vegetation crossed her PFO and seeded on the mitral valve (similar to how patients develop paradoxical embolisms). Irrespective, our case emphasizes the rarity of atrioventricular bivalvular endocarditis and the utility of TOE to visualize structures and intracardiac defects when evaluating a patient with suspected or known endocarditis.



Video 3 Doppler echocardiography showing mild tricuspid regurgitation.

Lead author biography

Dr. Ammar Hasnie, MD graduated from The University of Missouri in Kansas City. He is currently a resident in The Tinsley Harrison Internal Medicine Residency Program at The University of Alabama in Birmingham (UAB).

Supplementary material

Supplementary material is available at *European Heart Journal - Case Reports* online.

Consent: The authors confirm that written consent for submission and publication of this case including images and associated text has been obtained from the patient in line with COPE guidelines.

Conflict of interest: None declared.

Funding: None declared.

References

1. van der Zee PM, van Bergen PF, Dekkers P, van den Brink RB. Two cases of left-sided and concomitant right-sided endocarditis: potential pathways of spreading. *Neth Heart J* 2012;**20**:472–474.
2. Birkenkamp KE, Jin JJ, Shivashankar R, Jouni H, Baddour LM, Blauwet LA. Ventricular septal defect and bivalvular endocarditis. *Avicenna J Med* 2015;**5**:21–23.
3. Felice PV, Salom IL, Levine R. Bivalvular endocarditis complicating pregnancy. A case report and literature review. *Angiology* 1995;**46**:441–444.