



Vegetation shunted from right to left by VA-ECMO

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A 60-year-old male was put on venoarterial extracorporeal membrane oxygenation (VA-ECMO) for cardiogenic shock after a complicated percutaneous coronary intervention for his non-ST-elevation myocardial infarction. An Impella CP was inserted for left ventricular venting. The Impella was inserted at the femoral artery and advanced retrograde through the aortic valve to reach the left ventricle. Blood was pumped by the Impella from the left ventricle into the aorta.

On day 3, the heart function improved but the patient developed sepsis, and blood culture grew *Bacillus*. A trans-esophageal echocardiography showed a vegetation at the anterior leaflet of the tricuspid valves, likely

resulting from catheter-related bacteremia. There was no intra-cardiac shunt, and the other heart valves were spared. However, there was a vegetation attached to the Impella at the descending aorta, which was the equilibrium point of the forward Impella flow and the retrograde ECMO flow. The bacteria from the right heart system were likely shunted to the left by the ECMO, and vegetation was formed in the descending aorta where turbulence was maximum (Fig. 1). Subsequently, both the VA-ECMO and the Impella were removed, and he was given a 6-week course of antibiotics.

Use of the Impella is one common venting strategy in patients on peripheral VA-ECMO. In case of bacteremia,

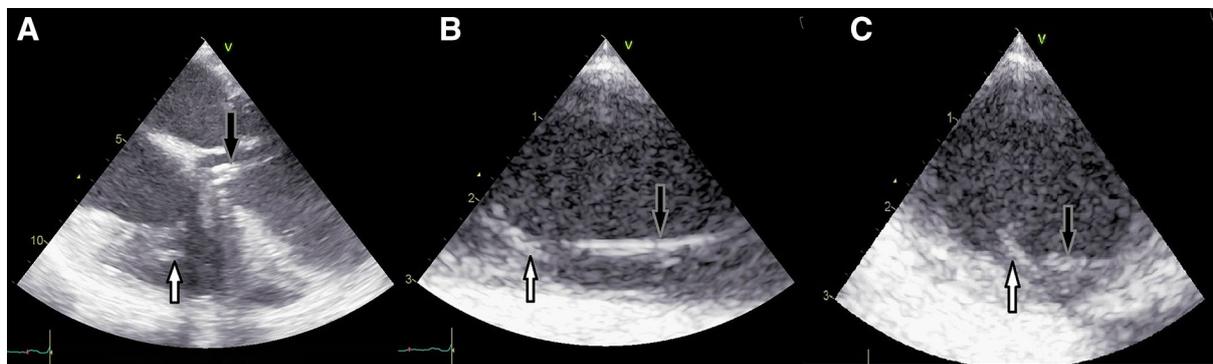


Fig. 1 **a** Mid-esophageal view showing tricuspid valve vegetation. **b** Descending aorta long-axis view showing vegetation attached to the Impella. **c** Descending aorta short-axis view showing vegetation attached to the Impella. The white arrows indicate vegetation, and the black arrows indicate the Impella

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apart from heart valve assessment by echocardiography, particular attention should be paid to the device at the descending aorta.

Electronic supplementary material

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Compliance with ethical standard**Conflicts of interest**

On behalf of all authors, the corresponding author states that there is no conflicts of interest.

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