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Right ventricular failure due to acute thrombosis of the ascending aorta: successful treatment by right ventricular assist device

Abstract: 2840

Right ventricular failure due to acute thrombosis of the ascending aorta: successful treatment by right ventricular assist device

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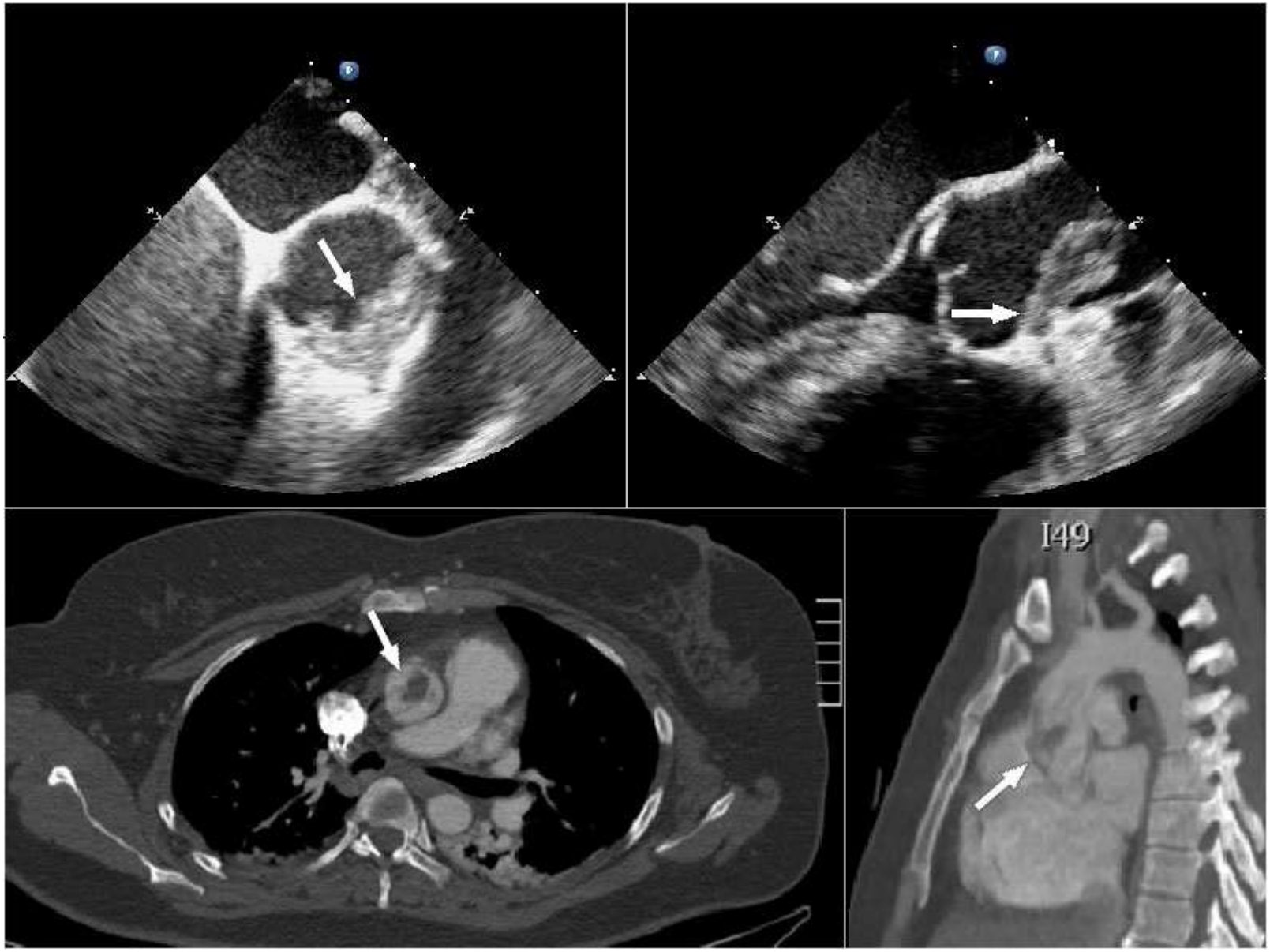
Different types of short-term mechanical circulatory support (MCS) systems have become meaningful options in acute heart failure. Hereby, we report a case where a right ventricular assist device (RVAD) has saved a life of a woman with acute thrombosis of the ascending aorta.

We report a case of 49 years old woman without relevant medical history. She was admitted to a countryside hospital due to shortness of breath and hypotension. Blood pressure could not be measured on her left arm. Numbness in her left feet started for several days before. On her ECG, pathological Q waves, ST elevation and negative T waves were visible in the inferior and in V1 leads as well. Troponin I level were highly elevated (27299 ng/L). CTA scan was performed, however, the report was inconclusive and she was referred to our hospital as a potential type A aortic dissection. After admittance to our ICU, transesophageal echocardiography (TOE) was performed revealing a large (over 2 cm), mobile thrombus, which seemed like originating from the ostium of the right coronary artery (Figure). In line with the ECG and necroenzyme levels, TOE suggested severely decreased right ventricular (RV) function along with dilation and wall motion abnormality of the RV and moderate tricuspidal insufficiency. Left ventricular function was preserved with no wall motion abnormalities visible. Re-evaluation of the CTA images confirmed the the diagnosis of acute ascendent aorta thrombosis. Due to cardiogenic shock, acute surgical intervention was indicated. After median sternotomy, overt RV failure was visible. The thrombus was extracted in toto, the aortic wall and the coronary ostia were intact. However, the termination of cardiopulmonary bypass was unsuccessful attributable to right heart failure. Due to the lack of left ventricular dysfunction and good oxygenation and ventillation, multidisciplinary team decided to implant a right ventricular assist device (RVAD) as a part of a “bridge to recovery” strategy. Postoperative angiography revealed the occlusion of the left axillary and both femoral arteries, embolectomy had to be performed. The early postoperative days were aggravated by the need of fasciotomies, rhabdomyolysis and subsequent renal failure. Regular echocardiographic follow-ups showed the slow recovery of RV systolic function. After cautious decrease of RVAD flow, the device was explanted on the 14th day. Five days later she was discharged from ICU. Currently, she is at home, doing well. Further laboratory tests revealed the presence of antinuclear (ANA) and anti-chromatin antibodies (ACA), suggesting an underlying prothrombotic autoimmune disease.

In conclusion, RVAD may be a feasible and effective option in selected patients with acute right heart failure.



Multimodality imaging of the thrombus.