

IMAGES IN INTERVENTION

Takotsubo Cardiomyopathy After Transcatheter Aortic Valve Replacement

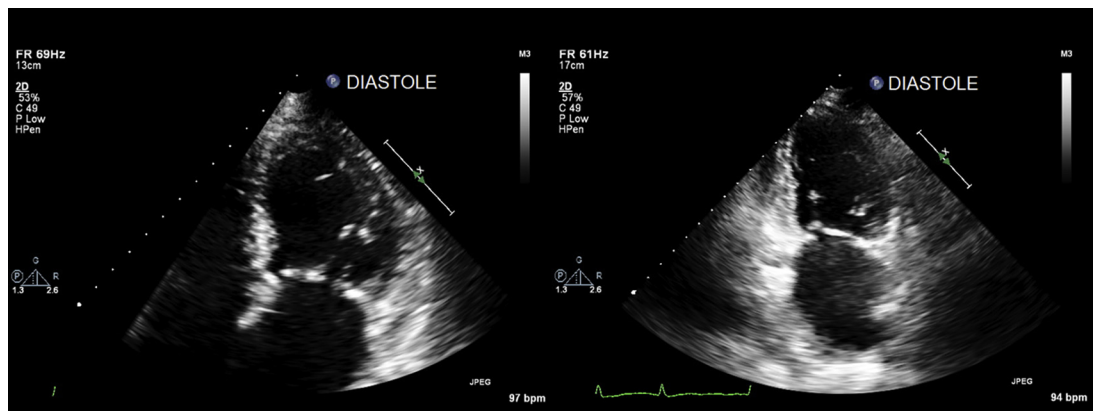


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An 84-year-old woman underwent successful transfemoral transcatheter aortic valve replacement (TAVR) using a 26-mm CoreValve Evolut R (Medtronic, Minneapolis, Minnesota). Intraoperative transesophageal echocardiography confirmed normal valve position and normal left ventricular function. Trace paravalvular regurgitation was detected. The procedure was well tolerated, and the patient was extubated the same day. Transthoracic echocardiography the following day confirmed normal CoreValve Evolut function and normal biventricular function (Figures 1 and 2, Online Video 1).

On post-operative day 2, the patient developed sudden-onset chest pain and severe hypotension. There were no inciting factors or stressors. Electrocardiography showed new ST-segment elevations and T-wave changes compared with baseline electrocardiography. The cardiac troponin I level was 0.239 ng/ml. Transthoracic echocardiography demonstrated severe biventricular apical hypokinesia and normal TAVR function (Figures 3 and 4, Online Video 2). Coronary angiography did not reveal significant obstructive coronary artery disease (Figure 5). Repeat electrocardiography showed anterior T-wave inversions with the development of

FIGURE 1 Baseline Transthoracic Echocardiography During Diastole

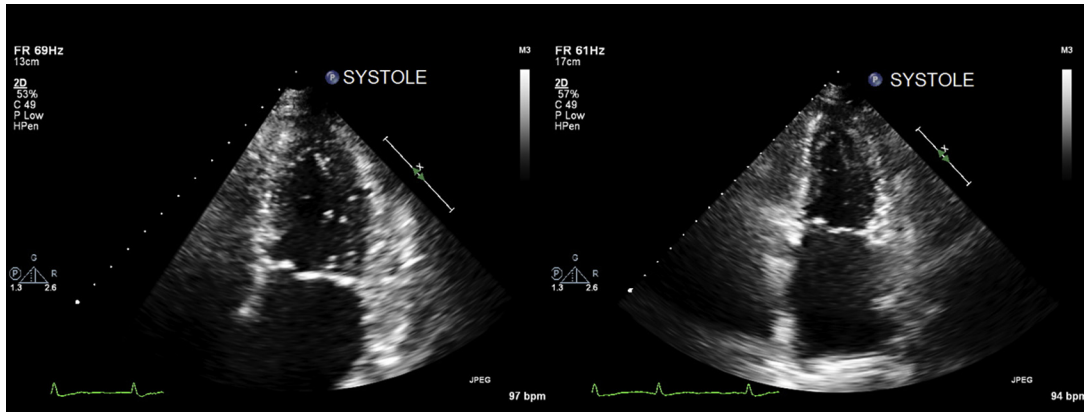


Apical 4-chamber (left) and 2-chamber (right) views. See Online Video 1.

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Manuscript received March 21, 2016; revised manuscript received March 29, 2016, accepted April 7, 2016.

FIGURE 2 Baseline Transthoracic Echocardiography During Systole

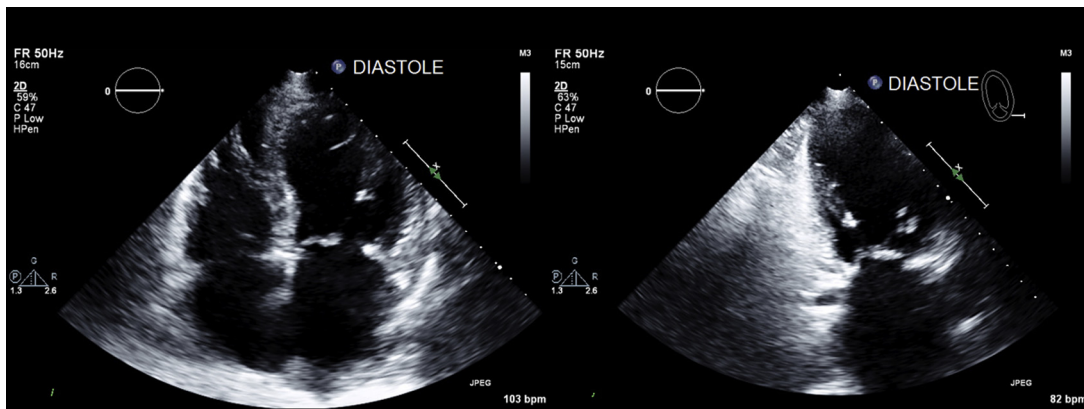


Apical 4-chamber (left) and 2-chamber (right) views demonstrating normal ventricular contraction. See [Online Video 1](#).

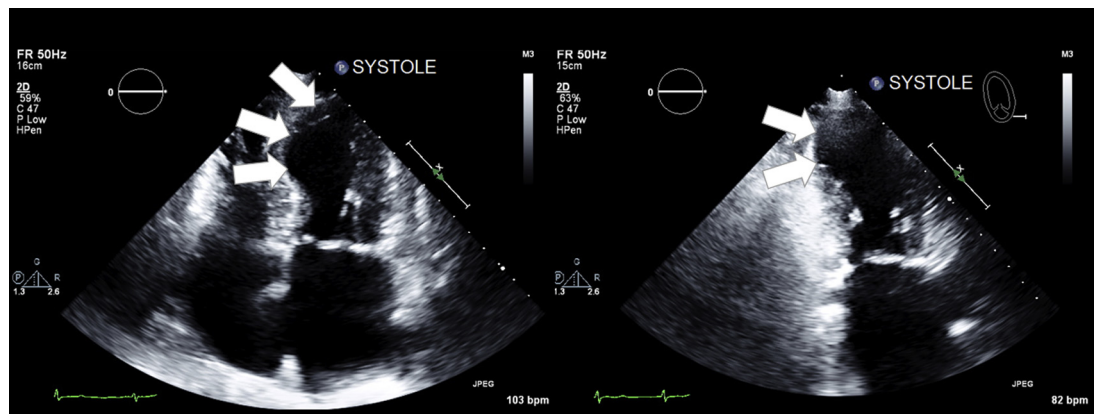
Q waves. Follow-up troponin I peaked at 2.54 ng/ml and then decreased to 1.9 ng/ml over 24 h. There was an initial period of cardiogenic shock requiring vasopressor support that was followed by clinical resolution within 48 h. Follow-up transthoracic echocardiography 3 days following angiography demonstrated near normalization of left ventricular apical wall motion. Stress-induced/takotsubo

cardiomyopathy was suspected on the basis of 4 diagnostic criteria (1): 1) transient abnormality in left ventricular wall motion beyond a single coronary artery perfusion territory; 2) absence of obstructive coronary artery disease; 3) new electrocardiographic abnormalities or elevation in cardiac troponins; and 4) absence of pheochromocytoma and myocarditis.

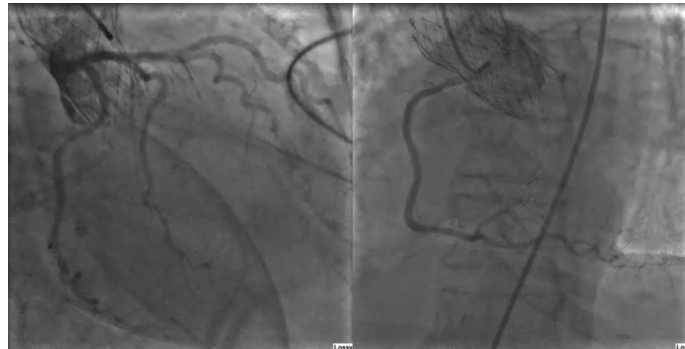
FIGURE 3 Takotsubo Transthoracic Echocardiography During Diastole



Apical 4-chamber (left) and 2-chamber (right) views. See [Online Video 2](#).

FIGURE 4 Takotsubo Transthoracic Echocardiography During Systole

Apical 4-chamber (**left**) and 2-chamber (**right**) views demonstrating hypokinesis and apical ballooning of the left ventricle (**arrows**). See [Online Video 2](#).

FIGURE 5 Coronary Angiography

Left coronary artery (**left**) and right coronary artery (**right**) with no significant obstruction.

TAVR is a less invasive procedure than conventional cardiac surgery, but it may entail significant physical stress for high-risk patients. Myocardial ischemia during and immediately after TAVR has been described (2), but this case represents a unique presentation of stress-related cardiomyopathy.

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KEY WORDS 1-TAVR, myocardial infarction, takotsubo cardiomyopathy

APPENDIX For supplemental videos and their legends, please see the online version of this article.