

VIDEOS IN EMERGENCY MEDICINE

Cardiology

A woman with chest pain

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1 | PATIENT PRESENTATION

A 69-year-old female with a history of hypertension and type 2 diabetes presented to the emergency department with chest pain that had been ongoing for 1 day. She was in her normal state of health until approximately 10:30 pm the previous night when she learned that a friend had passed away unexpectedly. Soon afterward, she developed pressure-like midsternal chest pain. Initial vital signs were notable only for tachycardia at a heart rate of 105. Diagnostics were notable

for elevated troponin I at 2.04 and elevated B-type natriuretic peptide at 1412. A chest x-ray demonstrated an enlarged cardiac silhouette and electrocardiogram (ECG) was interpreted as sinus tachycardia with lateral ST depressions and premature ventricular contractions. Point-of-care ultrasound (POCUS) was performed, which revealed mildly decreased ejection fraction of 45% and severe hypokinesia of the left ventricular apex as well as distal 1/2 of anteroseptal and inferior walls, with preserved contraction at the base (Figure 1A,B; Videos S1 and S2).



FIGURE 1 (A) Apical 4 chamber view depicting endocardial border in end-diastole. (B) Apical 4-chamber view depicting endocardial border in end-systole (white outline) exemplifying apical hypokinesia and ballooning with preserved contraction at the base of the left ventricle

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2 | DIAGNOSIS AND TEACHING POINTS

Based on history and POCUS findings, there was a concern for Takotsubo cardiomyopathy (TCM). Cardiology was consulted. The patient was initiated on treatment for possible NSTEMI with aspirin, clopidogrel, and placed on a heparin infusion. She was admitted and underwent urgent radiology and transthoracic echocardiography was performed that corroborated POCUS findings. Urgent cardiac catheterization revealed minimal coronary artery disease, confirming the diagnosis of TCM. Her home medications were adjusted, and she was discharged on hospital day 2. A follow-up echocardiogram at 2 months revealed fully recovered cardiac function.

TCM or stress cardiomyopathy was first described in Japan in the 1990s. Also referred to as “broken-heart syndrome,” the name “takotsubo” originates from octopus traps used in Japan whose shape resembles the classic form of the pathologic left ventricle with apical ballooning and dyskinesia, with preserved basal function. Patients with TCM may present with chest pain, dyspnea, and rarely, cardiogenic shock.¹ Biomarkers are often elevated at presentation. ECG findings are variable. TCM is thought to be precipitated by a physiologic or emotional stressor leading to a catecholamine surge and subsequent myocardial dysfunction.² The diagnosis is confirmed by the combination of clean coronary angiography and typical findings on echocardiography or ventriculography. Although TCM is a diagnosis of exclusion, POCUS has been described as a modality that may help identify these patients and affect downstream decision-making.^{3,4} There is no clear suggested management for patients with TCM, and care is supportive. Most patients recover over the course of weeks to months.⁵

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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