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Conflict of Interest

The authors have no financial conflicts of
 interest.

Recurrence of Different Types of Takotsubo Cardiomyopathy

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A 51-year-old female with a history of hypertension, and severe cyclic vomiting syndrome (CVS) secondary to gastroparesis, presented with acute onset nausea, vomiting, epigastric and substernal discomfort. Electrocardiogram (ECG) revealed non-specific T-wave abnormalities (Figure 1A-B) and serum troponin T was 5.54 ng/mL (normal value: < 0.05 ng/mL). Coronary

Figure 1. (A) ECG: Normal sinus rhythm with Q-waves in VI-V3 with abnormal ST and T wave abnormalities suggestive of possible myocardial injury.
 (B) ECG Normal sinus rhythm with nonspecific T wave abnormalities.

Figure 2. Coronary angiography (A, B) and left ventriculogram (C, D): (A) showing patent right coronary artery and (B) left coronary artery, showing patent left main, left anterior descending artery and left circumflex artery. Diastole (C) and systole (D) demonstrating hypokinesis of mid to distal anterolateral and inferior walls with relatively normal apical and basal, typical for midventricular variant of Takotsubo cardiomyopathy (red outline).

angiography showed patent coronaries without disease (**Figure 2A-B**). Ventriculography (**Figure 2C-D**) and transthoracic echocardiogram (TTE) showed hypokinesia of mid-ventricular segments with normal apical and basal segments, left ventricular ejection fraction (LVEF) was 45% (**Figure 3A-B, Movie 1**). Patient was diagnosed with midventricular type of Takotsubo cardiomyopathy syndrome (TCS). Patient was admitted five months later with CVS and hypertensive urgency (blood pressure 200/100 mmHg). TTE showed LVEF > 75% and normal wall motion. She had chest pain for 7 days in hospitalization, with ECG demonstrating diffuse T-wave inversion and new elevated serum troponin levels. TTE showed LVEF = 33% with segmental wall motion abnormalities involving akinesia of the distal two-thirds of the left ventricle, consistent with apical type of TCS (**Figure 3C-D, Movie 2**). She re-presented with CVS fourteen months later, had ECG changes and elevated troponin levels. TTE showed LVEF = 25% with akinesia and dyskinesia of the left ventricular mid-segments with relative sparing of the basal segments and apex (**Figure 3E-F, Movie 3**). Five months later, she had severe CVS again, with TTE showing LVEF = 45%, with hypokinesia of basal to mid-segments and hyperdynamic contraction of apical segments, consistent with basal type of TCS (**Figure 4A-B, Movie 4**). Of note, throughout these 2 years, TTE showed normal LVEF and wall motion when patient was asymptomatic (**Figure 4C-D, Movie 5**). This is an unusual case of TCS, with recurrent presentations of 3 different phenotypes induced by severe CVS.

Figure 3. Transthoracic echocardiogram.

(A, B) Midventricular variant of Takotsubo cardiomyopathy (yellow arrow), end of diastole (A), end of systole (B). (C, D) Apical ballooning variant of Takotsubo cardiomyopathy (yellow arrow), end of diastole (C), end of systole (D). (E, F) Contrast transthoracic echocardiography, 2 chamber view demonstrating midventricular variant of Takotsubo cardiomyopathy: end of diastole (E), end of systole (F). Yellow arrow pointing to the mid-ventricle.

SUPPLEMENTARY MATERIALS

Movie 1

Apical 4-chamber view demonstrating midventricular type of Takotsubo cardiomyopathy.

[Click here to view](#)

Movie 2

Apical 4-chamber view demonstrating apical type of Takotsubo cardiomyopathy.

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Figure 4. Transthoracic echocardiogram.

(A, B) Four chamber view demonstrating basal variant of Takotsubo Cardiomyopathy: end of diastole (A), end of systole (B). Yellow arrow pointing to the base of the left ventricle.

(C, D) Four chamber view of the heart: end of diastole (A), end of systole (B). Normal left ventricular wall motion and normal left ventricular ejection fraction.

Movie 3

Contrast enhanced 2 chamber view demonstrating midventricular type of Takotsubo cardiomyopathy.

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Movie 4

Apical 4-chamber view demonstrating basal type of Takotsubo cardiomyopathy.

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Movie 5

Apical 4-chamber view demonstrating normal left ventricular ejection fraction and wall motion.

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