Midventricular ballooning syndrome, an atypical variant of takotsubo cardiomyopathy (TCM), is characterized by transient wall motion abnormalities of the midsegment of the left ventricle with apical sparing. In contrast to the typical form of TCM, apical contractility is preserved and may even be hyperkinetic in midventricular TCM. We present a case of atypical TCM in an 86-year-old woman who had chest pain while accompanying her husband in the emergency department as he was evaluated for chest pain.

**Keywords**
Angina • Cardiomyopathies • Heart contractility • Hyperkinesis • Takotsubo cardiomyopathy

**Report of a Case**

An 86-year-old woman with a past medical history of hypertension and hyperlipidemia accompanied her husband to the emergency department after he had a sudden onset of chest pain. Half an hour into her husband’s evaluation, she also reported chest pain. Her chest pain was substernal and pressure like in quality, with a severity of 2 of 10 and with slight radiation into the chest wall.

Electrocardiography in the emergency department showed a normal sinus rhythm with minimal ST depression in inferior leads, which was unchanged from results of a previous electrocardiography. The initial set of cardiac enzymes showed elevated levels [troponin, 0.41 ng/mL (reference level, <0.03 ng/mL); creatine kinase MB, 12 ng/mL [reference range, 0–3 ng/mL]]. Coronary angiography showed minimal coronary artery disease. But the left ventriculography was notable for a low-normal left ventricular (LV) ejection fraction of 50%, an akinetic anterior midventricle, and hypokinetic midinferior walls (Figure 1). These findings were consistent with midventricular ballooning syndrome.

An echocardiogram showed wall motion abnormalities similar to those shown in the left ventriculogram (Figure 2). A follow-up echocardiogram taken after 1 month showed normal LV ejection fraction without regional wall motion abnormalities (Figure 3). Subsequently, underlying generalized anxiety disorder was identified in the patient.

**Discussion**

Midventricular ballooning syndrome, an atypical variant of takotsubo cardiomyopathy (TCM), is characterized by transient wall motion abnormalities of the midsegment of the left ventricle, with apical sparing. Clinical presentation of midventricular TCM is identical to typical TCM. Similar to the typical form, the atypical variant is predominant among postmenopausal women. Typical TCM accounts for ≈60% of TCM cases; the atypical form is seen in 40% of TCM cases. Both typical and atypical forms have an excellent prognosis, with an inpatient mortality rate of 1% and a recurrence rate of 7%.

Increased catecholamine levels during physical and psychological stress are believed to result in development of myocardial stunning and LV wall motion abnormalities. Various mechanisms have been proposed to explain the differences between the forms of TCM, which include differences in the anatomical location of cardiac adrenergic receptors, the degree of sympathetic activity, and susceptibility to sympathetic stimulation.

**Conclusion**

TCM is a rare condition with a reported prevalence of 1–2% in patients presenting with chest pain, but generally it has an excellent prognosis. Our case is interesting because mental stress related to chest pain in a close family member triggered TCM in our patient.
Conflict of interest: none declared.

References


Figure 1 Left ventriculogram. (A) Ventriculogram shows normal apical contraction and akinesis of the midventricular portion of the left ventricle (LV) (arrows) in systole. (B) Ventriculogram in diastole.

Figure 2 Echocardiograms with and without contrast medium. (A) Echocardiogram without contrast medium in parasternal long axis view of the akinetic midanterior septum (arrows) in systole. (B) Echocardiogram with contrast medium in apical two-chamber view in systole, showing the akinetic midanterior wall of the left ventricle (LV) (arrows).

Figure 3 Echocardiogram without contrast medium in parasternal long axis view at patient’s follow-up visit at 1 month showing resolution of left ventricular wall motion abnormalities in systole. Ao indicates aorta; LA, left atrium; LV, left ventricle.