FIC Federazione Italiana di Cardiologia
Italian Federation of Cardiology

Catastrophic ruptured Takotsubo cardiomyopathy

Refai Showkathali, Rafal Dworakowski and Philip MacCarthy

J Cardiovasc Med 2015, **16**:644–645

Keywords: apical, ballooning, cardiac tamponade, cardiomyopathy, pericardial effusion, rupture, tako-tsubo

King's College Hospital, London, UK

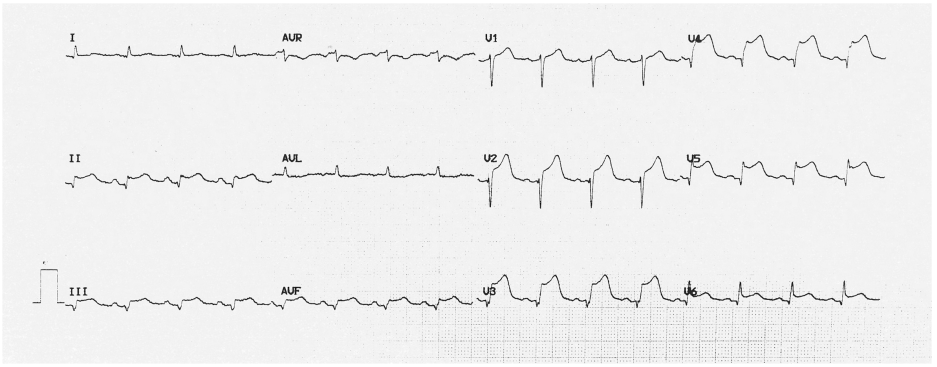
Correspondence to Dr Refai Showkathali, MBBS, MRCP, (UK), Department of Cardiology, King's College Hospital, Denmark Hill, London SE5 9RS, UK
Tel: +20 3299 9000; e-mail: refais@gmail.com

Received 6 July 2013 **Revised** 20 August 2013
Accepted 6 October 2013

Images in cardiology

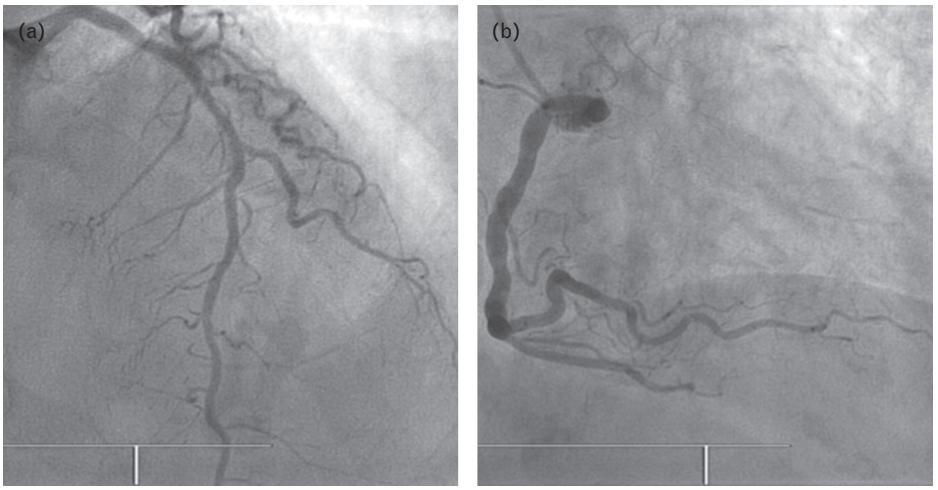
An 86-year-old lady was transferred from her local hospital to our unit with chest pain and ST segment elevation (antero-lateral and inferior) on her ECG (Fig. 1), following a knee surgery 2 days prior to this episode. An immediate coronary angiography showed mild atheromatous disease with TIMI 3 flow in all epicardial coronary arteries (Fig. 2). Left ventriculogram showed typical form of Takotsubo cardiomyopathy (TCM) (Fig. 3). An echocardiography confirmed this finding and there

Fig. 1



ECG showing ST segment elevation in antero-lateral and inferior leads.

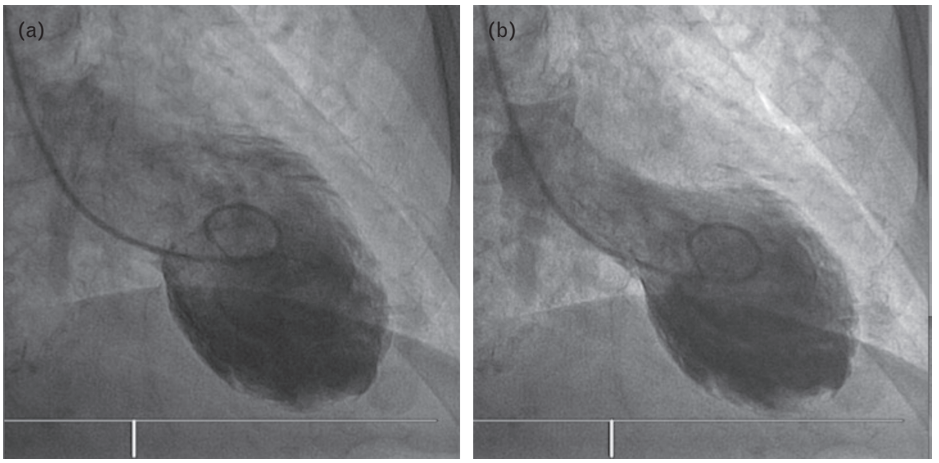
Fig. 2



Panel (a) Coronary angiogram (PA cranial view) showing mild atheromatous left anterior descending artery (LAD). (b) Coronary angiogram of right coronary artery (RCA) showing normal RCA.

DOI:10.2459/JCM.0000000000000055

Fig. 3



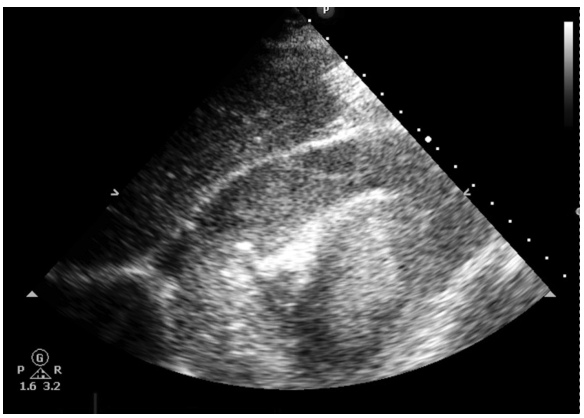
Panel (a) Left ventriculogram in diastole. (b) Left ventriculogram in systole.

was no intraventricular gradient noted. Supportive therapy with beta-blocker and angiotensin-converting enzyme (ACE)-inhibitor was initiated and the patient was monitored in coronary care unit. Approximately 48 h after admission to our unit, she had sudden cardiac arrest with pulseless electrical activity (PEA). Immediate bedside echocardiography demonstrated cardiac tamponade due to left ventricular free wall rupture (Fig. 4) and the patient died soon. Left ventricular free wall rupture is extremely rare in TCM, particularly with rapid initiation of supportive therapy.

Ventricular wall rupture in TCM has been reported in both left ventricle (LV)[1–7] and right ventricle.[8] A systematic review of published case reports of TCM identified the following parameters to suggest an increased risk of cardiac rupture in TCM: elderly woman, ST elevation in lead II, absence of T wave inversion in lead V_5, persistence of ST elevation, higher ejection fraction and higher systolic pressure.[9]

Many clinicians prefer to initiate heparin and/or aspirin to prevent apical thrombi in TCM, until the LV recovers. Clinicians should be aware of this extremely rare catastrophic complication of TCM in the acute phase, while initiating antithrombotic therapy. This case also highlights the importance of avoiding early discharge in patients with TCM. Patients should be kept in hospital until establishing optimal doses of supportive therapy.

Fig. 4



Subcoastal view of echocardiogram showing blood-filled pericardium compressing the heart.

Acknowledgements

No funding was received for this study and the authors have no competing interest to disclose.

References

1 Mafrici A, Proietti R, Fusco R, De Biase A, Klugmann S. Left ventricular free wall rupture in a Caucasian female with Takotsubo syndrome: a case report and a brief literature review. *J Cardiovasc Med (Hagerstown)* 2006; **7**:880–883.
2 Ohara Y, Hiasa Y, Hosokawa S, *et al.* Left ventricular free wall rupture in transient left ventricular apical ballooning. *Circ J* 2005; **69**:621–623.
3 Stöllberger C, Huber JO, Enzelsberger B, Finsterer J. Fatal outcome of epileptic seizure-induced takotsubo syndrome with left ventricular rupture. *Eur J Neurol* 2009; **16**:e116–e117.
4 Sacha J, Maselko J, Wester A, Szudrowicz Z, Pluta W. Left ventricular apical rupture caused by takotsubo cardiomyopathy-comprehensive pathological heart investigation. *Circ J* 2007; **71**:982–985.
5 Akashi YJ, Tejima T, Sakurada H. Left ventricular rupture associated with Takotsubo cardiomyopathy. *Mayo Clin Proc* 2004; **79**:821–824.
6 Shinozaki K, Tamura A, Abe Y, Yano S, Kadota J. Left ventricular free wall rupture in takotsubo cardiomyopathy. *Int J Cardiol* 2007; **115**:e3–e4.
7 Yamada R, Watanabe N, Kume T, *et al.* Left ventricular rupture associated with takotsubo like left ventricular dysfunction (apical ballooning). *J Echocardiogr* 2006; **4**:59–62.
8 Ieva R, Correale M, Brunetti ND, Di Biase M. A 'bad' case of Tako-Tsubo syndrome. *J Thromb Thrombolysis* 2009; **28**:248–251.
9 Kumar S, Kaushik S, Nautiyal A, *et al.* Cardiac rupture in takotsubo cardiomyopathy: a systematic review. *Clin Cardiol* 2011; **34**:672–676.