Echocardiographic images of organised pericardial thrombus in type A aortic dissection

David Charles Hutchings,1 James Brown,2 Adrian Brodison,2 Michael Coupe2

1Department of Cardiology, Royal Albert Edward Infirmary, Wigan, UK
2Department of Cardiology, Royal Lancaster Infirmary, Lancaster, UK

Correspondence to Dr David Charles Hutchings, dhutchings@doctors.org.uk

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DESCRIPTION

A 70-year-old woman with a background of hypertension was admitted with severe stabbing central chest pain and epigastric discomfort. Initial examination was unremarkable. Observations revealed blood pressure (BP) of 152/87 mm Hg, heart rate 89/min and normal O2 saturations. 12-lead ECG and chest X-ray (CXR) were normal (figure 1). Serum cardiac troponin I was borderline elevated at 0.07 12 h after admission (RR <0.04 ng/mL). CT of the thorax showed no evidence of aortic dissection on arterial phase and no pulmonary embolism on venous phase. Transthoracic echo demonstrated normal left ventricular function and inconsequential small pericardial effusion overlying the right ventricle.

After initial improvement with analgesia, the same pain returned. On the 3rd day, the patient had a syncopal episode. A 12-lead ECG showed 1.5 mm inferior ST elevation and CXR revealed widening of the mediastinum (figure 2). She was hypotensive (systolic BP 60 mm Hg) and her left arm was hypoperfused (impalpable radial pulse, CRT >5 s). Despite 3 L of intravenous crystalloid she remained shocked. A bedside echocardiogram was performed showing pericardial effusion with mobile thrombus overlying the right ventricle and diastolic collapse consistent with tamponade (video 1, figure 3). Urgent repeat CT aortogram showed a type A intramural haematoma, a subtype of aortic dissection (figure 4). The patient was urgently transferred for cardiothoracic surgery where an intimal tear was identified in the aortic arch and a thick intramural haematoma was seen in the aortic root, probably extrinsically compressing

Figure 1 Chest X-ray on admission.

Figure 2 Chest X-ray on day 3 with worsening pain and syncope.

Figure 3 Echo subcostal view in diastole showing (A) large pericardial thrombus surrounded by pericardial effusion, (B) collapsed right ventricle and (C) under-filled left ventricle.

Video 1 Echo subcostal view demonstrating cardiac tamponade with organised pericardial thrombus compressing right ventricle.
the right coronary artery. Emergency arch replacement surgery was performed and, following a period of rehabilitation, the patient made a full recovery.

Learning points

▸ Cardiac tamponade is a common complication of type A aortic dissection,1 2 and emergency surgery is the only effective treatment strategy in the vast majority of cases.3

▸ Our case highlights the diagnostic benefit of repeat imaging in patients in whom clinical suspicion is high despite initially normal investigations.