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Brief Report

Acute myocardial infarction in a 15-year old secondary to myxomatous embolisation

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Abstract We present a 15-year-old white male who presented with an acute myocardial infarction secondary to embolisation of tissue from a left atrial myxoma. He successfully underwent resection of the myxoma, and embolectomy of the fragments of tumour lodged in the coronary artery.

Keywords: Adolescent chest pain; cardiac tumour

THE ADOLESCENT PATIENT PRESENTING WITH chest pain can represent a diagnostic challenge. We report a 15-year old presenting with chest pain who developed an acute myocardial infarction secondary to embolisation of tissue from a left atrial myxoma. This patient successfully underwent resection of the myxoma, and embolectomy of the fragments of tumour that had lodged in the circumflex coronary artery. This case represents an example of a rare aetiology of adolescent chest pain secondary to embolisation of a cardiac tumour.

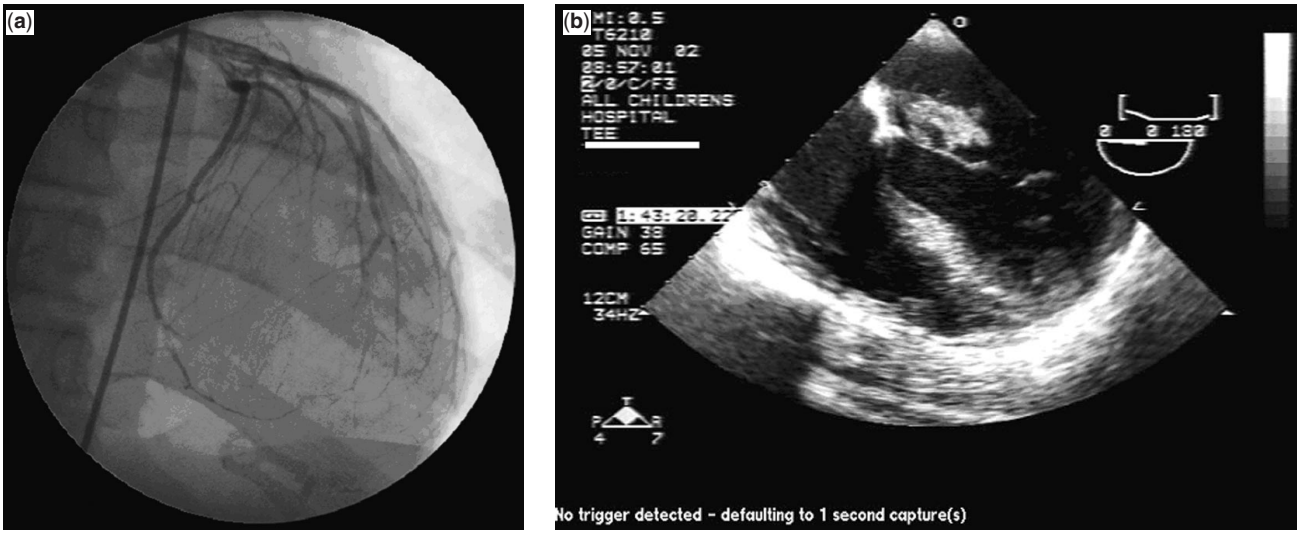

Figure 1.
*The embolus from the tumour (**a**) is seen as a filling defect in the distal part of the circumflex coronary artery. The trans-oesophageal echocardiogram (**b**) showed a left atrial mass arising from the atrial wall.*

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Case report

A previously healthy 15-year-old white male presented to his local hospital with acute anterior chest pain. The initial electrocardiogram showed elevations of the ST segments in the lateral leads. The level of Troponin I was elevated at 0.13 nanograms per millilitre. Of note, patient had noted peripheral petechias on his hand and feet approximately six weeks prior to admission.

The patient was transferred to another institution where cardiac catherization was available. A transthoracic echocardiogram revealed a left atrial mass and decreased septal function. No family members are known to have intra-cardiac masses. Cardiac catherization showed acute closure of the midportion of the circumflex coronary artery, so intra-coronary thrombolytic therapy was administered. An intra-aortic balloon pump was inserted, and patient transferred to All Children's Hospital for further care.

On admission, laboratory investigations revealed elevated levels of creatine phosphokinase, at 1633 units per litre, and Tropinin I at 307.6 nanograms per millilitre. A repeated trans-thoracic echocardiogram revealed a left atrial mass of 3 centimetres arising from near the atrial septum, no evidence of mitral regurgitation, and an ejection fraction of 60%, this having improved when compared to the previous transthoracic echocardiogram. The patient was treated for

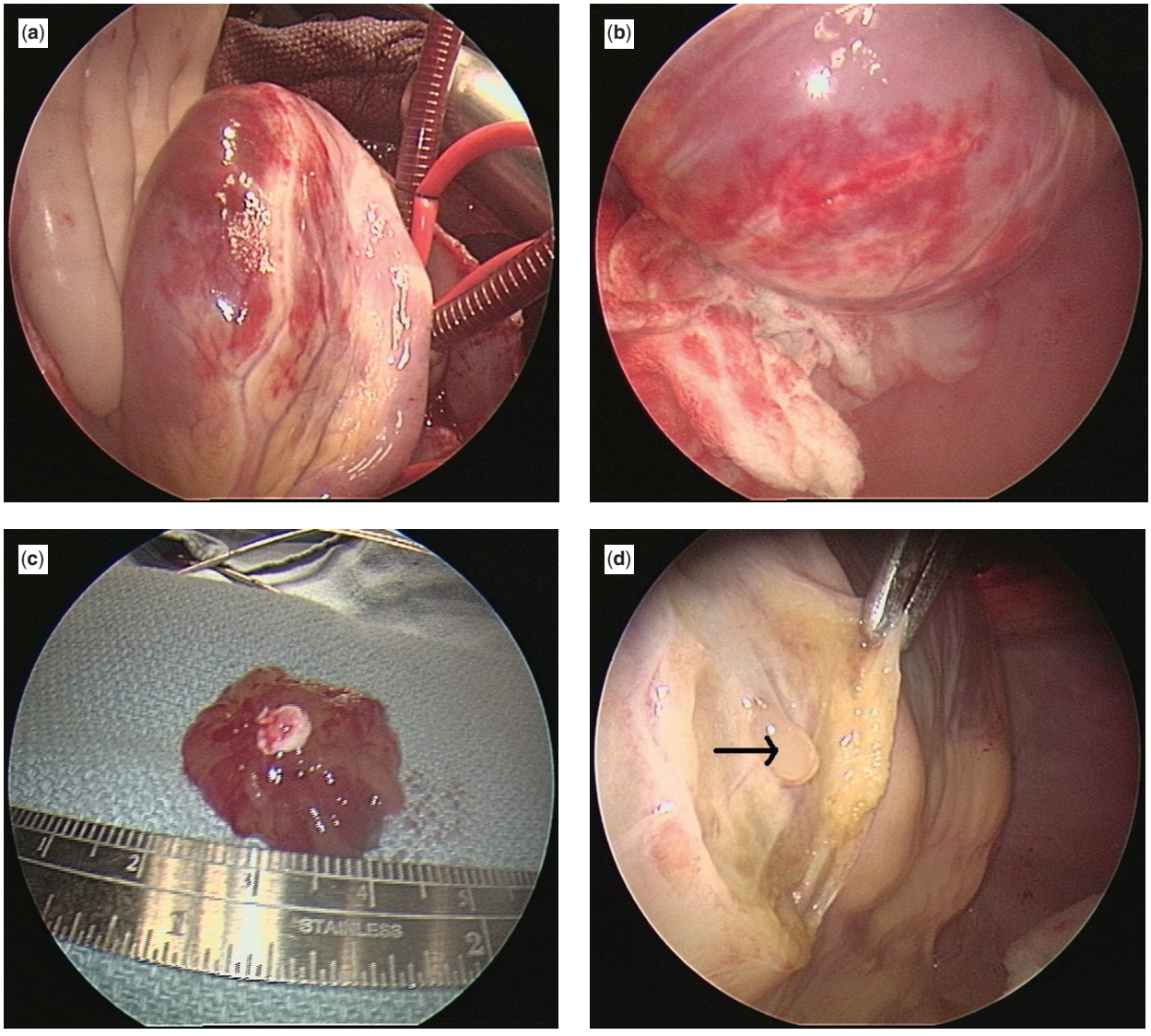

Figure 2.
*During the operation, external inspection of the heart (**a**) revealed an infarction involving the lateral wall of the left ventricle. The circumflex artery feeding the area of infarction (**b**) was noted to be occluded. The atrial tumour and its endocardial pedicle were resected (**c**) and the embolic fragment (**d**) was extracted from the circumflex coronary artery. The arrow denotes the embolic tumour within the coronary artery, extruding from the coronary arteriotomy.*

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the acute myocardial infarction with intravenous heparin and nitroglycerin, aspirin, and beta-blockade. The intra-aortic balloon pump was removed the next morning as his haemodynamic condition stabilised. Cardiac catherization repeated on the following day showed a residual filling defect in the distal part of the circumflex coronary artery, but overall flow was markedly improved (Fig. 1a).

The next day, the patient was taken to the operating theatre for excision of the atrial mass. An intraoperative transesophageal echocardiogram clearly showed the left atrial mass arising from the atrial wall, and not involving the mitral valve (Fig. 1b). External inspection of the heart revealed infarction of the lateral wall of the left ventricle (Fig. 2a). The occluded circumflex artery was visualized in the area of infarction (Fig. 2b).

The mass was uneventfully resected via a transseptal approach (Fig. 2c). It arose from the anterior left atrial wall, and did not involve either the atrial septum or the mitral valve. The endocardial defect and the septum were closed primarily. The embolus was successfully removed from the circumflex coronary artery by direct arteriotomy and the vessel closed primarily (Fig. 2d). The post-operative course was uneventful and patient was discharged on the 4th post-operative day. Histology confirmed both the primary mass and the embolus to be myxoma.

Discussion

In adults, cardiac myxomas are the most common primary tumours of the heart, while cardiac rhabdomyomas are the most common cardiac tumour seen in children.[1] Cardiac myxomas, which may be familial or sporadic,[2] are rare in children, and have not been described in infancy. They may cause haemodynamic compromise due to obstruction to flow, symptoms secondary to embolic phenomenons, or problems related to a plethora of constitutional complaints.

Systemic embolisation can occur in one-third to half of patients with left atrial myxoma.[3] Embolisation can occur to nearly every system of organs, but in about half the cases, it is the central nervous system that is involved.[4] Occlusion of coronary arteries is rare, but may present, as in our patient, with an acute myocardial infarction.[5,6] Tumours of the sporadic variety recur very infrequently, in less than 3% of cases, but up to three-quarters of familial tumours can recur.[7] Such recurrence may either reflect implantation from seeding of the tumour at the time of removal, incomplete removal, or growth from a multicentric new focus. Our patient is unusual in presenting as an adolescent with acute myocardial infarction, as well as having an embolus that we were able to extract from a distal coronary artery.

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