Reminder of important clinical lesson

Ventricular mass: a clinical and surgical conundrum

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Summary

Cardiac tumours are rare in occurrence. The authors report a patient who presented with a history of recurrent transient ischemic attacks and cerebrovascular accidents. During rehabilitation he was incidentally diagnosed with a large left ventricular mass which was excised successfully with good clinical outcome. On histopathology it was a papillary fibroelastoma.

BACKGROUND

This report highlights the propensity for cerebral embolisation with papillary fibroelastomas (PFEs). Patient can present with recurrent transient ischemic attacks (TIA) or catastrophic cerebrovascular accidents (CVA). A high index of suspicion is required for prompt diagnosis and management. We emphasise the need to excise the tumour en masse and not piecemeal to avoid recurrence.

CASE PRESENTATION

A 69-year-old man presented with recurrent TIA over last 3 years from which he made full recovery. There was no history of chest pain, palpitation or dyspnoea on exertion. During his rehabilitation and physiotherapy for CVA he

had transthoracic echocardiography (TTE) performed to assess left ventricular (LV) function. A large LV mass was picked up as an incidental finding (figure 1).

INVESTIGATIONS

TTE and transoesophageal echocardiography (TOE):

It showed a 2.7×1.5 cm heterogenous mass attached with a small stalk to anterior papillary muscle and to the chordal apparatus in the LV. The mass was mobile but not interfering with the mitral valve (MV) function which was structurally normal. The left atrium was non-dilated and only trivial mitral regurgitation was reported. Aortic valve was normal. The LV was normal and there was no regional wall motion abnormality.

Figure 1 2D echo showing the dimensions of the left ventricular mass.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis for cardiac masses includes primary cardiac tumors (eg, myxoma; fibroelastoma, rhabdomyosarcoma, lipomas, teratomas), metastatic tumors, ectopic thyroid tissue, inflammatory masses and thrombus.¹ Endomyocardial fibrosis can mimic a left or right ventricular tumor.² Mural thrombi can present as ventricular masses.³

TREATMENT

A complete surgical excision was performed under standard cardiopulmonary bypass with aortic and bicaval cannulation and cardioplegic arrest. The mass was excised only through a transatrial approach, thus avoiding a ventriculotomy.

The access was difficult because of the patient's body habitus and a relatively small left atrium and a DuBost incision was required. An alternative approach for improved access to the MV would have been a superior biatrial incision. The base of the LV mass occupied most of the head of the anterolateral papillary muscle and was attached to the chordal apparatus. Even after detaching the anterior mitral leaflet (AML) from the annulus the access was poor.

The rather friable mass was excised en masse by sharp dissection with a small margin of healthy papillary muscle around the base. This left very little of the anterolateral papillary muscle and MV repair was therefore not possible. The anterior leaflet was therefore resected preserving a single patch with good chords from A2/A3 region; and this was brought to the annulus. The posterior leaflet was preserved. The mass was completely excised and the MV was replaced with 31 mm St Jude medical (SJM) mechanical valve.

OUTCOME AND FOLLOW-UP

Uneventful complete recovery. Anticoagulated for mechanical valve.

Histopathology: PFE, the tumour was completely excised.

The patient is being followed up with us with no recurrence reported.

DISCUSSION

Primary cardiac tumours are rare in occurrence.⁴ Malignant metastatic tumors in heart are 20–40 times more common.^{4–5} However, metastatic tumours, are rarely solitary. Myxomas are the most prevalent primary cardiac tumours and arise from the atrial septum in 90% cases.⁵ Rarely, the cardiac tumours are located deep inside the LV and present a surgical challenge.⁵

PFE is a benign tumour that is supposed to arise from Lambl excrescence.⁴ Its pathogenesis is unclear but it is believed that shear stress and congenital factors play a role in its development.^{4–5} It usually occurs near the valves (more than 80% cases) and accounts for 8% of benign tumors of the heart.⁴ Only 1% of PFE arise from the LV papillary muscle as in our case.⁴

PFE typically present with CVA or TIA.⁴ Other less common presentations include myocardial infarction, chest pain, heart failure or sudden death.⁴ The gross appearance of a PFE is characteristically that of a sea anemone

in water.^{4–5} The typical histopathology of PFE has been described as fronds resembling chordae tendinae which was the appearance in our case.⁴

TTE and TOE facilitates accurate identification and localisation of ventricular tumours, planning the surgical approach and helps in assessing adequacy of excision.^{4–6}

Complete surgical excision of primary ventricular tumours is curative and recurrences are very rare.⁷ Chachques *et al* advocated complete tumor resection, valvular reconstruction or replacement and ventricular wall reconstruction.⁸ Centofanti *et al* advocated wide resection of primary cardiac tumours to allow definitive histologic diagnosis and to relieve mechanical obstruction.⁹ Wide surgical resection also results in prolonged survival.⁹ It is indicated even in asymptomatic patients because of the high likelihood of embolisation.⁸ We adopted a similar approach and accomplished wide resection with good clinical results. Talwalkar *et al* advocated detaching the AML of the MV to improve access and aid excision of ventricular tumours.⁶ It greatly enhances exposure of the subvalvular apparatus and allows dissection of the tumour from the chordal apparatus and papillary muscles using only a left atriotomy.⁶ Every effort should be made to avoid left ventriculotomy because of its potential complications.⁵ Recently video assisted transaortic or transmitral approach using midline sternotomy has been reported.^{4–5} However, we, recommend a complete en masse excision and removal rather than piecemeal removal reported by videoassisted approach to avoid recurrence.^{4–5–7}

Learning points

- Clinical presentations of ventricular tumours can be challenging even for an astute clinician.
- A high index of suspicion is required for prompt diagnosis and management. Patients presenting with recurrent TIA of unknown origin should have TTE to exclude LV mass.
- Complete en masse surgical excision is the treatment of choice for primary ventricular tumours.

Competing interests None.

Patient consent Obtained.

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