Unusual presentation of more common disease/injury

Fibroelastoma of the mitral valve as a cause of embolic cerebral infarction

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Summary

The authors report a case of cerebral infarction in a young woman with no obvious risk factors for stroke. The use of effective cardiac imaging enabled a diagnosis of mitral valve papillary fibroelastoma to be made and aided effective surgical management.

BACKGROUND

Cardiac papillary fibroelastomas (CPF) are non-neoplastic, primary lesions which account for approximately 10% of all cardiac tumours.¹ Historically, CPFs were generally incidental findings discovered during postmortem examinations; their true incidence is therefore unknown.² More recently however, widespread implementation and

advancements in cardiac imaging have facilitated more effective diagnosis of such tumours antemortem.

Although most often asymptomatic, CPFs can cause embolisation to the systemic, cerebral or coronary arterial circulations causing severe morbidity. Among the most commonly reported clinical presentations are transient ischaemic attack, stroke, myocardial infarction, syncope,

Figure 1 Transthoracic 2D echo image of mitral valve showing mass on P2 segment.

Figure 2 3D reconstruction of transoesophageal echocardiograph showing mitral valve leaflets with sessile mass.

Figure 3 Histological preparation (H&E stain, $\times 200$ magnification) of specimen.

pulmonary embolism, blindness, heart failure and sudden death.³ Efficient diagnosis and surgical resection of CPFs has proven successful in reducing further cardiovascular or cerebrovascular events.

CASE PRESENTATION

A 36-year-old woman with no significant medical history presented to the emergency department with an abrupt word-finding difficulty and mild right hemiparesis. On

admission, her heart rate was 68 beats/min and she was in sinus rhythm. Her blood pressure was 116/66 mm Hg. Heart sounds were normal, there were no audible murmurs. Urgent CT of her brain confirmed infarction of the left internal capsule.

INVESTIGATIONS

Transthoracic echocardiography (TTE) demonstrated a mobile structure on the mitral valve (figure 1), which could have been consistent with infective endocarditis, fibroelastoma or Libman–Sacks endocarditis. All other investigations including blood tests, chest x-ray and Doppler ultrasound scans of the carotid and vertebral arteries were normal. Transoesophageal echocardiography (TOE) revealed a 1 cm sessile mass on the P2 segment of the atrial aspect of the mitral valve (figure 2). No clear stalk was identified.

TREATMENT

Complete surgical excision of the lesion was carried out successfully. The patient developed a pericardial effusion postoperatively, but made a full recovery following left thoracotomy and drainage. Histological examination of the lesion revealed hypocellular stroma covered in a single layer of epithelial cells, consistent with papillary fibroelastoma (figure 3).

OUTCOME AND FOLLOW-UP

The patient is now 5 years postsurgery and remains well with no recurrent events.

DISCUSSION

This case report details a case of embolic stroke in a young woman with a non-contributory medical history and normal cardiovascular status. It illustrates the important role of TTE in making the initial diagnosis of CPF, despite a lesser sensitivity for detection of such tumours when compared to TOE; 61.9% versus 76.6%.⁴ This case confirms the superiority of TOE over TTE in providing a more detailed and accurate anatomical representation of the location and haemodynamic involvement of the tumour which is consistent with findings from similar reports.³ In addition,

TOE is useful intraoperatively: to guide surgery and verify complete tumour excision; and postoperatively to assess the competency of the affected valve. The histopathological report following surgical excision ultimately confirms the diagnosis of CPF.^{2–5} The characteristic appearances of benign CPF on ultrasound and histology have been well documented previously throughout the literature.

This report describes a case of cerebral embolisation from a rare cardiac source. CPF is increasingly recognised as a cause of stroke and should be considered in the differential diagnosis of stroke in a patient where an alternative aetiology has not been established. This case exemplifies the usefulness of detailed cardiac imaging, especially TOE, in the diagnosis and management of CPF.

Learning points

- ▶ Benign cardiac tumours should be considered in the differential diagnosis of the aetiology of stroke in young people with few risk factors.
- ▶ TOE is the investigation of choice for diagnosing cardiac tumours.
- ▶ Efficient diagnosis and management of cardiac tumours can reduce morbidity and mortality from embolic stroke.

Competing interests None.

Patient consent Obtained.

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