

## Case report

QJM

# An incidental finding or an unusual cause for a transient ischaemic attack?

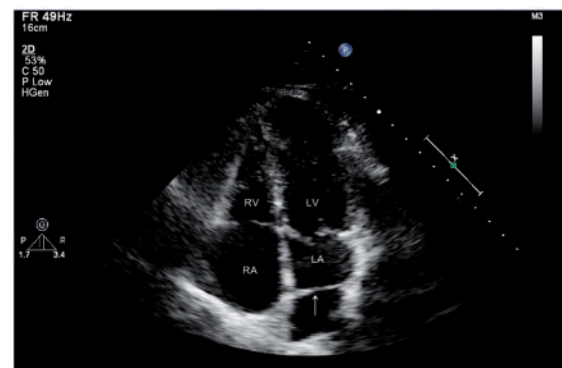
N.A. McKEAG, J.C. MURPHY and L.J. DIXON

From The Heart Centre, Royal Victoria Hospital, Belfast, UK

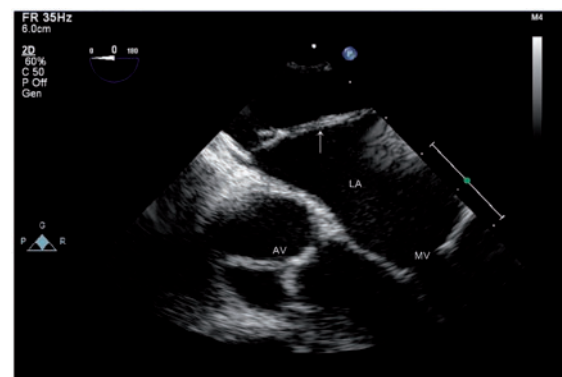
Address correspondence to: N.A. McKeag, The Heart Centre, Royal Victoria Hospital, Grosvenor Road, Belfast, BT12 6BA, UK. email: nickmckeag@googlemail.com

A 69-year-old female, with no previous history of cerebrovascular disease, presented with acute onset expressive and receptive dysphasia. Neurological examination revealed dysgraphia in addition to dysphasia with no other neurological deficit. The remainder of the clinical examination was unremarkable. Laboratory investigations revealed a normal full blood picture and normal renal function. Electrocardiogram and chest X-ray were within normal limits. An emergency computed tomography scan of brain did not demonstrate any acute intracerebral pathology. Symptoms and signs resolved entirely within 4 h and did not recur, providing the clinical diagnosis of a transient ischaemic attack (TIA).

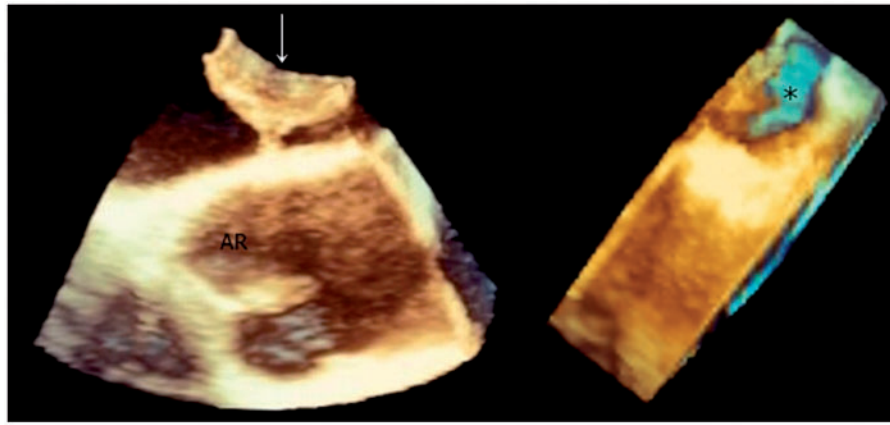
The patient was a non-smoker with no history of diabetes, dyslipidaemia, hypertension or atrial arrhythmia. She did however have documented coronary artery disease, with previous percutaneous coronary intervention for symptoms of chronic stable angina. Carotid ultrasound imaging revealed a 35% stenosis in the right internal carotid artery; no abnormalities were observed in the left carotid system. Transthoracic echocardiography (TTE) demonstrated a thin, mobile, echo-dense structure within the left atrium (Figure 1), suspicious of cor triatriatum (CT). The heart was otherwise structurally normal. Transoesophageal echocardiography (TOE) confirmed the diagnosis (Figure 2), and the newer imaging modality of three-dimensional (3D) TOE clearly outlined a large, non-obstructive fenestrated membrane (Figure 3). No associated thrombus or spontaneous echo contrast was visualized.



**Figure 1.** Transthoracic echocardiogram image demonstrating an echo-dense structure within the left atrium (arrow) compatible with a cor triatriatum membrane. (LA, left atrium; RA, right atrium; LV, left ventricle; RV, right ventricle).



**Figure 2.** Transoesophageal echocardiogram image confirming the presence of a membrane within the left atrium (arrow). (LA, left atrium; MV, mitral valve; AV, aortic valve).



**Figure 3.** 3D transoesophageal echocardiogram images clearly demonstrating a membrane within the left atrium (arrow) adjacent to the aortic root (AR) and a large fenestration within the membrane (asterix).

CT is a rare congenital anomaly where the left atrium is divided by a fibro-muscular membrane into two chambers: a postero-superior chamber receiving the pulmonary veins and an antero-inferior chamber (true left atrium) communicating with the mitral orifice. It is estimated to account for 0.1–0.4% of all congenital cardiac abnormalities.<sup>1</sup> The natural history is dependent on the size of the orifice in the membrane. It is usually diagnosed in childhood with features mimicking mitral stenosis. Rarely, as in this case, it may be observed in adults free from symptoms, as a consequence of multiple or large fenestrations in the membrane.<sup>2</sup> Newer clinical imaging methods such as 3D TOE allow accurate diagnosis and delineation of this membrane.

CT has been described in association with stroke and TIA in a very small number of case reports in the past.<sup>3</sup> However, in most of these and in contrast to the present case, the anomaly was associated with atrial arrhythmias and visualization of left atrial thrombus or spontaneous contrast on echocardiography.

Despite the history of atherosclerotic disease, we believe that CT must be considered as an additional causative factor for cerebrovascular disease in this case. The patient was therefore commenced on warfarin anticoagulation therapy in addition to standard secondary prevention strategies.

This case highlights the utility of new cardiac imaging modalities such as 3D TOE in the diagnosis of rare congenital heart defects. It also demonstrates a potential benefit of echocardiography in the

assessment of patients following a TIA. Recent American guidelines suggest that echocardiography is reasonable in the investigation of patients following a TIA, particularly when no other cause has been identified.<sup>4</sup> Research in this area is limited, large studies are needed to determine the clinical and cost effectiveness of cardiac imaging in cerebrovascular disease.

*Conflict of interest:* None declared.

## References

1. Niwayama G. Cor triatriatum. *Am Heart J* 1960; **59**:291–317.
2. Chen Q, Guhathakurta S, Vadalapali G, Nalladaru Z, Easthope RN, Sharma AK. Cor triatriatum in adults: three new cases and a brief review. *Tex Heart Inst J* 1999; **26**:206–10.
3. Park KJ, Park IK, Sir JJ, Kim HT, Park YI, Tsung PC, Chung JM, Park KI, Cho WH, Choi SK. Adult cor triatriatum presenting as cardioembolic stroke. *Intern Med* 2009; **48**:1149–52.
4. Easton JD, Saver JL, Albers GW, Albers MJ, Chaturvedi S, Feldmann E, et al. Definition and evaluation of transient ischemic attack: a scientific statement for healthcare professionals from the American Heart Association/American Stroke Association Stroke Council; Council on Cardiovascular Surgery and Anesthesia; Council on Cardiovascular Radiology and Intervention; Council on Cardiovascular Nursing; and the Interdisciplinary Council on Peripheral Vascular Disease. The American Academy of Neurology affirms the value of this statement as an educational tool for neurologists. *Stroke* 2009; **40**:2276–93.