A rare case of recurrent paradoxical embolisation

Authors: Amr Kandil,[A] Raj Shekhar,[B] Pancras Felix[B] and Rajah Nata[B]

Introduction

The reported incidence of paradoxical embolisms is relatively low, forming less than 2% of systemic arterial embolisation with patent foramen ovale (PFO) as the identified cause in more than 90% of the cases. We present an interesting case with recurrent paradoxical embolisation, despite taking anticoagulation medication.

Case presentation

A 55-year-old woman who had a background history of treated breast cancer with no other significant medical history presented to our hospital with shortness of breath and pleuritic chest pain. She was suspected to have pulmonary embolism (PE) which was proven by computed tomography pulmonary angiography (CTPA) to be massive bilateral PE. The patient was then given thrombolysis being haemodynamically unstable with a rapid satisfactory response. She was discharged on lifelong anticoagulation medication given that the PE was unprovoked.

During the following few weeks, the patient had increasing dysphasia. She had magnetic resonance imaging (MRI) of the brain that showed no vascular abnormality and showed a hyperintense focal area in the peripheral aspect of the left parieto-temporal lobe, suggesting haemorrhagic stroke with a neurologist impression of ischaemic stroke with secondary haemorrhage (Fig 1 Top).

Transthoracic then transoesophageal echocardiography (TOE) was performed and confirmed a PFO with minimal right to left flow on Valsalva and with no visible defect on TOE. A diagnosis of paradoxical embolisation was made and a decision not to close the PFO was made, given that the patient would be on lifelong anticoagulation.

Our patient was stable for about 1 year when she represented with a middle cerebral artery stroke in evolution, as evidenced by a CT of the brain, and she also had symptoms suggestive of PE. This was confirmed with a CTPA, despite the patient being properly anticoagulated with warfarin with an international normalised ratio of 2.5 on admission. The patient had rapid complete recovery and a second paradoxical embolisation was confirmed, despite being well anticoagulated.

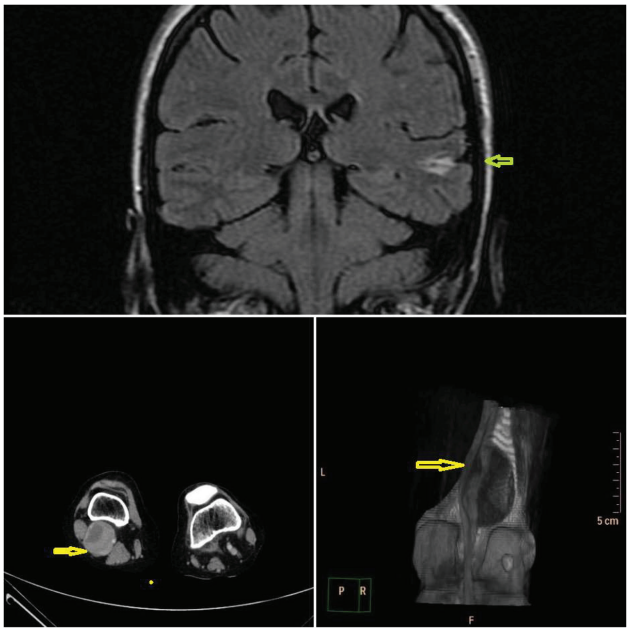

Fig 1. Top: parieto-temporal haemorrhagic stroke. Bottom: yellow arrows indicate right popliteal vein aneurysm with thrombus.

A CT of her abdomen and pelvis as well as a CT venography of both lower limbs were done and a right popliteal vein aneurysm (14×30×54 mm) filled with a thrombus was accidentally discovered (Fig 1 bottom).

Ligation of the popliteal vein aneurysm (PVA), which is the most likely substrate, was carried out by the vascular surgeon. PFO closure was also undertaken given a second paradoxical embolic stroke. The patient was stable on further follow-up for the past few years.

Discussion

PVAs are rare, with the actual incidence not known as they are usually small and asymptomatic. Cases with paradoxical embolisation secondary to PVAs are very rarely reported and to our knowledge, a recurrent paradoxical embolisation secondary to PVA was not reported before.

In our case, the exact time-related pathology between each attack of PE and the corresponding cerebrovascular accident is not clear. The patient had worsening dysphasia over

Authors: [A]Norfolk and Norwich University Hospital, Norwich, UK; [B]Queen Elizabeth Hospital, King's Lynn, UK

1–2 weeks after thrombolysis for PE and while on warfarin. The discovered PFO has no resting right to left flow and we assumed that the increased right-side pressure secondary to PE might have caused an increase in the right to left shunting, facilitating the passage of thrombi to the left atrium.

In our case there was a delay in discovering the potential substrate as there were no investigations done to diagnose the cause of the first PE. We aim to increase awareness about one of the rarest causes of paradoxical embolisation. ■

Conflicts of interest

None declared.