Images in...

Extradural, retro-orbital, arteriovenous malformation as the cause of a long-term history of syncope

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DESCRIPTION

In May 2012, a 73-year-old man presented to us with a long-term history of syncope occurring during daily activities, characterised by a rapid onset and spontaneous recovery. He had a history of hypertension and previous coronary stent placement. Technetium-99m sestamibi cardiac scintigraphy and neurological and vestibular assessments were all negative. A head-up tilt test (HTT) and cerebral MRI were then performed. During the HTT, his HR, blood pressure (BP) and cardiac output (CO, l/min) were measured using a Finometer (Finapres, The Netherlands).¹ When the patient was tilted to 60° for 20 min without giving any medication, his CO decreased (3.2 vs 4.8 l/min), but his HR (59 vs 62 bpm) and BP (122/74 vs 116/63 mm Hg) did not. After sublingual administration of nitroglycerin 0.3 mg, the tilting was interrupted because of nausea, blurred vision and dizziness with a minimal further CO reduction and decrease in BP to 62/43 mm Hg. A brain MRI revealed the presence of a left retro-orbital, extradural, high-flow arterio-venous malformation (AVM).²

In AVMs, the arteries connect directly to veins without a capillary bed in between. This creates a high-pressure

shunt. AVMs thus 'steal' blood from the surrounding brain normal tissue (figure 1). This condition of cerebral hypo-perfusion may abruptly worsen and cause syncope in the presence of severe hypotension, which may occur after a HTT or when recovering from some exercise activities. In this patient, AVM treatment options, such as microsurgery, endovascular therapy and radiosurgery,³ should be considered.

Learning points

- ▶ Extradural retro-orbital arterio-venous malformation is a rare congenital developmental vascular lesion.
- ▶ This anomaly may cause haemorrhagic stroke, epilepsy, chronic headache or focal neurological deficits.
- ▶ The substantial differences between surgical, endovascular, radiosurgical and multimodality treatments are impacted by age and haemorrhage status.

Figure 1 Cerebral MRI. Left retro-orbital, high-flow arterio-venous malformation. (A) Coronal, T2-weighted images show a signal void (blue arrows in A and B) in a vein located in the middle cranial fossa adjacent to the left fronto-temporal lobe. (B) Three-dimensional time of flight-MR angiography images show a central nidus (red asterisk) located posterior to the left orbit that determines a shunt between a small feeding artery originating from the left carotid artery at the level of the cavernous sinus tract (red arrows in B) and the superficial venous drainage.

Competing interests None.

Patient consent Obtained.

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Please cite this article as follows (you will need to access the article online to obtain the date of publication).

Carboni GP, Quattrocchi CC. Extradural, retro-orbital, arteriovenous malformation as the cause of a long-term history of syncope. *BMJ Case Reports* 2012;10.1136/bcr-2012-007451, Published XXX

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