Images in Clinical Medicine: Snake in the Brain

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Dear Sir,

A 45-year-old male presented to our emergency room with headache. Computed tomography and magnetic resonance imaging of the brain (source images from the magnetic resonance angiogram, MRA) and a maximum intensity projection MRA showed a left occipital lobe giant arteriovenous malformation (AVM; figs. 1–3).

Discussion

Our patient has a vascular lesion of the brain which looks like an AVM though the images do not clearly demonstrate the nidus of the AVM. The 'snake' is actually the large draining vein and not the AVM nidus. Giant AVMs are difficult to treat and often carry higher treatment morbidity and mortality rates than do smaller ones. Patients

with AVMs present with varying symptoms including focal deficit secondary to hemorrhage, seizures, headaches and rarely progressive neurological deficits. Treatment options include surgery, embolization (endovascular techniques), radiosurgery and a combination of the above approaches. Surgical treatment of AVMs is favored in patients in a good medical con-

Fig. 1–3. Source MRA images and CT scan showing 'snake in the brain'.

Table 1. Spetzler-Martin grading system

Feature	Points
Size	
Small (<3 cm)	1
Medium (3–6 cm)	2
Large (>6 cm)	3
Eloquence of adjacent brain	
Noneloquent	0
Eloquent	1
Pattern of venous drainage	
Superficial	0
Deep	1

Total grades 1–5; grade 6 denotes a truly unresectable untreatable AVM, e.g. holo-hemispheric or involving a substantial amount of brainstem.

dition with a good life expectancy who harbor small to medium-sized AVMs in anatomically accessible locations within the brain. Additional indications include vascular steal or flow-related symptoms, AVMs with a high risk of hemorrhage (such as those associated with aneurysms or venous outflow obstruction) and AVMs that have failed complete treatment with other modalities. The aneurysm can either be directly clipped or aneurysmorrhaphy with vessel reconstruction can be done. Other surgical techniques include proximal occlusion and exclusion of the aneurysm from the circulation using clips above and below the lesion. A trend toward conservative management of high-grade

AVMs (Spetzler-Martin grades IV and V) has been increasing (table 1). Most patients received multimodality treatment with embolization followed by surgery, embolization followed by radiosurgery or embolization, radiosurgery, and surgery. Multimodality treatment is usually necessary to achieve complete AVM obliteration [1]. In our case, it was decided to monitor the patient without treatment.

Reference

1 Chang SD, Marcellus ML, Marks MP, Levy RP, Do HM, Steinberg GK: Multimodality treatment of giant intracranial arteriovenous malformations. *Neurosurgery* 2003;53:1–11, discussion 11–13.