Dural Arteriovenous Fistula (DAVF)

A 42-year-old man presented with progressive myelopathy, abnormal gait, lower extremity weakness, and urinary incontinence. An MRI of the thoracic spine (not shown) demonstrated diffuse cord T2 hyperintensity and prominent enhancing perimedullary veins, suggesting a vascular malformation with cord hypertension. A cervical spine MRI showed an enlarged vessel along the medulla and upper cervical cord (A). Digital subtraction angiography demonstrated a posterior fossa DAVF fed by branches of the left occipital artery (B) and an enlarged ascending pharyngeal artery (C) with perimedullary spinal venous drainage (Cognard type V DAVF). Transarterial embolization utilizing coils and alcohol resulted in successful occlusion of the DAVF (not shown).

A DAVF refers to abnormal communication between arteries and veins within the dura. Intracranial DAVF, which are most often idiopathic, represent 10% to 15% of all intracranial arteriovenous shunt lesions in adults. Less frequent causes of DAVF include previous craniotomy, trauma, and dural sinus thrombosis. DAVF commonly occur along the transverse sinus with the most aggressive lesions presenting with intracranial hemorrhage. DAVFs are classified as benign (Cognard type I and IIa in which there is antegrade or retrograde sinus drainage, respectively, without cortical venous reflux), or “malignant” in the setting of cortical venous reflux (Cognard IIb, III, and IV), or spinal venous drainage (Cognard V).

Cognard type V is rare and considered aggressive because of the spinal symptoms related to cord hypertension caused by arteriovenous shunting. Endovascular treatment with transarterial embolization, transvenous embolization, or a combination of both is the mainstay for therapy with favorable results.

REFERENCES