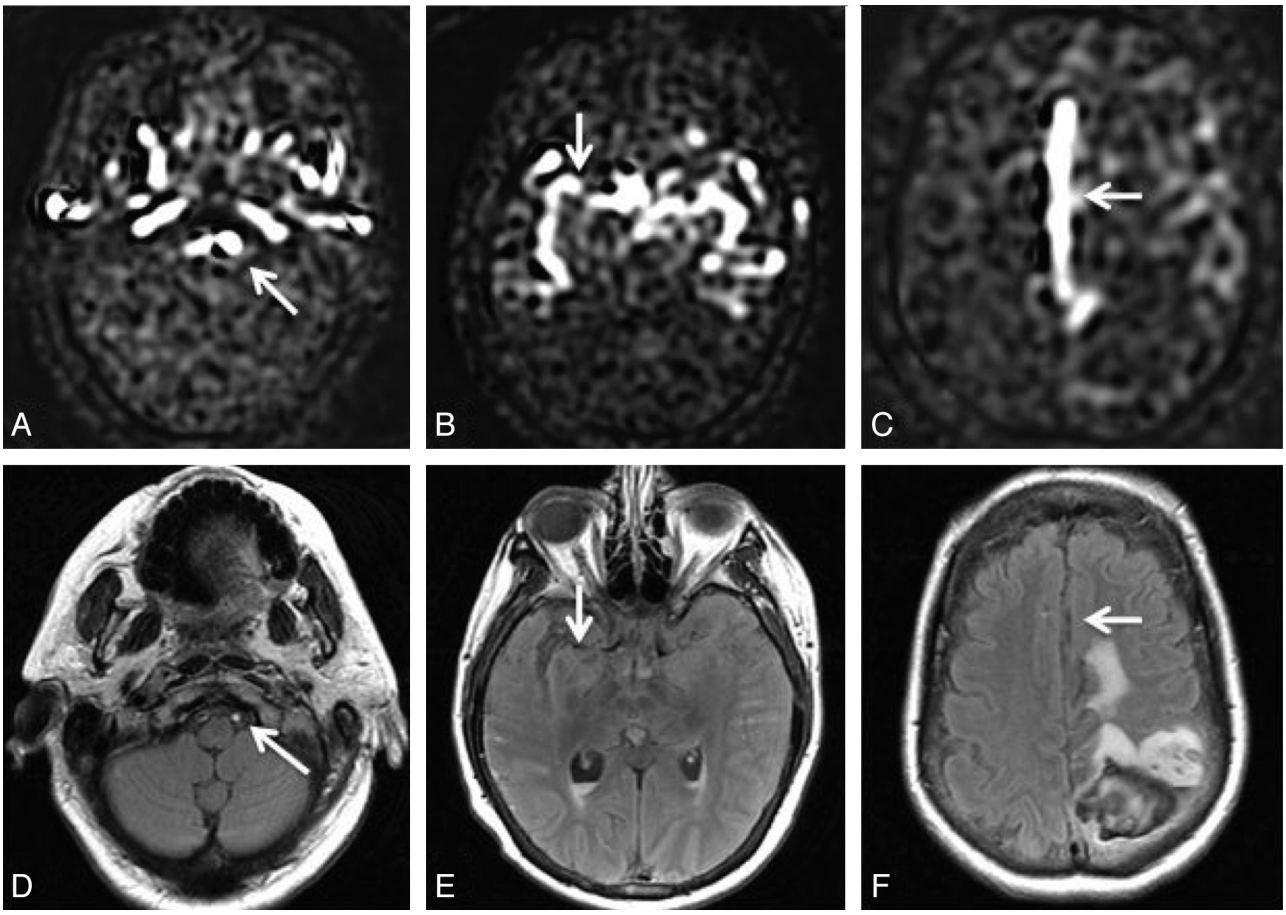
On-line Table: Demographic data of 15 patients with DAVFs and small AVMs

Patient No./ Sex/Age (yr)	Symptoms and Signs	Location of DAVF or Small AVM	MR Imaging Findings	ASL Cortical Venous/ Dural Sinus Venous Drainage	DSA Findings		Final Diagnosis
					Arterial Supply	Venous Drainage	
1/M/11	L retro-orbital pain, proptosis	R posterior fossa	L CCF	R sigmoid-transverse sinus	Meningohypophyseal trunk	R sigmoid transverse sinus	DAVF, CCF
2/M/76	Worsening headache, vomiting	L cerebellum	L cerebellar hemorrhage	L transverse sinus	Muscular branches of the L occipital artery	L transverse sinus	AVM
3/F/69	Right-sided HA, weakness, slurred speech	R parietal	R parietal hematoma	R cortical vein and superior sagittal sinus	R pericallosal artery	Superficial venous drainage to SSS	AVM
4/F/22	HA, episodes of R hand and foot numbness	R frontal lobe	Moyamoya disease with bypasses	R frontal cortical veins, superior sagittal sinus	R callosal marginal artery	Cortical venous drainage to SSS	AVM in Moyamoya
5/M/25	Sudden HA while lifting weight, confusion, loss of consciousness	R frontal	R frontal hematoma	R thalamostriate vein	R distal MCA and ACA branches	Deep venous drainage to R thalamostriate vein to internal cerebral vein	AVM
6/F/60	Acute onset HA, neck stiffness, L blurry vision	R occipital	Abnormal vessels R occipital lobe	R parieto-occipital vein, R transverse, sigmoid, internal jugular vein	R PCA occipital branches	Into the sigmoid transverse junction, superficial drainage via the vein of Labbé	AVM
7/M/38	Postcoital severe headache, neck pain	L perimesencephalic	Perimesencephalic SAH	L perimedullary vein	Muscular branches of L vertebral artery	Perimedullary veins	DAVF
8/M/69	Worsening right-sided HA, pulsatile tinnitus	R occipital	R occipital hematoma, enlarged R MMA, serpiginous vessel R transverse sinus	R middle cranial fossa veins, veins of Trolard and Labbé, transverse-sigmoid sinus	R meningohypophyseal R middle meningeal, R occipital arteries	Sigmoid sinus to internal jugular vein; also cortical vein drainage	DAVF
9/F/54	Sharp stabbing HA, bilateral upper extremity weakness	R posterior fossa	Hemosiderin staining superior cerebellar vermis	R tentorial vein	R SCA	Tentorial veins to R transverse sinus	DAVF
10/M/69	Recurrent seizure	Bilateral frontoparietal/ superior sagittal dural sinus	Prominent multiple vessels R>L frontoparietal, IVH	L fronto-parietal cortical vein, posterior SSS	Bilateral STA branches, R occipital artery and L ICA pial branches	Cortical veins, SSS (occluded)	DAVF
11/M/54	Severe HA, vomiting, R leg weakness	L temporoparietal	L temporoparietal hemorrhage	L vein of Labbé, transverse, sigmoid sinus	L middle meningeal and L occipital artery branches	L transverse/sigmoid sinus	DAVF
12/M/64	Seizure, confusion	L temporal	Subacute hemorrhage and prominent vessels L posterior fossa	L transverse, sigmoid sinuses	L middle meningeal and L occipital arteries branches	L transverse sinus	DAVF
13/M/19	L cerebellar AVM found incidentally on head CT for head injury, status post endovascular embolization and surgical resection	L cerebellar AVM	Posttreatment changes in L cerebellum	Vein of Galen and L cerebellar vein	Residual L cerebellar AVM with arterial feeders from L SCA and L PICA	Venous drainage into L mesencephalic, basal, and tentorial veins	Residual AVM
14/F/20	Intracranial hemorrhage and hydrocephalus	Quadrigeminal plate AVM; status post multistage endovascular embolization	Postembolization changes at the quadrigeminal plate	Vein of Galen	Residual AVM with arterial feeders from bilateral P1 segments (R>L)	Vein of Galen and posterior superior sagittal sinus; straight sinus is occluded	Residual AVM
15/F/62	Acute R cerebellar hemorrhage	R cerebellar DAVF; status postsurgical resection	Postsurgical changes R cerebellum	L vein of Labbé, R transverse sinus, venous confluence and straight sinus	Follow-up postop angiogram shows residual DAVF with arterial feeders from right SCA, bilateral occipital arteries (L>R)	Venous confluence and bilateral transverse sinuses	Residual DAVF

Note:—HA indicates headache; MMA, middle meningeal artery; R, right; L, left; postop, postoperative; ACA, anterior cerebral artery; SSS, superior sagittal sinus; PCA, posterior cerebral artery; SCA, superior cerebellar artery; STA, superficial temporal artery; CCF, carotid cavernous fistula; IVH, intraventricular hemorrhage.



Online Fig 1. One potential source of error is incorrect attribution of focal vascular ASL signal to veins rather than arteries. This patient had no vascular malformation and the ASL pattern (*A–C*) shown above is consistent with a severe borderzone sign. Arrows in the FLAIR images (*D–F*) confirm the arterial nature of the ASL signal. In such patients, it is not possible to visualize the brain parenchymal or venous ASL signal (if present), due to the extremely slow flow on the arterial side, without modifying the ASL sequence.