DURAL ARTERIOVENOUS FISTULAS: DATA FROM AN OBSERVATIONAL STUDY

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Background and aim of the study

Dural arteriovenous fistulas (DAVFs) are intracranial vascular malformations. Their low presentation rate [1] justifies the limited availability of data about clinical features of these lesions. Aim of the study is to show a 10-year single institution experience with diagnosed and/or treated DAVFs, analyzing their clinical presentation and angiographic features, as well as their long-term outcome.

Materials and Methods

Looking for patients discharged from our Hospital in a 10-year period with the diagnosis of a "cerebral-vascular system abnormality", we found 964 cases: 922 was excluded because they were vascular malformations of other subtype than DAVFs. Finally, we analyzed 42 intracranial DAVFs. For each one, we collected data about demographic characteristics, anamnesis and risk factors, clinical presentation, location and other neuroimaging features, as well as treatment and outcome.

Results

We found 42 DAVFs in 40 patients aged between 25-89 years at the time of the diagnosis. Twenty-one (52.5%) patients were women. Dividing all 42 DAVFs according to the angiographic features [2], we found 14 (33.3%) Carotid-Cavernous Fistulas (CCFs), 6 (14.3%) anterior cranial fossa (ethmoidal) DAVFs, 1 (2.4%) superior petrosal sinus DAVF, 18 (42.9%) transverse sigmoid junction DAVFs and 3 (7.1%) tentorial DAVFs. The most common complained symptom was headache (45.2%). Besides, a cerebellar/hearing/vestibular dysfunction was present in 28.6% of cases, especially in other DAVFs different from CCFs, although without a statistically significant difference between the two subgroups (Table 1 and Figure 1).

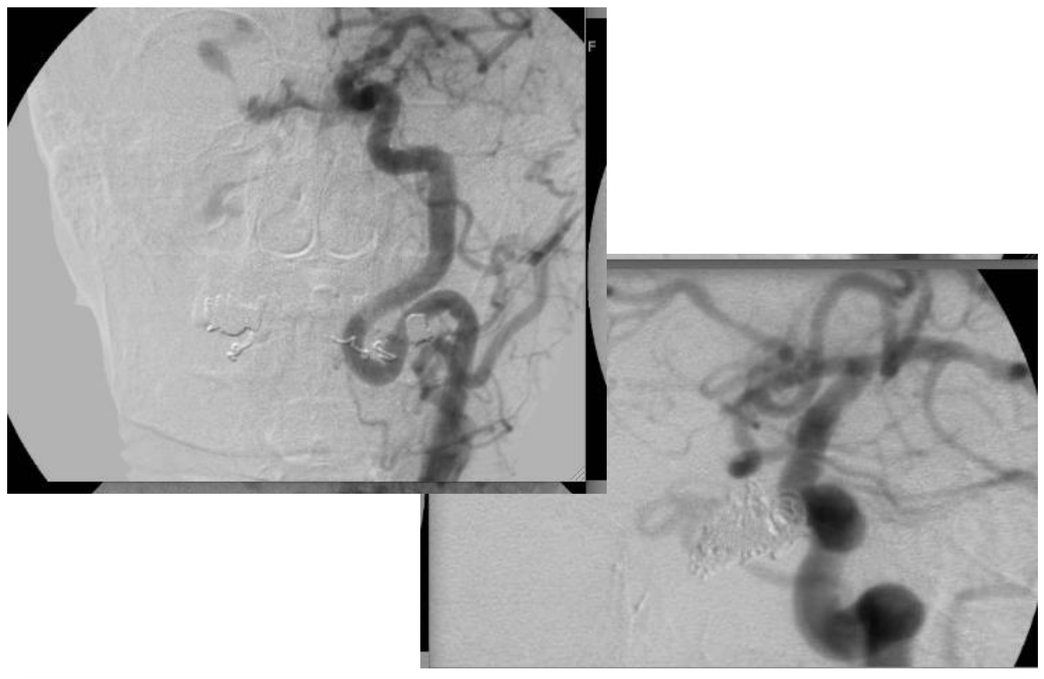
Discussion and Conclusions

Headache is a common onset symptom of DAVF, usually described as localized to the same site of the lesion, becoming generalized as a result of the dural stretching [2]. Nevertheless, none of the previous studies on DAVFs have classified headaches according to the IHS classification criteria [3]. In our series of DAVFs, 45.2% of patients complained headache as a presentation symptoms: 12/19 (63.2%) of patients had migraine-like headache, looking like a typical characteristic of other DAVFs different from CCFs (p=0.036); 7/19 (36.8%) patients complained not migraine-like headache, characteristics typical of CCFs (p=0.003).These findings suggest a link between the neuroradiological site of the lesion and the clinical features of the headache, symptom that led to hospitalization. Our study confirmed the majority of literature data about DAVFs, but it also provided significant insight about presentation symptoms, in particular regarding the characteristics of headache, which are suggestive of further dedicated studies.

Table 1. Presentation symptoms of DAVFs in relation to the type of DAVFs.

Clinical presentation	All N (%)	CCFs N (%)	Other DAVFs N (%)	*p value*
N	42	14 (33.3)	28 (66.7)	
Ocular complaints	16 (38.1)	13 (92.9)	3 (10.7)	<0.001
Diplopia	12 (28.6)	11 (78.6)	1 (3.6)	<0.001
Ptosis	2 (4.8)	2 (14.3)	0 (0.0)	*n.s.*
Exophtalmos	5 (11.9)	5 (35.7)	0 (0.0)	0.002
Hyperemia / conjunctival chemosis	9 (21.4)	9 (64.3)	0 (0.0)	<0.001
Campimetric deficit	3 (7.1)	1 (7.1)	2 (7.1)	*n.s.*
Headache	19 (45.2)	7 (50.0)	12 (42.9)	*n.s.*
Not Migraine-like headache	7 (16.7)	6 (42.9)	1 (3.6)	0.003
Migraine-like headache	12 (28.6)	1 (7.1)	11 (39.3)	0.036
Cerebellar/hearing/vestibular dysfunction	12 (28.6)	2 (14.3)	10 (35.7)	*n.s.*
Nausea / vomiting	1 (2.4)	0 (0.0)	1 (3.6)	*n.s.*
Postural instability	2 (4.8)	0 (0.0)	2 (7.1)	*n.s.*
Tinnitus / hearing loss	7 (16.7)	1 (7.1)	6 (21.4)	*n.s.*
Laterocervical / retroauricolar pain	3 (7.1)	1 (7.1)	2 (7.1)	*n.s.*
Generalized seizure	2 (4.8)	1 (7.1)	1 (3.6)	*n.s.*
Aphasia	1 (2.4)	0 (0.0)	1 (3.6)	*n.s.*
Limbs weakness	1 (2.4)	0 (0.0)	1 (3.6)	*n.s.*
Emisoma / limbs paresthesia / hypoesthesia	1 (2.4)	1 (7.1)	2 (7.1)	*n.s.*
Syncope	1 (2.4)	0 (0.0)	1 (3.6)	*n.s.*
Asymptomatic	5 (11.9)	0 (0.0)	5 (17.9)	*n.s.*

Figure 1. CCFs type D according to Barrow's classification pre and post trans-arterial endovascular treatment.



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