

# Sacral dural arteriovenous fistula

Sacral [dural arteriovenous fistulas](#) (DAVFs) are rare vascular abnormalities of the spine characterized by slowly progressive symptoms that can mimic different myelopathy disorders.

Gioppo et al. retrospectively reviewed the clinical records of patients admitted from 1 January 2006 to 31 December 2016 with a diagnosis of sacral DAVFs, treated by endovascular embolization or surgical clipping. Clinical presentation, imaging characteristics, treatment results, and follow-up were analyzed.

They identified 13 patients with sacral DAVFs supplied by lateral sacral arteries. Clinical presentation was characterised by different degrees of motor weakness and sphincter disturbances. In all patients, spinal MRI showed spinal cord hyperintensities with enhancement and prominent perimedullary vessels. Selective internal iliac angiography was mandatory to identify the exact location of the fistula. A complete embolization was achieved in eight patients performing a single endovascular embolization and in three patients performing a single surgical disconnection: two patients required combined procedures. Follow-up imaging showed a complete resolution of the spinal cord hyperintensities in 81% of patients and a reduction of the intramedullary enhancement in 91%. Gait improvement was observed in 73% of patients while remaining stable in 27%. Sphincter disturbances improved in 36% of patients and remained stable in 64%.

Awareness of the sacral location of DAVFs is critical because standard spinal angiography will not identify sacral supplies unless internal iliac arteries are properly examined. In our experience, the endovascular treatment show results comparable to surgery when the fistula point is correctly disconnected <sup>1)</sup>.

## Case reports

A 56-year-old man presented with a 2-month history of progressive weakness and numbness in his lower extremities, along with urinary incontinence. Spinal magnetic resonance imaging (MRI) showed extensive edema of the spinal cord, vascular flow voids, and intraparenchymal enhancement. Spinal angiography revealed a spinal DAVF at the level of S1 supplied by bilateral LSAs and drained ascending into the perimedullary venous plexus. The fistula was successfully treated with endovascular embolization. Sacral DAVFs present various diagnostic and treatment difficulties because of the complex angioarchitecture. Successful management of these lesions requires a profound understanding of the variable patterns of arterial supply in this region <sup>2)</sup>

<sup>1)</sup>

Gioppo A, Faragò G, Giannitto C, Caputi L, Saladino A, Acerbi F, Ciceri E. Sacral dural arteriovenous fistulas: a diagnostic and therapeutic challenge - single-center experience of 13 cases and review of the literature. *J Neurointerv Surg*. 2018 Apr;10(4):415-421. doi: 10.1136/neurintsurg-2017-013307. Epub 2017 Oct 12. Review. PubMed PMID: 29025963.

<sup>2)</sup>

Xu C, Lu X, Niu X, Li J. Sacral dural arteriovenous fistula supplied by bilateral lateral sacral arteries: case report and literature review. *Br J Neurosurg*. 2021 May 13:1-4. doi: 10.1080/02688697.2021.1916434. Epub ahead of print. PMID: 33983105.

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Last update: **2024/06/07 02:48**

