

# Transverse sinus stenting for idiopathic intracranial hypertension

Since 2005, [transverse sinus stenting](#) for [idiopathic intracranial hypertension](#) has grown in popularity, suggesting that [Dural venous sinus](#) stenosis should be viewed as a causative factor rather than a secondary phenomenon.

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There remains considerable uncertainty over the safety and efficacy of this procedure, in particular the incidence of intraprocedural and delayed complications and in the longevity of sinus patency, pressure gradient obliteration, and therapeutic clinical outcome.

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Although long term studies are needed in this field, the current reports indicate a favorable outcome for preventing vision loss and symptom control <sup>1</sup>.

Venous stenting costs significantly less per 100 procedures than does CSF shunting, due largely to the high cost of treating shunt infections and the need for repeated shunt revisions <sup>2</sup>.

In conjunction with temporary CSF diversion, represents a viable treatment option in the acute and appropriate setting <sup>3</sup>.

In patients with documented evidence of venous sinus stenosis with a pressure gradient, venous sinus stenting should be the primary treatment of choice; however, some patients may be refractory to stenting and still require permanent CSF diversion, which can be complicated in these chronically anticoagulated patients. Patients with persistent papilledema post-stenting and highly elevated opening pressure pre-stenting should be followed closely as they are at greatest risk of requiring a shunt and failing stenting <sup>4</sup>.

Dural venous sinus stenting for patients with IIH does not affect the immediate or long-term patency of the Vein of Labbe and is not associated with intracranial complications <sup>5</sup>.

## Case series

### 2017

The aim of a study was to determine clinical, radiological, and manometric outcomes at 3-4 months after DVSS in this treated IIH cohort.

Clinical, radiographic, and manometric data before and 3-4 months after DVSS were reviewed in this single-center case series. All venographic and manometric procedures were performed under local anesthesia with the patient supine.

Forty-one patients underwent DVSS venography/manometry within 120 days. Sinus pressure reduction of between 11 and 15 mm Hg was achieved 3-4 months after DVSS compared with pre-stent baseline, regardless of whether the procedure was primary or secondary (after shunt surgery). Radiographic obliteration of anatomical stenosis correlating with reduction in pressure gradients was observed. The complication rate after DVSS was 4.9% and stent survival was 87.8% at 120 days. At least 20% of patients developed restenosis following DVSS and only 63.3% demonstrated an

improvement or resolution of papilledema.

Reduced venous sinus pressures were observed at 120 days after the procedure. DVSS showed lower complication rates than shunts, but the clinical outcome data were less convincing. To definitively compare the outcomes between DVSS and shunts in IIH, a randomized prospective study is needed <sup>6)</sup>.

1)

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2)

Ahmed RM, Zmudzki F, Parker GD, Owler BK, Halmagyi GM. Transverse sinus stenting for pseudotumor cerebri: a cost comparison with CSF shunting. AJNR Am J Neuroradiol. 2014 May;35(5):952-8. doi: 10.3174/ajnr.A3806. Epub 2013 Nov 28. PubMed PMID: 24287092.

3)

Elder BD, Rory Goodwin C, Kosztowski TA, Radvany MG, Gailloud P, Moghekar A, Subramanian PS, Miller NR, Rigamonti D. Venous sinus stenting is a valuable treatment for fulminant idiopathic intracranial hypertension. J Clin Neurosci. 2015 Apr;22(4):685-9. doi: 10.1016/j.jocn.2014.10.012. Epub 2015 Jan 8. PubMed PMID: 25579238.

4)

Goodwin CR, Elder BD, Ward A, Orkoulas-Razis D, Kosztowski TA, Hoffberger J, Moghekar A, Radvany M, Rigamonti D. Risk factors for failed transverse sinus stenting in pseudotumor cerebri patients. Clin Neurol Neurosurg. 2014 Dec;127:75-8. doi: 10.1016/j.clineuro.2014.09.015. Epub 2014 Oct 6. PubMed PMID: 25459247.

5)

Levitt MR, Albuquerque FC, Ducruet AF, Kalani MY, Mulholland CB, McDougall CG. Venous sinus stenting for idiopathic intracranial hypertension is not associated with cortical venous occlusion. J Neurointerv Surg. 2015 Apr 8. pii: neurintsurg-2015-011692. doi: 10.1136/neurintsurg-2015-011692. [Epub ahead of print] PubMed PMID: 25854688.

6)

Asif H, Craven CL, Siddiqui AH, Shah SN, Matloob SA, Thorne L, Robertson F, Watkins LD, Toma AK. Idiopathic intracranial hypertension: 120-day clinical, radiological, and manometric outcomes after stent insertion into the dural venous sinus. J Neurosurg. 2017 Oct 6:1-9. doi: 10.3171/2017.4.JNS162871. [Epub ahead of print] PubMed PMID: 28984521.

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