

Venous Sinus Stenosis Diagnosis

Venous sinus stenosis (VSS) is a narrowing of the major **dural venous sinuses**, typically the transverse and/or **sigmoid sinuses**, often associated with idiopathic intracranial hypertension (IIH). Diagnosis is based on clinical features and confirmatory imaging and pressure studies.

1. Clinical Suspicion

- Headache (daily, pressure-like)
- Pulsatile tinnitus
- Visual disturbances (transient obscurations, diplopia, papilledema)
- Elevated intracranial pressure (ICP) signs

2. Neuroimaging

MRI + MR Venography (MRV)

- First-line, non-invasive
- Findings:
 - Transverse/sigmoid sinus narrowing
 - Collateral venous channels
 - Optic nerve sheath distension
 - Posterior globe flattening

CT Venography (CTV)

- High-resolution anatomical detail
- Useful at bone-venous interfaces (e.g., transverse-sigmoid junction)

Digital Subtraction Angiography (DSA) + Manometry

- Gold standard
- Allows dynamic assessment of:
 - Sinus anatomy
 - **Trans-stenotic pressure gradient**
 - A gradient ≥ 4 mmHg = hemodynamically significant stenosis

3. Key Diagnostic Criterion

- **Functional stenosis** requires:
 - Anatomical narrowing on imaging **AND**
 - Elevated trans-stenotic gradient on manometry

4. Differential Diagnosis

- Arachnoid granulations (benign filling defects)
- Sinus hypoplasia (anatomic variant)
- Cerebral venous thrombosis
- Secondary sinus collapse due to raised ICP

5. Summary Table

Modality	Findings	Role
MRI/MRV	Sinus narrowing, optic sheath distension	First-line screening
CT Venography	Confirms anatomy, good bone detail	Complementary study
DSA + Manometry	Direct visualization, pressure gradient measurement	Definitive diagnosis

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