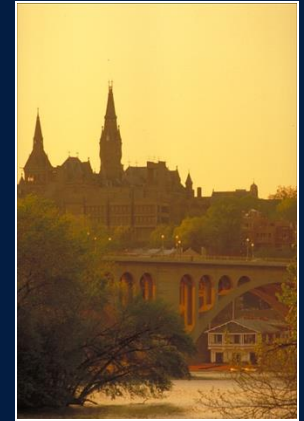


Surgical Treatment of CSF Venous Fistulas



Vinay Deshmukh, MD, FACS
Associate Professor, MGUH
Co-Director, Spinal CSF Leak Center, MGUH
Co-Director, MedStar Health Spine
Governance Council

GEORGETOWN
UNIVERSITY


MedStar Health

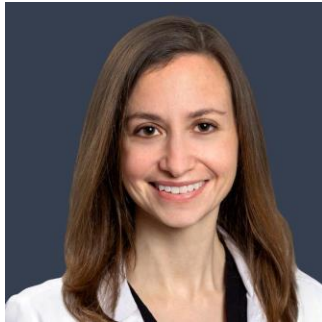
CSF Venous Fistulas

Disclosures: none

CSF Venous Fistulas- Objectives

- Illustrative Cases
- MGUH Experience
- MGUH Protocol

MGUH Spinal CSF Leak Center



SIH: Diagnosis

History

- Positional or exertional nuchal headache
- Inner ear symptoms
- Great masquerader

Physical Exam

- Intact
- Cognitive Deficits
- CN findings
- Sensory or Motor Deficits
- Coma

SIH: Diagnosis

Brain MRI w/wo contrast

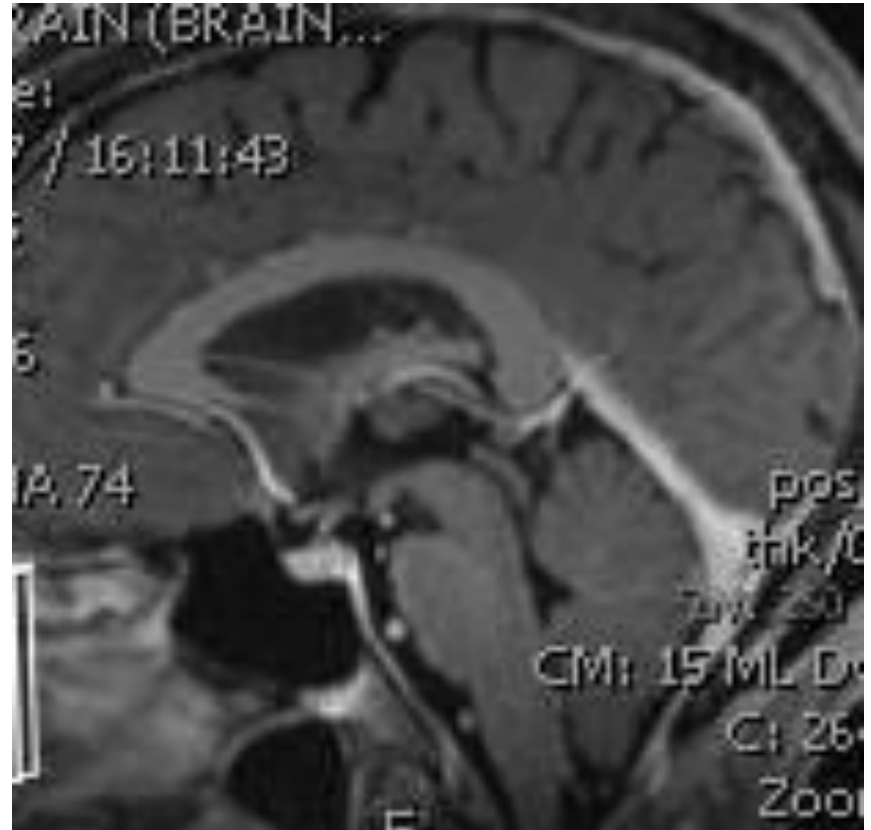
“Brain sag”

Spine MRI

T2 Space SLECs

Myelography

Dynamic/LD



SIH: Natural History

Acute Phase: Upright intolerance

Subacute Phase: Subdural Hematoma, Strokes, Cord Compression

Chronic Phase: PseudoALS, Paralysis, Cognitive Decline, Siderosis

Spinal CSF Leaks: Treatments

Non-targeted blood patch

Targeted fibrin glue patch

Transvenous embolization

Surgical Intervention

Spinal CSF Leaks: Classification

Type 1: Longitudinal dural tear (27%)

Type 2: Meningeal diverticula (42%)

Type 3: Direct CSF-venous fistula (2.5%)

Indeterminate (28.5%)

-Schievink, W.I., et al., *A classification system of spontaneous spinal CSF leaks*. *Neurology*, 2016. **87**(7): p. 673-9

-Beck, J., et al., *Diagnostic challenges and therapeutic possibilities in spontaneous intracranial hypotension*. *Clinical and Translational Neuroscience*, 2018. **2**(2)

Type 3: CSF Venous Fistulas

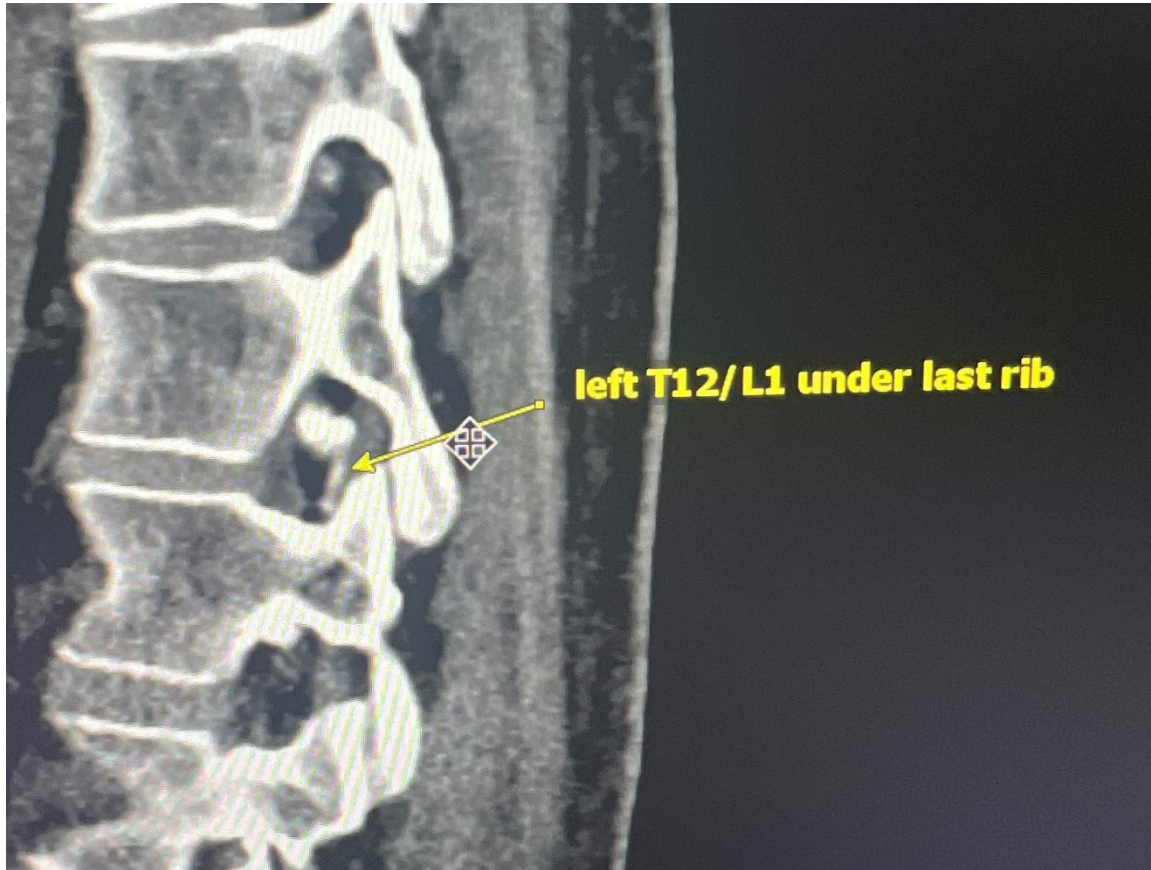
Neurology 2014 Jul 29;83(5):472-3.

doi: 10.1212/WNL.0000000000000639. Epub 2014 Jun 20.

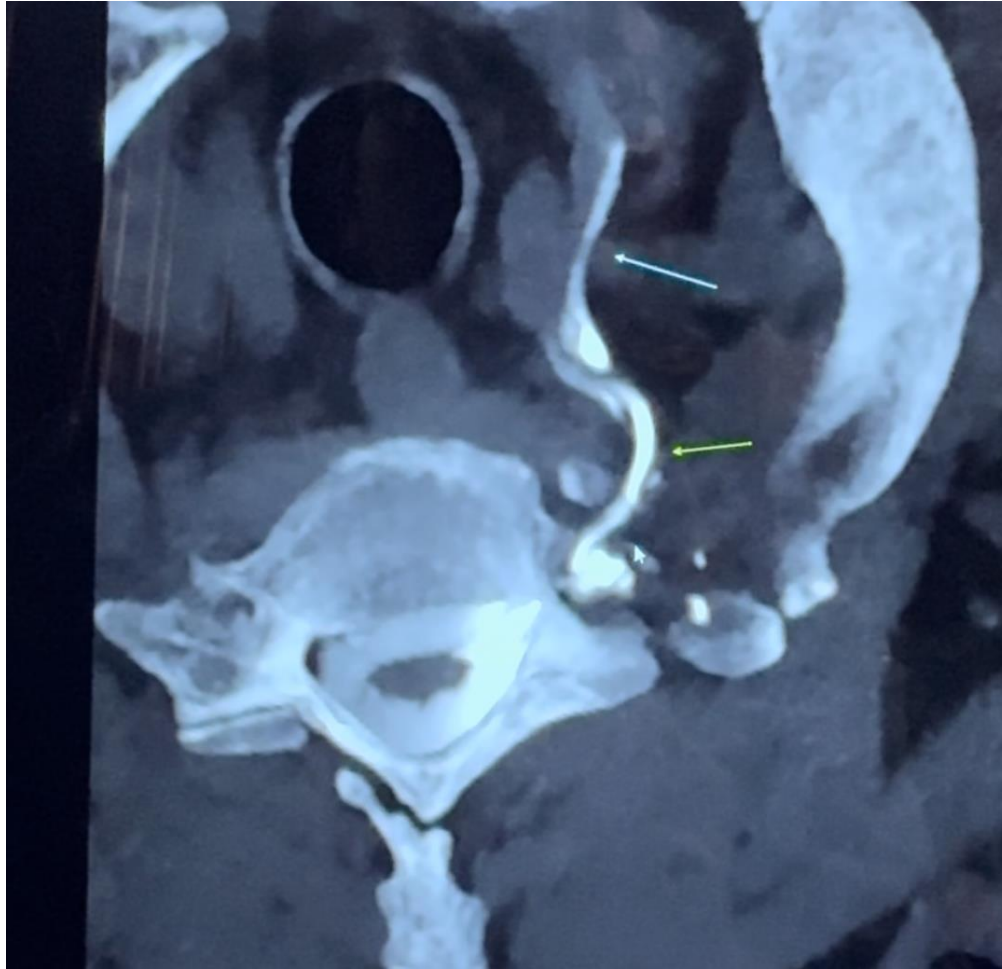
CSF-venous fistula in spontaneous intracranial hypotension

[Wouter I Schievink¹](#), [Franklin G Moser²](#), [M Marcel Maya²](#)

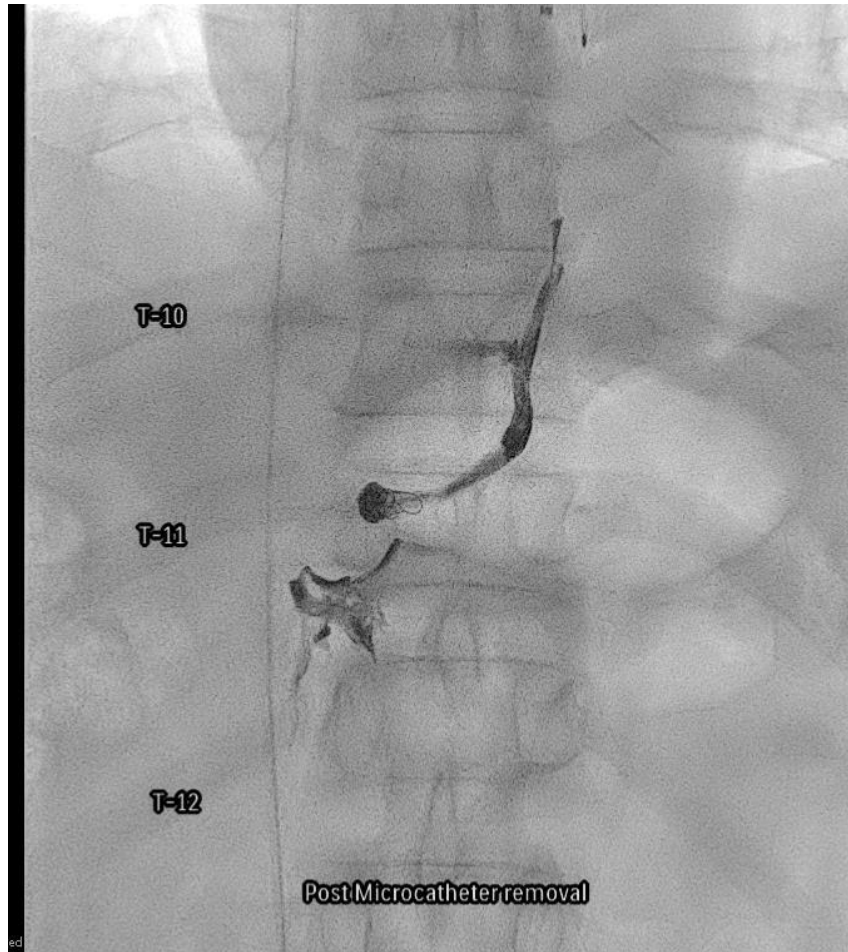
Type 3: CSF Venous Fistulas



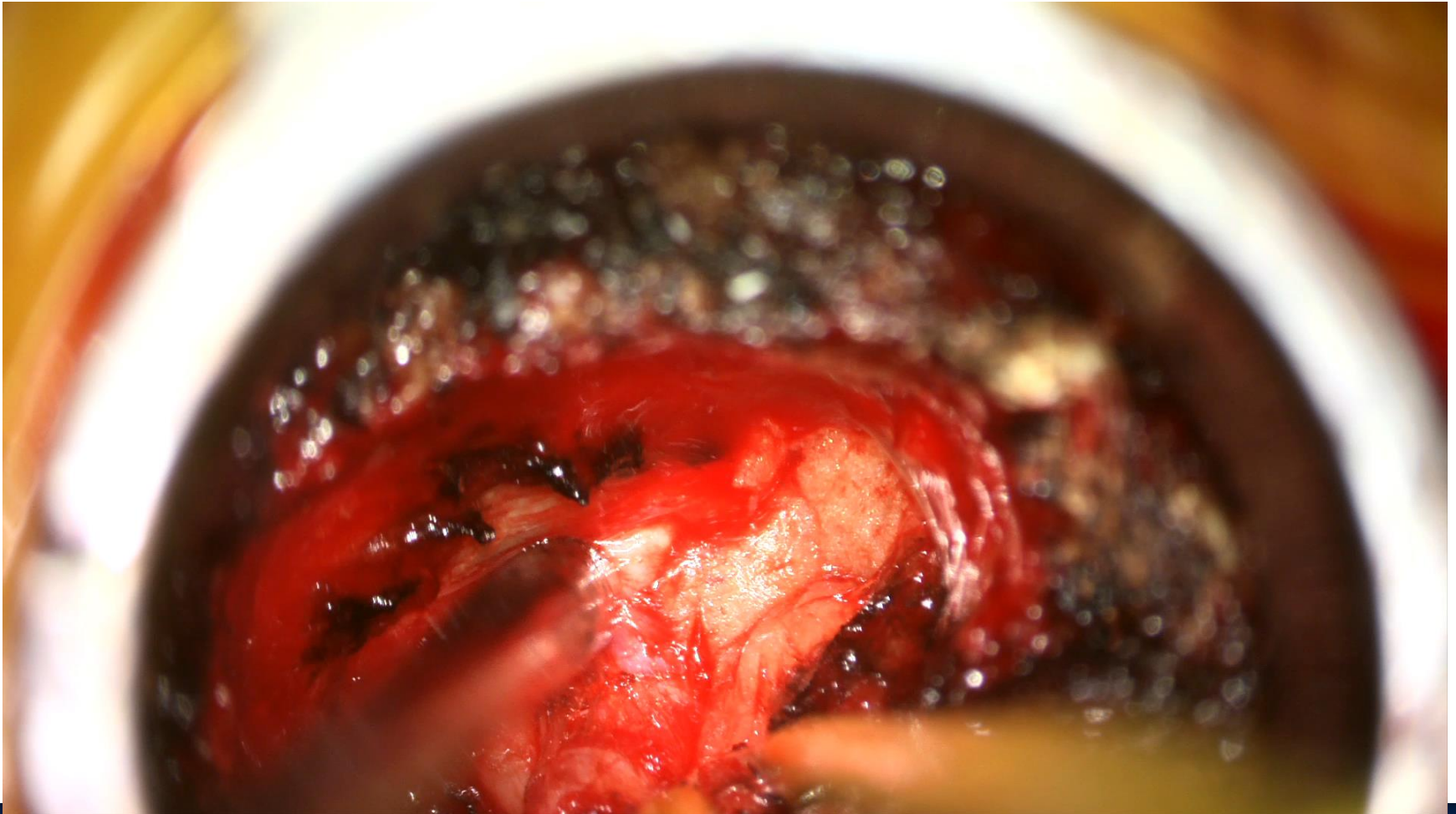
Type 3: CSF Venous Fistulas



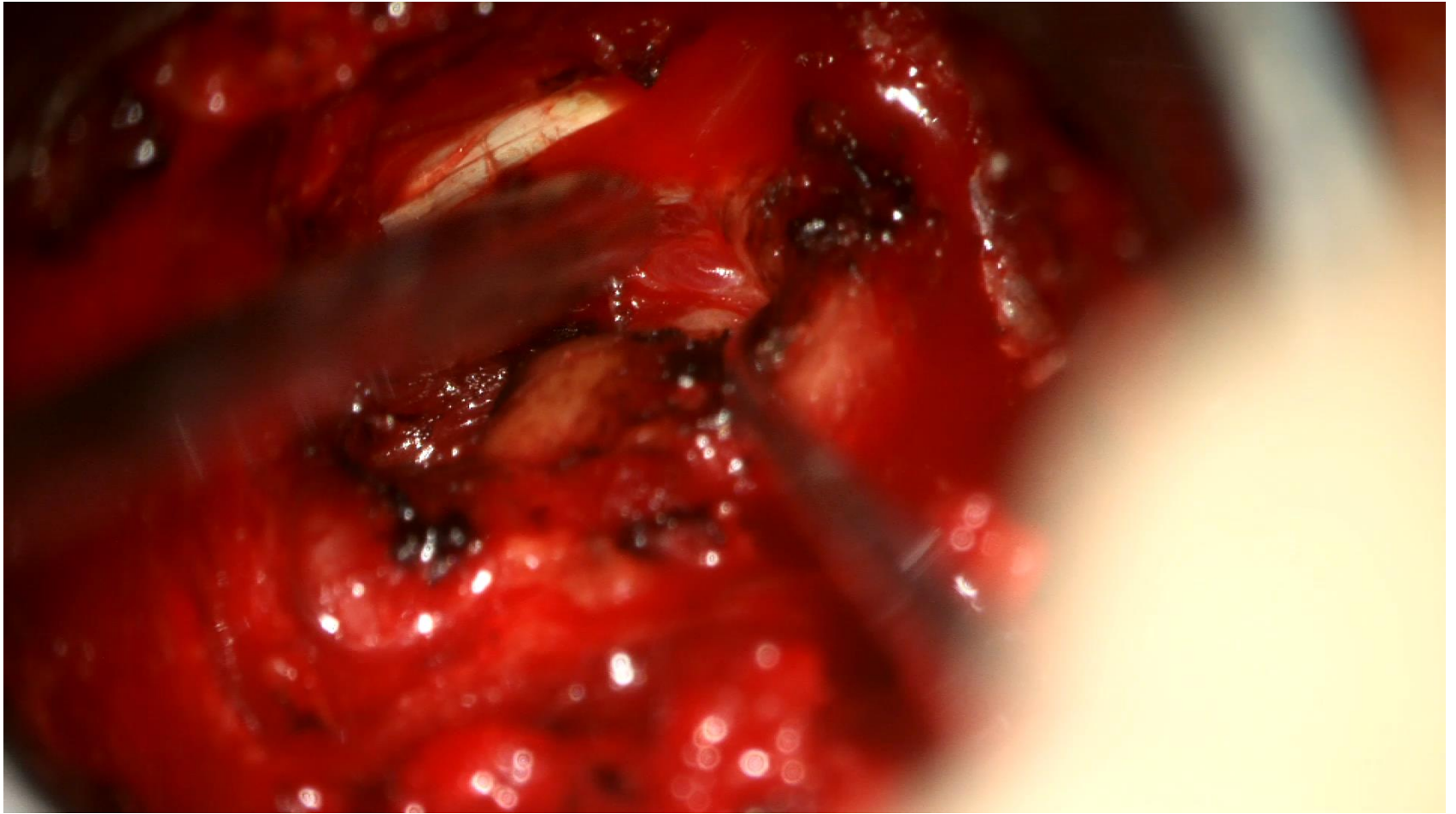
Type 3: CSF Venous Fistulas



Type 3: Single Channel Fistula



Type 3: Multichannel Fistula



Type 3: Pathogenesis

Etiology

Underlying jugular venous stenosis

Role of the diverticulum

Arachnoid granulations

[Jugular venous narrowing and spontaneous spinal cerebrospinal fluid leaks: A case-control study exploring association and proposed mechanism.](#)

Manupipatpong S, Primiani CT, Fargen KM, Amans MR, Leithe L, Schievink WI, Luciano MG, Hui FK. *Interv Neuroradiol.* 2024 Oct 3:15910199241287417. doi:



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Thank You!!



vinay.deshmukh@medstar.org

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