

The Chaperone Technique for Atraumatic Dural Venous Sinus Stent Placement

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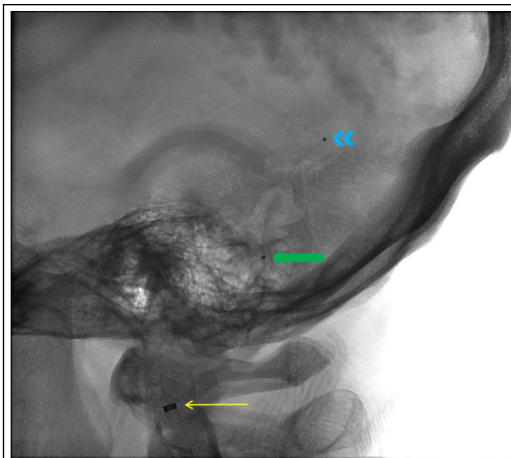
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Introduction

Idiopathic intracranial hypertension (IIH) is a condition with characteristic signs and symptoms caused by increased intracranial pressure. Patients with IIH may have venous hypertension and dural venous sinus stenosis. Venous sinus stent placement has been used as an alternative to cerebrospinal fluid shunting in the treatment of IIH. Endovascular access via the transvenous approach requires navigation of a stiff stent delivery system to the transverse-sigmoid sinus junction and can be difficult due to vascular tortuosity.



Venous phase of right carotid injection showing dominant left transverse and sigmoid sinus and hypoplastic right transverse sinus.



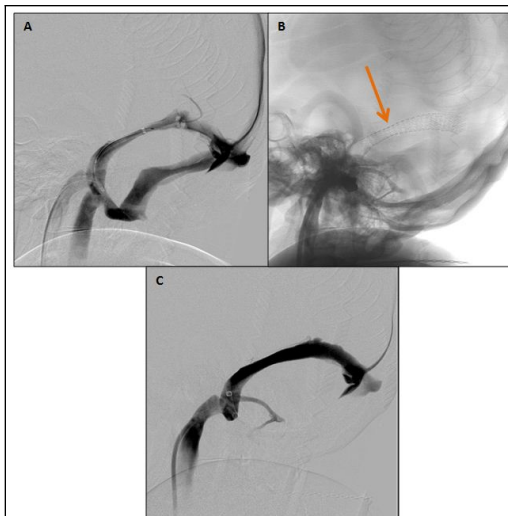
Lateral skull x-ray exhibiting telescoping method used to navigate past jugular bulb. Yellow arrow indicates the shuttle sheath. Wide green arrow indicates intermediate catheter. Blue arrowheads indicate distal access catheter. The microwire has been removed in this picture.

Methods

A standard method for accessing the venous sinus system was developed and used in each patient included in this series. We identified 6 patients with the primary diagnosis of IIH who underwent venous sinus stenting from January 2012 to September 2014. Medical records and imaging were then retrospectively reviewed.

Results

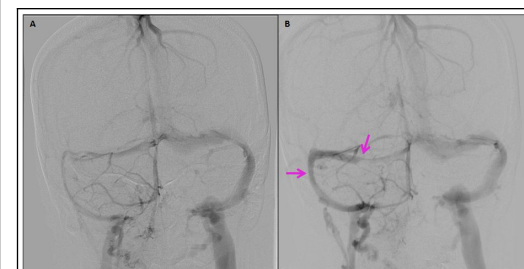
Technical success was obtained in all patients and there were no major periprocedural complications. We obtained internal jugular venous access with a 6 French sheath. Next, we navigated a 0.070" or 0.072" intermediate catheter over a 0.044" Distal Access Catheter over a 0.035" wire (Roadrunner, Cook Medical). This telescoping system allowed navigation past the jugular bulb. The stent (Precise, Cordis) was deployed through the intermediate catheter. All patients had resolution of the venous pressure gradient after stent placement.



A. Lateral venogram with reduced caliber of the proximal two thirds of the right transverse sinus; B. Lateral skull x-ray showing stent (arrow) placed in transverse and sigmoid sinuses; C. Poststent lateral venogram showing patent stent and increased caliber of sinus

Conclusions

Venous sinus stenting is an effective treatment method for idiopathic intracranial hypertension. We have developed a technique that is safe, fast, and effective for positioning a large stent delivery system into the dural venous sinuses.



AP vertebral injections: A. In the venous phase, left transverse sinus patent with severe stenosis of the right transverse and sigmoid sinus. B. Poststent image showing the right sigmoid and transverse sinus are widely patent. (Arrows indicate stent location.)

Learning Objectives

By the conclusion of this session, participants should be able to : 1) Identify that venous sinus stenting is a treatment option for idiopathic intracranial hypertension, 2) Understand our technique for stent placement and how to apply it in practice