

3D rotational venography for venous sinus stent placement in idiopathic intracranial hypertension

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Introduction

Dural venous sinus stenting has emerged as an effective and durable treatment for idiopathic intracranial hypertension (IIH). However, the venous sinuses, particularly the lateral sinuses, present a challenge for traditional imaging modalities such as compute tomography (CT) and magnetic resonance imaging due to variations in anatomy and severity of the stenosis.

Methods

We present 2 cases of IIH treated with venous sinus stenting utilizing transvenous, retrograde three-dimensional rotational venography (3DRV). This technique allows for the precise measurement of the stenotic segment, as well as 3D-overlay of fluoroscopy for intraoperative guidance, without arterial puncture. Contrast-enhanced flat panel detector CT was obtained after stent placement to demonstrate the degree of improved sinus caliber.

Results

Both patients tolerated the procedure well and at most recent follow-up demonstrated significant improvement of IIH symptoms. The 3DRV reconstruction allowed for optimal sizing and positioning of stent (Figure 1A). Comparison of pre-stent 3DRV with post-stent contrast-enhanced flat panel detector CT confirmed correct stent placement and demonstrated the degree of stenosis improvement (Figure 1B).

Conclusions

This 3DRV technique provides improved visualization of venous sinus stenosis prior to and during stenting. Eliminating the need for arterial access reduces the risk of access site complications secondary to the antiplatelet therapy required for stenting.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe how the 3DRV technique improves visualization for dural sinus stent placement, and 2) discuss the advantages of this approach in eliminating the need for arterial puncture in patients on antiplatelet medications.

