

## Commentary

In the past two decades, idiopathic intracranial hypertension (IIH) has been increasingly recognized in pediatric population as a cause of raised intracranial pressure. Commonly presenting as headaches, it can be

associated with double vision, visual blurring, and visual loss. In a child under 8 years of age with papilledema, a lumbar spinal opening pressure >180 mm of H<sub>2</sub>O is considered diagnostic in the absence of any structural

lesions causing raised pressure. However, in children younger than 8 years without papilledema and in children older than 8 years of age, a cerebrospinal fluid (CSF) pressure  $>250$  mm H<sub>2</sub>O is considered diagnostic.<sup>[1]</sup>

Anatomical abnormalities in the intracranial venous sinuses in the form of stenosis or obstruction have been often identified in patients with IHH. Magnetic resonance venogram studies have shown transverse sinus narrowing either at the distal transverse sinus or at the transverse sigmoid junction which can be either unilateral or bilateral. It is uncertain if obstruction is an etiological factor for the IHH or is an effect of IHH. Several studies have reported improvement of the symptoms and reduction in the intracranial pressure following stent placement across the stenosed segment suggesting that the stenosis was the etiological factor. However, after high volume CSF drainage or after shunt procedures, reduction of the transstenosis sinus pressure gradient and reversal of the stenosis has been documented suggesting that a raised intracranial pressure may have resulted in extrinsic mechanical compression of the sinus walls.

Regardless of the confounding data, studies have demonstrated proven improvement in the clinical symptoms and reduction in the intrasinus pressure with the stent placement across the stenosed segment in older children and adults.<sup>[2]</sup> Some authors prefer to do the procedure in two different stages, with an initial transfemoral cerebral venogram and manometry under light sedation performed to confirm a significant transvenous pressure gradient across the stenosed segment. If a pressure gradient  $>8-10$  mm of Hg is detected, a second procedure under general anesthesia is performed to place the stent. Others prefer to carry out both the procedures in one sitting if a pressure gradient is detected during the procedure. In patients with bilateral stenosis, an unilateral stent often suffices with the stent being placed either on the dominant side or the side with larger pressure gradient.

The authors in the present study were not able to perform the transfemoral venous angiogram in a 4-year-old child with a very tortuous jugular bulb and a stent which was somewhat more stiff.<sup>[3]</sup> Instead they placed the stent by a direct trans-sinus approach with a burr hole placed over the proximal right transverse sinus and the sinus cannulated just distal to its origin from torcula. They also

preferred a balloon-mounted stent over self-expanding stents to accommodate for the continued growth of the cranial vault. As the authors note, this approach carries additional risks such as sinus thrombosis from injury to the sinus endothelium and other complications of a surgical procedure. The authors' efforts in placing a transverse sinus stent in a 4-year-old child should be congratulated. Although stent placement has been more prevalent in adult population, considering the technical challenges associated with younger children its usage in pediatric population remains to be seen.

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