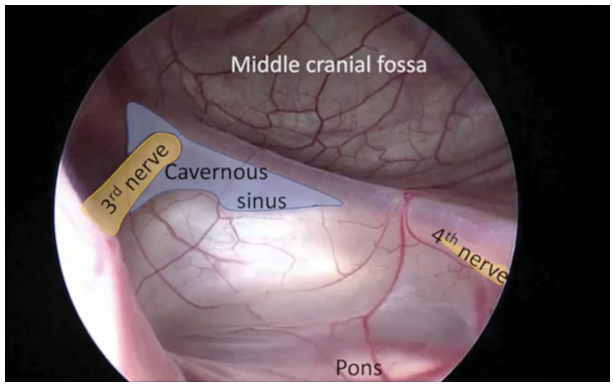
Importance of Fenestration Size for Definitive Treatment of a Quadrigeminal Arachnoid Cyst: Endoscopic Inspection of the Cyst and Surrounding Anatomy: 2-Dimensional Operative Video



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Arachnoid cysts are fluid-filled sacs, located between the brain or spinal cord and the arachnoid membrane. Their prevalence in children is between 1% and 3%. Quadrigeminal arachnoid cysts represent 1% to 10% of them and are often associated with hydrocephalus, mostly by an obstructive mechanism, explained by compression of the tectum of the midbrain. When an indication for treatment is retained, 3 surgical options are available: microsurgical excision/fenestration, endoscopic fenestration, and shunt placement. Endoscopic treatment is considered the best compromise of definitive treatment with least surgical morbidity, especially because quadrigeminal cysts are located close to the midline, in intimate relationships with basal cisterns and ventricles. We here present the endoscopic treatment of a prenatally diagnosed quadrigeminal arachnoid cyst type III[1] with right lateral extension into the middle cerebral fossa, and associated hydrocephalus, treated at the age of 18 mo.

Step-by-step detail of surgical technique is presented in original anatomic conditions. Restoration of better cerebrospinal fluid pathways being the objective of this surgery, ventriculocystic, and cyst-cisternal fenestrations were made. Secondary obstruction of the cyst occurred a few months later, requiring further endoscopic treatment to obtain a larger fenestration that allowed good long-term clinical and radiological outcome. The key point of this video is to compare the 2 procedures, stressing the importance of the dimension of fenestrations, to ensure a long-term patency of both stomas.

The patient being a child, both parents gave their consent for publication and signed a form.

KEY WORDS: Quadrigeminal arachnoid cyst, Neuroendoscopy, Fenestration, Hydrocephaly, Brainstem

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Disclosure

The authors have no personal, financial, or institutional interest in any of the drugs, materials, or devices described in this article.

REFERENCE

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COMMENTS

The authors present the case of an 18-month-old patient who underwent an endoscopic fenestration of a quadrigeminal arachnoid cyst with extension into the middle cerebral fossa and hydrocephalus. The patient needed another fenestration a few months later after he developed secondary obstruction of the cyst. The surgical technique is nicely illustrated and the authors highlighted the importance of the

dimensions of the fenestration to prevent recurrence. In addition to the elegant endoscopic surgical technique, this is a superb demonstration of the anatomy around the brainstem through the large space that was created by the cyst corridor.

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This is a spectacular video of unusual pathology managed in a minimally invasive manner. The surgeons have taken advantage of the pathology to also provide the readers with an unusual tour of the normal anatomy, as the cyst and associated hydrocephalus have provided a rather remarkable corridor through which to visualize deep anatomy, usually not able to be seen so vividly.

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