



Endoscopic Third Ventriculostomy for Post-traumatic Hydrocephalus: Report of Outcomes for 8 Cases

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Introduction

Post-traumatic hydrocephalus continues to be a major long-term complication after significant brain injury. The role of endoscopic third ventriculostomy (ETV) in the management of post-traumatic remains unclear, with a paucity of literature on the subject.

Methods

Eight patients, who underwent ETV for post-traumatic hydrocephalus between 2006 and 2014, were identified from our institutional neuroendoscopic database. The medical records were reviewed for history of significant traumatic brain injury, subsequent development of hydrocephalus, treatment and outcomes of follow-up.

Results

Eight patients (7 men, 1 woman) sustained traumatic brain injuries at ages 8-59 years (average: 36 years), most commonly from motor vehicle accident (7 out of 8 patients), and presented with Glasgow Coma Scale score = 8 at the hospital, where they spent an average of 70 days. Patients subsequently developed symptomatic hydrocephalus within 17 days - 24 years after brain injury, with gait imbalance being the most common symptom (7 out of 8 patients). Four patients developed triventricular hydrocephalus and 3 patients developed panventricular hydrocephalus, with average Evans ratio of 0.36 and third ventricle width 8.9-14.4 mm. The opening pressures at ETV ranged from 6-18 mmHg. Patients were followed for 4-77 months post-ETV, with 25-90% symptomatic improvement reported by 5 out of 8 patients. Younger age at traumatic brain injury correlated with better functional status at the onset of hydrocephalus and better outcomes after ETV. ETV failure occurred in 3 out of 8 patients.

Conclusions

ETV is an effective option for the treatment of post-traumatic hydrocephalus, especially for patients who sustained brain trauma at a young age and have a good functional status prior to onset of hydrocephalus symptoms. Large prospective randomized trials are required to clearly define the role of ETV in the management of post-traumatic hydrocephalus.

Learning Objectives

To report our experience with ETV for the treatment of post-traumatic hydrocephalus and provide a comprehensive review of the literature.

References

1. De Bonis P, Tamburrini G, Mangiola A, Pompucci A, Mattogno PP, Porso M, Anile C. Post-traumatic hydrocephalus is a contraindication for endoscopic third-ventriculostomy: Isn't it? *Clin Neurol Neurosurg*. 2013 Jan;115(1):9-12.
2. Marmarou A, Foda MA, Bandoh K, Yoshihara M, Yamamoto T, Tsuji O, Zasler N, Ward JD, Young HF. Posttraumatic ventriculomegaly: hydrocephalus or atrophy? A new approach for diagnosis using CSF dynamics. *J Neurosurg*. 1996 Dec;85(6):1026-35.

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