

Introduction

Idiopathic intracranial hypertension (IIH), or pseudotumor cerebri, can lead to permanent vision loss and refractory headaches if untreated with permanent CSF diversion. The optimal treatment technique is controversial as the historical use of LP shunts and unilateral VP shunts have carried high failure rates. Stereotactic technology has improved the accuracy of ventricular catheter placement. Based on an earlier report, we hypothesized that combined bilateral VP shunts would lead to improved patient outcomes with minimal patient complications.

Methods

We performed a retrospective chart cohort review for all patients that underwent stereotactic, bilateral combined VP shunts from 2008 to 2016. We looked at the following variables: Age, sex, prior shunt, BMI, headache, visual symptoms, prior shunting, and complications.

Learning Objectives

By the conclusion of this session, participants should be able to:

- 1) Describe historical failure rates of LP & unilateral VP shunting for idiopathic intracranial hypertension
- 2) Discuss the success rates for permanent CSF diversion & symptomatic improvement with stereotactic bilateral combined VP shunts

Table 1: Clinical and outcome variables

	N=30
<b>Clinical variables</b>	
Age (years)	33.4±8.3
Gender (male)	13.3%
BMI	38.2±8.2
<b>Presenting symptoms</b>	
Headache	96.7%
Visual symptoms	10.0%
Opening pressure	38.9±9.3
Prior shunting	46.7%
<b>Surgical complications</b>	
Procedure failure	13.3%
Time of failure (months)	1.1±3.9
Revision surgery	13.3%
<b>Outcome</b>	
Improvement of headache	83.3%
Improvement of vision	83.3%
Follow-up (month)	23.7±17.8

References

- Ragel BT, Browd SR, Schmidt RH. Surgical shunt infection: significant reduction when using intraventricular and systemic antibiotic agents. J Neurosurg. 2006 Aug;105(2):242-7.
- Huang LC, Winter TW, Herro AM, Rosa PR, Schiffman JC, Pasol J, Trombly RS, Tawfik M, Lam BL. Ventriculoperitoneal shunt as a treatment of visual loss in idiopathic intracranial hypertension. J Neuroophthalmol. 2014 Sep;34(3):223-8.
- Lai LT, Danesh-Meyer HV, Kaye AH. Visual outcomes and headache following interventions for idiopathic intracranial hypertension. J Clin Neurosci. 2014 Oct;21(10):1670-8.

Results

The average age was 33.4 years with a female majority of 86.7% (26/30). Most patients were severely obese (63.3% or 19/30) and 14/30 (46.7%) had a prior shunt procedure before our shunt placement. Pre-operative symptoms improved in the vast majority of patients as 86.2% of those with headaches (25/30) and 84.6% (25/30) with visual improvement reported significant improvement. We found that 86.7% (26/30) of shunting procedures were successful (did not require a further shunt surgery). The average follow-up was 23.7 months. Four shunts required revision surgery and three of these were distal revisions due to deperitonealization of the distal catheter. All three distal revisions occurred in severely obese patients.

Conclusions

Stereotactic combined bilateral ventricular drainage appears to improve shunt rates in IIH patients. Patients reported improvement of pre-operative headache (86.2%) and visual impairment (84.6%) symptoms. This surgical technique was technically successful with a failure rate of <15% (13.3%). We recommend this bilateral stereotactic VP shunt technique as a successful method for treating IIH patients.