Lumbar Puncture For Diagnosis Of Pseudotumor Cerebri Syndrome
In Typical Patients

Poster number 41484

Mathew S. Margolis, BS; Adam DeBusk, DO; Mark L. Moster, MD; James Ebot, DO; Eric Eggenberger, DO; Harrison Phillip Bannett, BA; Robert C. Sergott, MD; Gregory Van Stavern, MD.

1 – Washington University School of Medicine; Department of Ophthalmology & Visual Sciences; 2 – Wills Eye Hospital; Department of Neuro-Ophthalmology; 3 – Mayo Clinic, Jacksonville; Department of Neurologic Surgery; 4 – Mayo Clinic, Jacksonville; Department of Neurology
Financial Disclosure

• No financial disclosures
Introduction

• Criteria for the diagnosis of Pseudotumor Cerebri Syndrome (PTCS) are based on clinical exam findings, neuroimaging features and lumbar puncture (LP) that demonstrates both an elevation in the CSF opening pressure (OP) and rules out alternative etiologies.
• This study aims to build upon current work in determining necessity of LP in the diagnosis of typical PTCS patients for the following reasons:
  • Recent evidence suggests the range of “normal” OP is wider than previously thought.
  • LPs are often performed in variable positions, which may undermine validity of pressure measurement.
  • Newest criteria allow for diagnosis of “Probable PTCS” with a normal OP.
  • LPs are associated with significant morbidity including low pressure syndromes, and radiation exposure when performed under fluoroscopy.
Methods

• **Study Type:** retrospective observational review of 3 university-based neuro-ophthalmology practices.

• **Inclusion criteria:** Females (BMI >25) of reproductive age (18-45) with papilledema seen during a 5 year window. met criteria for “Probable PTCS” or PTCS.

• **Exclusion Criteria:** Patients with atypical presentation, history, neurologic findings, neuro-imaging, and those who did not undergo LP.

• **Data collected:** Demographics, clinical signs and symptoms, MRI, LP, and CSF results.
Results

- No patients had changes in diagnosis or management based on LP results.
- All abnormal CSF findings were found to be clinically insignificant.
- Patients with ‘Probable PTCS’ had similar likelihood of presenting with clinically insignificant abnormalities on LP as patients with elevated OPs.
- No patients with CSF abnormalities required surgical treatment or had significant visual loss over two-plus years of follow-up.

Demographics and Diagnosis

<table>
<thead>
<tr>
<th>Demographics and Diagnosis</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screened</td>
<td>303</td>
</tr>
<tr>
<td>Eligible Participants</td>
<td>113 (37.9%)</td>
</tr>
<tr>
<td>Diagnosed with PTCS</td>
<td>97 (85.6%)</td>
</tr>
<tr>
<td>Diagnosed with probable PTCS*</td>
<td>16 (14.2%)</td>
</tr>
<tr>
<td>Average Age</td>
<td>31 (stdv 7.2)</td>
</tr>
<tr>
<td>Average BMI</td>
<td>37.3 (stdv 9.8)</td>
</tr>
</tbody>
</table>

CSF Constituents

- Normal – 91.1% (103)
- Abnormal – 8.9%

*Eight patients (7.1%) were found to have CSF OP values between 15 and 20, and an additional 8 (7.1%) were found to have CSF OP values between 20 and 25 warranting their diagnosis of ‘Probable PTCS’.
Discussion

• In this retrospective review of 113 patients with typical signs and symptoms of PTCS, diagnostic LP did not alter diagnosis or management.

• These findings in addition to changes in our understanding of a normal OP range, variability in LP positions undermining pressure validity, and morbidity associated with LPs, suggest it may not be necessary for PTCS patients with typical demographics, clinical exam, and radiologic findings to undergo this invasive procedure.
Summary

- Our results are not generalizable to patients who are:
  - Atypical (male, normal body habitus, history of malignancy, atypical symptoms, exam, or imaging).
  - Have severe disease warranting shunting, optic nerve sheath fenestrations, and/or venous stenting.
  - Respond atypically to treatment.
  - Present with new onset atypical findings following initial evaluation should undergo LP for diagnostic purposes.
- Limitations: Retrospective and observational design, small sample size, tertiary referral center.