E-Poster:

Pseudo-Cerebrospinal Fluid Leaks Of The Anterior Skull Base: Algorithm for Diagnosis and Management.

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Disclosures

• Nothing to Disclose.
• **Pseudo-CSF leak**: Unilateral watery rhinorrhea without breakage of osteodural barrier.
  - First described in 1994.¹
  - Can occur after skull base surgery or trauma.
    - Injury to GSPN, sphenopalatine ganglion or pericarotid sympathetic plexus.
• **24 cases in literature.**

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Methods

• Retrospective chart review between 1997-2018 at Hospital Clínico Regional de Concepcion, Chile.
• Proposal an algorithm to systematically evaluate and rule out CSF leaks
Results

• 10 patients.

• Mean age at presentation 41.6 (17-66) years old.

• M:F = 1:1

• PMH:
  • Trauma: 4/10 cases
    • 3/4 with previously confirmed and treated CSF leak.
  • Skull base surgery: 2/10 cases.
  • Endoscopic sinus surgery: 2/10 cases.
Results

• Trauma/surgery to symptom onset: 61.5 (4-228) months.
• Symptom onset to diagnosis: 39.1 (<1-280) months.
• Investigation following algorithm ruled out true CSF leak in all cases.
• No meningitis during follow-up.
Algorithm

Unilateral Watery Rhinorrhea

CT Endoscopy MRI

Confirmation of leak

Positive

Surgical Exploration and Treatment

No improvement

B2-Transferrin

Not available

Intrathecal Fluorescein

Positive

Patient refusal

Negative

Intranasal Ipratropium Trial

Negative

Improvement

Intranasal Ipratropium Treatment

Pseudo CSF Leak

Negative

Improvement

No signs of leak
## Algorithm Results

<table>
<thead>
<tr>
<th>Case</th>
<th>CT/MRI</th>
<th>Nasal Endoscopy</th>
<th>Beta-2 Transferrin</th>
<th>Intrathecal Fluorescein</th>
<th>Surgical Exploration</th>
<th>Ipratropium Use</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No osteodural defect</td>
<td>Unremarkable</td>
<td>Negative</td>
<td>Negative</td>
<td>No signs of CSF leak</td>
<td>No</td>
<td>21 years</td>
</tr>
<tr>
<td>2</td>
<td>No osteodural defect</td>
<td>Unremarkable</td>
<td>Not performed</td>
<td>Negative</td>
<td>Not performed</td>
<td>Yes</td>
<td>12 years</td>
</tr>
<tr>
<td>3</td>
<td>No osteodural defect</td>
<td>Unremarkable</td>
<td>Negative</td>
<td>Negative</td>
<td>Not performed</td>
<td>Yes</td>
<td>10 years</td>
</tr>
<tr>
<td>4</td>
<td>No osteodural defect</td>
<td>Unremarkable</td>
<td>Negative</td>
<td>Not performed</td>
<td>Not performed</td>
<td>Yes</td>
<td>10 years</td>
</tr>
<tr>
<td>5</td>
<td>No osteodural defect</td>
<td>Unremarkable</td>
<td>Not performed</td>
<td>Inconclusive</td>
<td>No signs of CSF leak</td>
<td>No</td>
<td>8 years</td>
</tr>
<tr>
<td>6</td>
<td>No osteodural defect</td>
<td>Unremarkable</td>
<td>Negative</td>
<td>Inconclusive</td>
<td>No signs of CSF leak</td>
<td>Yes</td>
<td>6 years</td>
</tr>
<tr>
<td>7</td>
<td>No osteodural defect</td>
<td>Unremarkable</td>
<td>Not performed</td>
<td>Not performed</td>
<td>Not performed</td>
<td>Yes</td>
<td>4 years</td>
</tr>
<tr>
<td>8</td>
<td>No osteodural defect</td>
<td>Unremarkable</td>
<td>Not performed</td>
<td>Not performed</td>
<td>Not performed</td>
<td>Yes</td>
<td>3 years</td>
</tr>
<tr>
<td>9</td>
<td>Skull base fractures</td>
<td>Unremarkable</td>
<td>Negative</td>
<td>Negative</td>
<td>No signs of CSF leak</td>
<td>No</td>
<td>4 years</td>
</tr>
<tr>
<td>10</td>
<td>Bony defect on frontal sinus</td>
<td>Unremarkable</td>
<td>Not performed</td>
<td>Negative</td>
<td>No signs of CSF leak</td>
<td>Yes</td>
<td>8 months</td>
</tr>
</tbody>
</table>
• Extremely rare - possibly underdiagnosed.
• Disruption of autonomic regulation of nasal mucosa = mucosal hypersecretion = \textbf{vasomotor-like rhinitis}. 
Summary Points

- High-level suspicion.
- **Surgery/trauma not necessary for diagnosis.**
- Importance of step-wise approach to avoid unnecessary invasive procedures (risk of CSF leak on themselves).