

Cerebrospinal fluid (CSF) fistula headache following thoracolumbar spinal manipulation

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Introduction

- CSF fistula headache defines a clinical condition characterized by orthostatic headache occurring after a procedure or trauma causing a persistent CSF leakage resulting in low intracranial pressure.

Patient

- A 40-year-old female presented with recurrent positional occipital headaches, nausea and vomiting after chiropractic manipulation involving high-velocity twisting and pressing movements to her thoracolumbar spine.

Case Description/Results

- Brain magnetic resonance imaging (MRI) demonstrated diffuse pachymeningeal enhancement with enlargement of the pituitary gland and venous sinuses that was concerning for intracranial hypotension. MRI of the entire spine without contrast showed an extensive epidural CSF collection and possible CSF leakage site at the T6 level. Initially, a blind epidural blood patch was performed at the T6-7 level without improvement. Subsequent CT myelogram demonstrated a brisk CSF leakage arising from the T11-T12 level along the ventral surface and an opening pressure of 9 cm H₂O. She underwent a fluoroscopic-guided targeted blood patch at the T11-T12 level with rapid resolution of her symptoms over the following day.



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CSF fistula headache from intracranial hypotension complicated by spinal manipulation.



Figure 1: T2 STIR sagittal with extradural CSF collection extending throughout the spinal canal compatible with CSF leak

Figure 2: T1 post contrast sagittal with diffuse smooth pachymeningeal thickening and enhancement, associated with enlargement of the pituitary gland and venous sinuses, suggestive of intracranial hypotension



Discussion

- In this case, patient was diagnosed with CSF fistula headache induced by thoracolumbar spinal manipulation. It is relatively well-known that chiropractic spinal manipulation can cause neurologic complications including strokes, myelopathies, and radiculopathies, especially in the cervical area. Unlike cervical spinal manipulation, back manipulation is perceived as more benign but can cause various neurological complications as well. The initial attempt with a blind epidural blood patch failed, but the subsequent targeted blood patch with fluoroscopic guidance was successful. It is controversial whether a targeted blood patch may offer a better clinical result than a blind blood patch given conflicting data and limitations of observational studies. A targeted blood patch with imaging guidance can be considered as first-line if the site of the leak is identified.

Conclusion

- Given the popularity of complementary medicine for the treatment of various musculoskeletal symptoms, it is crucial to inquire specifically about the history of recent chiropractic spinal manipulation when evaluating a patient with intracranial hypotension.

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