Post-Dural Puncture Headache Secondary to Late-Onset Cerebrospinal Fluid Leakage Following Intrathecal Baclofen Pump Implantation

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INTRODUCTION

•Intrathecal baclofen (ITB) therapy is well-established for severe spasticity in hereditary spastic paraplegia (HSP) when oral spasmolytic agents fail.[1]
•Complications include catheter malfunction, infection, and cerebrospinal fluid (CSF) leakage.[2]
•CSF leakage classically presents with a postural headache that worsens when upright and improves when supine, typically occurring within the acute postoperative period and is rarely reported beyond the first few postoperative weeks.[3]
•Delayed presentation years after catheter placement has not been well described.[4]

CASE PRESENTATION

- 44-year-old male with HSP underwent IT pump implantation for spasticity refractory to conservative therapy.
- The postoperative course was uneventful apart from a mild, anticipated postural headache that resolved within two weeks.
- No further complications were noted in the following years, and he continued routine pump refills.
- Approximately 6 months after implantation, he sustained a mechanical fall with direct impact to the pump; fluoroscopic dye study was performed which confirmed catheter integrity, appropriate positioning, and no evidence of leakage. MRI of the lumbar spine likewise showed no evidence of CSF leak.
- Nearly 3 years after implantation, new-onset postural headache developed without preceding prior trauma or fall; MRI without contrast confirmed CSF leak despite prior reassuring imaging.

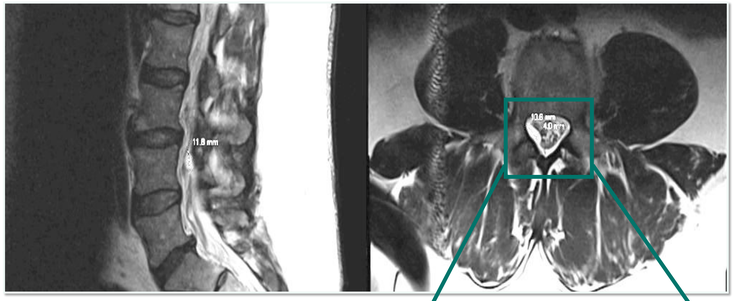




Figure 1. MRI without contrast demonstrating fluid collection centered at L4 and around the area of the catheter into the thecal sac.

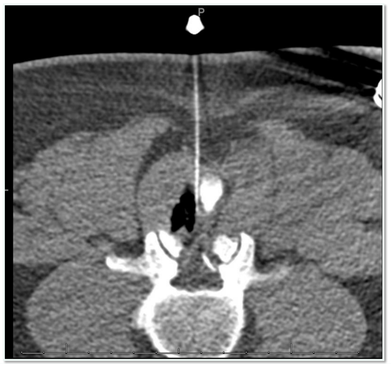


Figure 2. Computed tomography (CT)–guided epidural blood patch (EBP) performed at the L3–L4 level. Axial CT image confirms needle placement within the epidural space prior to autologous blood injection.

OUTCOME & FOLLOW-UP

- Image-guided EBP by Interventional Radiology led to prompt, complete resolution of headache.[5]
- No further headaches or neurological symptoms at follow-up.
- The patient continues to undergo regular pump refills, with normal device functioning while obtaining optimal relief of spasticity.
- The patient's subsequent clinical course was unremarkable, further supporting CSF leakage as the underlying etiology of the delayed postural headache.

DISCUSSION/CONCLUSIONS

- CSF leakage is a recognized complication of intrathecal treatment, typically presenting within the acute postoperative period; delayed presentation beyond that window is rarely reported.[2,4]
- This case is unusual in that a symptomatic CSF leak developed spontaneously nearly three years after implantation, despite previously normal studies and a prolonged period of clinical stability.
- Late-onset leakage years after implantation is not clearly documented in the literature.[4]
- EBP remains effective, as shown by this patient's rapid improvement.[5]
- EBP can be an effective first-line treatment for postural headache secondary to peri-catheter CSF leakage. Previous studies have reported success rates of 64% to 93% in patients without implanted pumps after a single procedure.[3,5]
- Postural headache in patients with IT pumps warrants clinical vigilance regardless of time since implantation. In such cases, EBP may be considered before pursuing more invasive options.

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