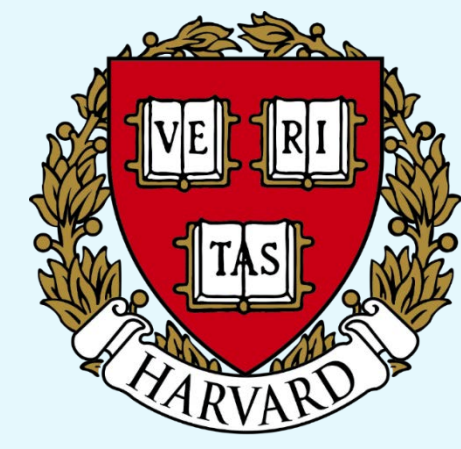


Caudal epidural blood patch for the treatment of intractable CSF leak after placement of a permanent intrathecal pump

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Background

Chronic pain affects 50 million Americans, or 20% of the national population, causing significant and prolonged morbidity. Chronic low back and neck pain carries an estimated cost of \$67.5 billion-\$94.1 billion annually. For patients undergoing spinal surgery, 10-40% will have persistent pain secondary to post laminectomy syndrome (PLS). This may be challenging to treat; management may include medical optimization and psychosocial intervention, but frequently requires neuromodulation.

Implanted intrathecal drug delivery systems (IDDS) are an effective modality in the management of chronic pain symptoms related to spasticity and terminal cancer. More recently, IDDS have been used for refractory non-cancer pain syndromes with varying degrees of success. Importantly, IDDS also provides a treatment modality that reduces consumption of systemic opioids. Increasing evidence emerges to support the use of IDDS in the treatment of PLS as a safe and effective therapy. While generally safe and effective in these applications, granuloma formation and persistent cerebrospinal fluid (CSF) leak following implantation, catheter exchange, or intrathecal pump revision are known and significant complications of intrathecal pump catheter management.

Post-Dural-puncture headache (PDPH) is a known complication of neuraxial anesthesia, and is classically attributed to accidental dural puncture during epidural anesthesia. An epidural blood patch (EBP) is considered the most effective treatment for PDPH. Patients who experience PDPH following IT catheter insertion frequently improve with conservative management; however, in refractory cases, escalation of care to EBP or fibrin glue patch may be warranted.

We report a caudal epidural blood patch for the treatment of severe headache from CSF leak secondary to intrathecal (IT) infusion pump implantation for the treatment of PLS.

Caudal instillation of epidural blood patch for post-laminectomy syndrome

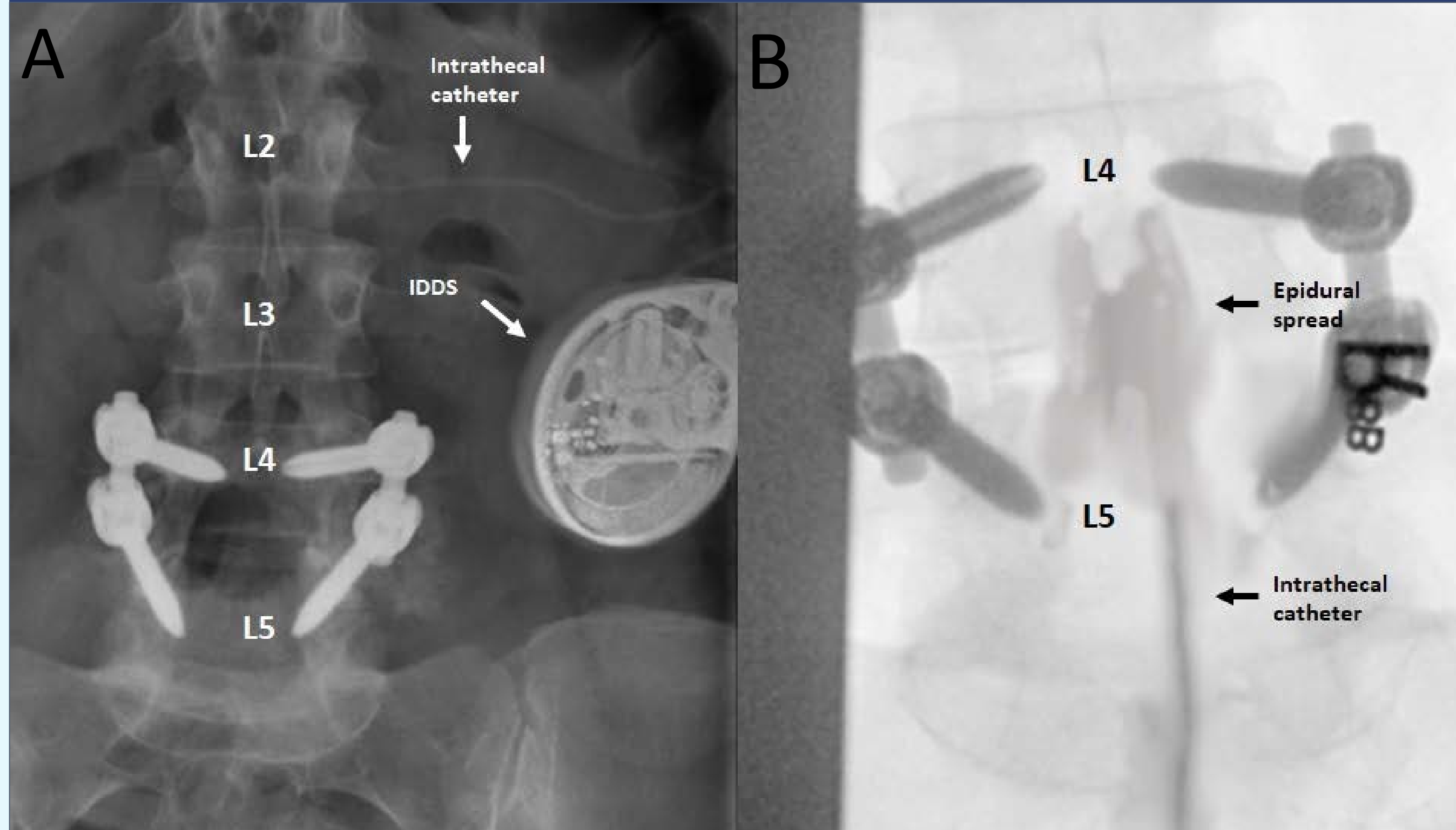


Figure 1: Caudal instillation of epidural blood patch for post-laminectomy syndrome. Intra-operative fluoroscopy images present (A) hardware from previous instrumentation, including L4-L5 fusion, implanted IDDS and intrathecal catheter, and (B) epidural spread of 15mL sterile autologous blood following caudal approach in this patient with previous lumbar spinal instrumentation.

Case Report

A 55-year-old man, who had undergone an L4-L5 posterior fusion for anterolisthesis and spinal stenosis presented to us with PLS. An IDDS was implanted for administration of intrathecal morphine. IT catheter positioning and pump implantation were performed without complication. On post operative day four, the patient reported PDPH symptoms: positional headache, neck pain, and nausea. Conservative management failed and EBP was planned. Given a history of lumbar instrumentation, a caudal approach was selected. The caudal epidural space was accessed using a loss of resistance technique at the level of the sacral hiatus. An epidural catheter was threaded to the L5-S1 disc space and 15 mL of autologous blood was administered. The patient tolerated this procedure well and recovered as expected. Following the procedure, the patient reported complete resolution of PDPH symptoms without reoccurrence upon subsequent follow-up.

Conclusion

For patients with PLS, despite high risk from previous spinal instrumentation, IDDS can be a safe and effective treatment modality. While lumbar EBP is effective for treatment of PDPH, prior surgical manipulation and instrumentation precludes a lumbar approach for minimally invasive treatment of commonly occurring PDPH symptoms following IT catheter placement. In patients with lumbar instrumentation, who suffer from PDPH recalcitrant to conservative measures, a caudal approach for EBP may be a safe first line intervention.

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