

Title: Diagnostic Use of Epidural Blood Patch for Low Pressure Headache after Lumbar-Peritoneal Shunt Placement

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ABSTRACT BODY:

Introduction: Lumbar-Peritoneal (LP) shunt placement is a procedure indicated for treatment of headaches resulting from Pseudotumor Cerebri. Risks and complications of LP shunt include infection; shunt failure, mechanical dislodgement and hematoma. The low-pressure headaches caused by shunt over drainage presents with symptoms similar to postdural puncture headache (PDPH).

We present a case of low-pressure headache after LP shunt placement treated initially with an epidural blood patch that did not resolve the headaches and required definitive surgery to change the LP shunt valve system.

Case Report: An 18-year-old obese girl (90 kg) with Pseudotumor Cerebri secondary to sagittal sinus thrombosis presented with severe headaches. Her past medical history included steroid treatment for adrenal insufficiency. In the past one year she had numerous lumbar punctures to relieve high CSF pressure with temporary resolution of her symptoms. She had one occurrence of PDPH following a spinal tap for CSF drainage that required and responded well to an epidural blood patch. She finally had a LP shunt surgically placed.

About 2 weeks after the LP shunt placement she presented to us with severe frontal and occipital headaches that worsened on standing up. There were no other associated symptoms of nausea, vomiting, visual alteration or neurological deficits. She was admitted to hospital and was treated with IV hydration, caffeine and morphine for 24 hours, to which she did not respond. The postural headaches had persisted for nearly two weeks of which there were two particularly severe episodes in the more recent days before admission. These were sharp occipital pain that lasted for almost 24 hours. The nature of headache was consistent with her previous low-pressure headaches after spinal taps and also after LP shunt placement. It was thought that this was a low-pressure headache resulting from a CSF leak around the shunt catheter and therefore an epidural patch was thought to be a reasonable option before resorting to a surgical intervention.

We performed an epidural blood patch with full aseptic precautions in lateral decubitus position under sedation. Using a fluoroscope, the level of LP shunt catheter insertion was determined to be at L3-4. We therefore chose L4-5 as the interspace for the epidural blood patch. An 18-gauge Tuohy-Schiff epidural needle was used to perform the epidural followed by the injection of 14 ml of patient's own blood obtained in a sterile fashion. An immediate improvement in the patient's pain scale was noted (2-3 from 6-7).

However, the improvement in headache did not last and she returned to the hospital within 2 weeks with continued low-pressure headaches. As all conservative management and the epidural blood patch failed, it was decided that the existing medium pressure valve in the LP shunt be replaced with a horizontal-vertical (HV) system valve. The HV valve drains CSF depending upon the different CSF pressure gradients generated in the upright versus recumbent position. The routine medium pressure shunt valve drains CSF irrespective of the gradient. The patient returned to the operating room and under general anesthesia had the LP shunt valve system changed. She has remained headache free up until this point.

Discussion: Patients with Pseudotumor Cerebri undergo multiple lumbar punctures and LP shunt placement. The complication of LP shunt usually is low-pressure headache resulting from overdrainage of CSF as opposed to high intracranial pressure. This patient's headaches were particularly difficult to diagnose due to her previous history of headaches following lumbar punctures and also in the immediate post-operative LP shunt period. Considering that she had responded well to the epidural blood patch previously for her PDPH, it was logical as well as less invasive to try 'Epidural-Blood Patch' first to treat her headaches. Eventually, the epidural blood patch also failed and the surgical course of action was pursued with relief in headaches. The epidural blood patch served more as a diagnostic than therapeutic tool in this scenario.

References:

1. Anesthesia & Analgesia 2005; 101:1497-8
2. Pediatric Neurosurgery 2003 Jan; 38(1): 41-6