

Preventing Post-Lumbar Puncture Headaches with Acupuncture and Manual Therapy Techniques

by Mark Petruzz

Lumbar punctures (LP) are frequently utilized in the diagnosis and treatment of pediatric leukemias, as the CNS is a “sanctuary site” where the cancer can hide and evade treatment. Post LP headache is the most common sequela of this procedure (happening in up to 1/3 of the patients according to multiple studies) and can last days or even weeks, sometimes accompanied by nausea/vomiting and dizziness. While the mechanism(s) producing the headache is not fully clear, possibilities include downstream effects of cerebrospinal fluid (CSF) leaking into the nearby tissues. The resulting intracranial hypotension and/or cerebral vasodilation can traction/stretch the brain and meningeal tissues, especially when standing or sitting upright. [1]

From a clinical perspective, whether influenced by a CSF leakage or caused by the puncture itself, tension seems to be transmitted along the dural sheath during or after the procedure. This leads to constriction at the base of the occiput which results in congestion of the lymphatics in the head and neck area. In addition, perifascial tension presents around the occipital nerve and/or occipital artery. Both of which can be appreciated with a practiced hand.

Looking through the lens of East Asian medicine, there are multiple interconnections at play. These young patients with leukemia often present as a Lung Sho (lung and spleen deficiency pattern). Tai yin, being the “outside of the inside,” is intimately connected to wei qi and the immune system. The dural puncture causes trauma to the du channel which expresses as excess through the tai yang, the “outside of the outside.” Tai yang serves as our first line of defense against “attacks” from the exterior. The interrelationship is further accentuated by hand tai yin (lung) and foot tai yang (urinary bladder) being in a midday-midnight polarity (shigo). Both the skin and CNS (closely associated with the Lung and UB channels) are derived from the ectoderm embryologically. Lastly, the sinew channels of foot tai yin and foot tai yang attach to the lumbar spine. Understanding the channel anatomy and embryological connections not only instills a confidence in the therapeutic potential, but will also guide the applications employed.

John is an 18-year-old male with High Risk B-cell Acute Lymphoblastic Leukemia, being treated at Stony Brook Children’s Hospital. Previous lumbar punctures resulted in prolonged headaches, the last causing over three weeks of daily significant headaches with accompanying nausea and vomiting. Following this particularly bad stretch, his treatment protocol required weekly lumbar punctures for the next three weeks. The severe reaction to the prior spinal taps heightened the*

anxiety John was already experiencing through the rigors of his cancer treatment. In discussions with John and the pediatric oncology team, I thought there was a good chance gentle acupuncture combined with osteopathic manual techniques could significantly reduce or even prevent the headaches from occurring all together.

The Qi, Blood and Fluids (QBF)[2] approach to prevent post-lumbar puncture headaches unfolds in three phases. Phase one utilizes gentle acupuncture to balance the channels systemically. It emphasizes superficial needling (Shudo-style SRT) or teishin to resonate with the elements of polarity and embryological development related to tai yin and tai yang.

Phase two incorporates lymph drainage therapy to decrease congestion that has accumulated in the head and neck. As the lymphatics play a significant role in draining/recirculating cerebrospinal fluid (CSF), these techniques likely serve a dual purpose of softening the stretch on, and increasing cushion to, the pain sensitive structures in the brain by bathing the cerebral tissues with CSF.

The final phase of treatment works to release perifascial tension in the occipital nerve and/or occipital artery. I have found this tension to be present most often on the ipsilateral side of contracted lumbar paraspinals. This may be influenced by positioning during the procedure and/or the puncture itself. I typically finish with acupressure at specific points on the legs/feet to descend any remaining excess from the head.

Generally, 2 rounds of “spiraling treatment” (3) are performed, to progressively penetrate deeper into the body; followed by lymph drainage therapy (LDT)[4] to the neck, head/scalp and neural manipulation (NM)[5] to the occipital nerve, linked with a reactive cervical nerve bud ipsilaterally. If needed, a third round of point stimulation will follow the LDT and NM work.

When positive palpatory changes are appreciated in all three phases of treatment, there have been consistent positive outcomes.

**John's Treatment was performed directly after his lumbar puncture while recovering in the Pediatric Special Procedures room.*

Pulse: Thin, weak and slightly rapid overall; Rt cun/guan positions most deficient at the deep level; Lt guan/chi positions superficially tense.

Abdomen: Slight subcostal tension; esp at ST-19 and LR-13; tense at KI-15.

Channel palpation: LU-7, SP-3, SP-4 def; hands/feet cool/slightly damp. KI-9, SJ-9.5, Lt PC-6, Rt UB-10 tense; UB-58 area tight; increase perifascial tension around the occipital nerve on the right. There was bogginess in the tai yang, and to a lesser extent, shao yang areas on the scalp.

Treatment: All points performed with Takahiro Style Teishin (TST)

KI-27 to settle the KI energy, decrease sympathetic response and relax adrenals. It will begin to open the clavicular lymphatics which drains the head and neck, along with opening the back shu points along the UB channel; the point is named "Shu Mansion."

LU-7 and SP-4 for the root points; accessing the sea of yin and sea of blood, supporting the patient's underlying blood disorder with yin luo points. The ren and chong pathways connect into the lumbar spine and travel up to the occipital area, melding root and branch.

KI-9 (xi cleft point of yin wei) benefits mental/emotional conditions related to HT/KI disharmony or heat affecting HT/SP; utilized in traditional Japanese moxibustion for chemical toxicity.

UB-58 (Soaring Upwards) is luo point connecting to the KI channel (both UB and KI channels have connections to the lumbar spine and occiput): "harmonize the upper and lower."

SJ-9.5 (Four Rivers) relaxes the head, neck and upper back (SJ sinew connects to the temple, jaw and root of the tongue; SJ divergent separates from the primary channel at the neck and connects to the vertex).

UB-2 Opens occipital and lumbar areas; resonates with the pituitary to influence the hypothalamic-pituitary-adrenal axis.

UB-10 (Celestial Pillar): Divergent meeting point of UB/KI channels; window to the sky point.

Ear Shenmen, Ear-occiput.

**Two rounds of point stimulation; followed by LDT to neck, head/scalp; NM to occipital N – cervical N bud

The treatment concluded with a third round of point stimulation to the body – no head points; acupressure at UB-58 (balancing out tensions from right to left), UB-67 and KI-1 to descend any remaining excess from the head. Pyonex press tacks retained on Lt PC-6 and Lt KI-9 to prevent recurrence of nausea/vomiting.

John* had no headaches, nausea or vomiting after the above treatment. Similar sessions were given directly after his LPs for the next two weeks, and for 5 subsequent procedures after that; all with no headaches recurring.

Point selections may change depending on specific variables, but this general framework has been performed on children ranging from 5 years old to 22, in males and females.

Some have received this QBF application for their last 6 or 7 consecutive LPs. At the time of this writing, 52 treatments have been provided, most on patients who have had poor reactions to previous lumbar punctures.. To this point, there have only been 3 post-procedural headaches when performing this treatment directly after. One occurred when a patient spiked a fever from an infected PICC line in the recovery room. The other two took place in a patient whose prior spinal tap lead to 7 days of severe headaches, intermittent nausea and vomiting. The acupuncture and manual therapy were added during a 3 week stretch of consecutive spinal taps. The severity and duration of the headache after the next two LPs progressively reduced, with no headache after the 3rd procedure.

While this is a small sample size, the results have been extremely promising. It is also much safer (and if I do say, more pleasant) than needing to have an epidural blood patch placed; which is the current allopathic treatment of choice for moderate to severe post-dural puncture headaches [6], but a contraindication for leukemia. Further study is needed to show reproduceable benefit in a larger population of patients and across multiple hospital settings. I believe this integrative oncology approach has the potential to become a new standard of care in the treatment/prevention of post-LP headaches.

Notes

1. *Postgrad Med J.* 2006 Nov, 82 (973): 713-716. Post Lumbar puncture headache: diagnosis and management.
2. In the Qi, Blood and Fluids (QBF) approach (taught by Jeffrey Dann and Mark Petrucci), participants delve into the influences of bodywork and anatomical exploration established during the Edo Period, and elaborate on these ideas with contemporary insights. We fuse traditional Japanese acupuncture methods with osteopathic manual techniques, allowing the needle to truly become an extension of our hands.
3. "Water Penetrating Rock: Spiraling Treatment to Gentle Address Acute Conditions." NAJOM, March 2025.
4. Lymph Drainage Therapy was developed by Dr Bruno Chikly. To learn more visit: chiklyinstitute.com
5. Neural Manipulation was developed by French osteopaths Jean-Pierre Barral and Alain Croibier. To learn more visit: barralinstitute.com

6. Curr Pain Headache Rep. 2020 Apr 22;24(6):24. A Comprehensive Update on the Treatment and Management of Postdural Puncture Headache.

** patients names changed for privacy*

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