



Post-Spinal a Rare Complication and Treatment: Tinnitus and Epidural Blood Patch

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Dear Editor,

Rare auditory symptoms such as tinnitus after spinal anaesthesia have been observed (1-4). It can be accompanied by headache (1, 4) and can become chronic and affect a patient's quality of life. In this case, we aimed to present our clinical experience regarding the relief of symptoms by an epidural blood patch in a patient who developed headache and bilateral tinnitus following spinal anaesthesia. A 31-year-old female patient, who was 58 kg in weight and 169 cm in height, was scheduled for operation under spinal anaesthesia due to venous stasis. Informed written consent was obtained. The spinal space was accessed with a 25-G Quincke needle on the first try through the L₄₋₅ interspinous space. On observing a clear cerebrospinal fluid leak, 12.5 mg of hyperbaric bupivacaine and 15 µg of fentanyl were intrathecally administered in a volume of approximately 3 mL. The patient was admitted to the hospital on the first postoperative day due to severe headache that started from the nape of the neck and that involved the entire head. The headache was accompanied by tinnitus (ringing in both ears and motor noise) and nausea-vomiting and was more prominent in the standing and sitting positions. The patient was chiefly discomforted by the tinnitus. The headache diminished while in the lying position, but the tinnitus did not subside. An intravenous access was established in the patient, and she was hydrated. An oral caffeinated analgesic and antiemetic were started. The headache alleviated on the second day of admission, but the tinnitus remained. The patient was unable to sleep and expressed that she was extremely discomforted by this. Given that it was accompanied by headache, we thought that the patient could benefit from an epidural blood patch. Following appropriate site cleaning, approximately 12 mL of the blood patch was epidurally administered by accessing the same space. The tinnitus in the left ear immediately improved following the injection, while it disappeared within approximately 12 h in the right ear. Additionally, the complaint of pain, which lost its severity with the medical treatment, completely disappeared.

Aetiology regarding symptoms related to hearing following spinal anaesthesia is not very clear. One of the proposed hypotheses is the decrease in intra-labyrinth pressure. The cochlear duct provides an anatomical connection between the cochlea and the subarachnoid distance. The composition of the perilymph in the cochlea closely resembles the cerebrospinal fluid. One of the proposed views is that a decrease in cerebrospinal fluid pressure causes a decrease in intra-labyrinth pressure and that this causes functional inability in the ear in transmitting sounds (5). Symptoms could spontaneously subside; however, there are patients who became chronic. The relationship of chronic cases with spinal anaesthesia can only be revealed by obtaining a good medical history. These patients can benefit from an epidural blood patch (1, 2, 4). In a patient who developed tinnitus following spinal anaesthesia (4 years), it was learned, upon obtaining medical history by the ear, nose and throat specialist, that the complaint started 24 h after spinal anaesthesia, and the patient was directed to an anaesthetist. The tinnitus was successfully treated by administering 20 mL of an epidural blood patch to the patient (2). A patient with postspinal 8 years tinnitus complaint underwent epidural anaesthesia for another surgical operation. The tinnitus recovered by the epidural administration of 27 mL of bolus, followed by a local anaesthetic performed by continuous infusion (3).

Due to the high rate of success and ease of application, an epidural blood patch is the accepted gold standard treatment in treating postspinal headache when conservative treatments have failed. It is a treatment whose major side effects are (usually

temporary) rare, and it is safe and effective. Side effects are low back pain or radicular pain during injection, generally related to the administered volume (6).

For evaluating these cases, the epidural administration of any application-blood, normal saline or local anaesthetics-appears to be effective in improving auditory symptoms.

In conclusion, the accompaniment of nausea-vomiting and tinnitus with headache that develops after spinal anaesthesia negatively affects the quality of life. Therefore, we think that administering an epidural blood patch without delay in the presence of auditory symptoms accompanying headache will improve the comfort of patients.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

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References

1. Güngör İ, Günaydın B, Taş A, Dayanır H, Altınsoy A. Post-spinal tinnitus requiring treatment: efficacy of epidural blood patch: case report. *Türkiye Klinikleri J Med Sci* 2012; 32: 515-9. [\[CrossRef\]](#)
2. Narchi P, Veyrac P, Viale M, Benhamou D. Long-term postdural puncture auditory symptoms: effective relief after epidural blood patch. *Anesth Analg* 1996; 82: 1303. [\[CrossRef\]](#)
3. Hasegawa H, Sanefuji Y, Kanda T, Kasai H. A case of post-spinal tinnitus which improved after undergoing epidural anesthesia (Abstract). *Masui* 2010; 59: 1254-6.
4. Wong AY, Irwin MG. Postdural puncture tinnitus. *Br J Anaesth* 2003; 91: 762-3. [\[CrossRef\]](#)
5. Hughson W. A note on the relationship of cerebrospinal and intralabyrinthine pressures. *Am J Physiol* 1932; 101: 396-407.
6. Neal JM. Update on postdural puncture headache. *Tech Reg Anesth Pain Manag* 1998; 2: 202-10. [\[CrossRef\]](#)