Epidural blood patch for post-lumbar puncture headache

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The author, principally through a survey of the available literature, provides a review of the data lending support to the use of an epidural blood patch in treating post-lumbar puncture headache. For reference purposes, it should prove helpful to CRNAs employing conduction (regional) anesthesia, specifically subarchnoid and epidural blocks.

The headache that follows dural puncture is often associated with visual and auditory difficulties and dizziness, which can be disabling to the patient and prolong hospitalization. In 1956, Dr. Dripps and Dr. Vandam\textsuperscript{1} reported on a series of patients who received 10,098 spinal anesthetics. The overall incidence of patients suffering from headache was found to be 11%; this would undoubtedly be higher when diagnostic puncture is done with a larger needle for myelography, and so on.

Many treatments for post-lumbar puncture headache have been advocated and evaluated, including abdominal binders to increase intra-abdominal pressure,\textsuperscript{2} a variety of analgesia and sedative drugs, intravenous dimenhydrinate (Dramamine\textsuperscript{3}), intravenous fluid administration, and intrathecal or epidural insertion of saline.\textsuperscript{4} In all, approximately 50 methods of treatment have been utilized.\textsuperscript{5} Though each of these treatments has enjoyed some success and has its advocates, in essence none of the methods have proven to be totally satisfactory.

In 1947, Thorsen\textsuperscript{6} suggested the injection of fibrinogen or blood at the time of puncture. Gormley\textsuperscript{7} in 1960 reported experience with his personal post-myelogram headache, and an additional 7 patients, all of whom were promptly and permanently cured by the lumbar epidural injection of the patient's own fresh blood.

**The case for epidural blood patch usage**

Since 1960, this experience has been confirmed by many others. Ozdil and Powell\textsuperscript{8} in 1965, reported 100\% prevention of post-spinal headache in 100 patients in which an epidural blood patch was used, as opposed to a 15\% occurrence in the control group of 100 patients not receiving 2.5 cc of their own blood in the epidural space as the spinal needle was withdrawn.

Di Giovanni and Dunbar\textsuperscript{9} in 1970, reported the results on 45 unselected post-lumbar puncture patients who had failed to respond to symptomatic treatments. An immediate and permanent cure was effected in 41 cases with an epidural blood patch; plus, headache was prevented in an additional 5 patients receiving an epidural blood patch prophylactically. In 1972, Di Giovanni, et al\textsuperscript{10} reported further experience of 88.8\% immediate relief plus an additional 8\% relieved within 24 hours, when post-lumbar puncture headache was treated with epidural placement of autologous blood.

Their laboratory studies using 16 Angora goats confirmed the fact that deliberate placement of unclotted autologous blood in the epidural space results in no more tissue reaction than many routinely performed diagnostic lumbar punctures. They added, "Blood confined in this closed space is not an irritant, a fact supported by the results of therapeutic laminectomies performed daily in
humans wherein no neurological sequelae are attributed to the entrapped blood.”

The duration of headache reported by Vandam and Dripps\(^1\) ranged from one day to 12 months. In 1962, Brown and Jones\(^11\) reported management of a headache lasting 5 months following myelography. On the fourth hospital admission for this problem, the surgeons elected to perform an exploratory laminectomy. On separating the epidural fat, they noted a steady flow of cerebrospinal fluid through a dural rent, of the diameter of an 18- or 19-gauge needle. Two Cushing clips were used to close the defect. Throughout a 9-month follow-up period, it was observed that the patient was free of headache and other associated symptoms.

In 1972, Glass and Kennedy\(^12\) wrote about the prompt and successful results of treatment of a persistent incapacitating post-spinal headache using an 8-ml epidural blood patch.

In 1974, Cass and Edelist\(^13\) reported the successful use of an epidural blood patch 17 weeks after the onset of a disabling post-spinal headache. All other methods of treating the patient, including 6 weeks of home stay and 12 days of hospital bed rest, had failed.

Levine and White\(^14\) in 1974, described the successful use of an epidural blood patch 8 months after the onset of myelogram headache. In 1975, Abouleish, et al,\(^15\) reported experience utilizing epidural blood patches in 118 young patients. The overall success rate was 97.5\%. A 2-year follow up revealed a 95\% patient acceptance rate of the procedure. They found an epidural blood patch to be a safe, effective method of treating severe post-lumbar puncture cephalalgia. Many others have reported equally good experience with an epidural blood patch.\(^16,17,18,19\)

**Conclusion**

Dr. L. B. Bridenbaugh\(^20\) in 1977, reviewed the available literature and found a total of 637 cases reported by 12 different medical centers. He concluded, “We question whether an immediate success rate of approximately 97\%, and the lack of any reported serious complications, do not justify an epidural blood patch performed early in the treatment of post-lumbar puncture myelogram headaches.”

**REFERENCES**


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