

PROLONGED HEADACHE FOLLOWING SPINAL PUNCTURE

RESPONSE TO SURGICAL TREATMENT

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The headaches that frequently follow spinal puncture are believed to result from leakage of cerebrospinal fluid through a rent in the arachnoidal membrane. Many reports have dealt with preventive measures, including use of needles of small caliber,⁶ splitting the dura mater rather than cutting it,² careful positioning of the patient,^{2,4} and puncturing a nontaut dura mater.^{1,3,4} Once post-puncture headache has occurred, the various modes of therapy employed have included saline infusion, variable positioning of the patient, and the use of Pitressin and other medications. To our knowledge, however, surgical treatment for post-puncture headache has not been reported previously.

CASE REPORT

R.L., a 32-year-old white laborer, was admitted to Franklin Hospital on Sept. 8, 1959, because of a history of pain low in the back and in the left lower extremity which followed an injury while lifting. There were no neurologic abnormalities, no evidence of mechanical derangement of the lower part of the back, and no previous history of headache. Various modes of conservative treatment failed to give him relief.

Lumbar myelography was performed on September 9. A #19 gauge spinal needle was inserted at the L3-L4 interspace and only one puncture was necessary. The study showed a prominent L4 disc. All of the Pantopaque was removed and on the following day the patient was discharged from the hospital without any post-puncture symptoms.

2nd Admission. The patient was readmitted on September 13 with a severe headache which had begun the night of his discharge from the hospital. He described the headache as a "balloon-in-the-head feeling." Examination revealed nuchal rigidity and a positive Kernig's sign. Straight leg raising was limited to 20/20. The headache was not present when the patient was supine but would return as soon as he stood up. He was treated with rest in bed and symptomatic medications. By September 19, he could be up for periods of 20 min. or more without headache developing; he was then discharged from the hospital.

3rd Admission. He was readmitted because of persistent occipitofrontal headaches related definitely to the upright position which were aggravated by movements of the head or eyes. The headache could be produced by suboccipital pressure or jugular compression. Among the patient's other complaints were vertigo, tinnitus, pain in the posterior cervical musculature, and aching

in the arms. He held his head craned forward in a "goose-neck" fashion when walking. During the ensuing month, physiotherapy, Trendelenburg position, suboccipital injections of procaine, and symptomatic medications gave no relief.

On November 11, spinal puncture at the 3rd lumbar level showed clear fluid with no measurable spinal fluid pressure. Because of the patient's continuing disability from the headaches, further neurosurgical consultation was requested. The consultant suggested that carotid arteriograms be done to rule out the possibility of a collection of intracranial subdural fluid. On December 6, a dental abscess was detected and evacuated without any change in the patient's condition or his complaints.

On December 18, the patient was transferred to another hospital. Carotid arteriography, carried out under general anesthesia, showed no abnormalities.

4th Admission. The patient was readmitted on Jan. 15, 1960, with continuing headaches, "goose-necked" posture, and unchanged symptoms of the back and lower extremity. An operation for his intervertebral disc disease was decided upon at this point because of the patient's failure to respond to conservative treatment and because of a mild myelographic defect.

Operation. Bilateral L4, partial laminectomy and discectomy were carried out on February 4, 5 months after myelography. When the ligamentum flavum was reflected, a continuous flow of spinal fluid was seen seeping downward from above the area exposed. The epidural fat was edematous, indurated, and pale in color. (The myelogram performed on September 9 had shown the site of the needle to be mid-line at the inferior edge of L3 lamina.) The interspinous ligament between L3 and L4 was removed, as was the inferior portion of the L3 spine and a small area of the adjacent lamina.

On separating the edematous epidural fat, a steady flow of spinal fluid poured through a dural rent, the size of a #18 or #19 gauge needle. The dural fibers which had been cut by the needle had not healed. The dura mater was elevated carefully and two Cushing clips were applied to close the defect. No evidence of the second spinal puncture was found and the spinal-fluid leak was arrested completely.

Course. The day after operation the patient stated that he still had a headache but of a different kind. On the 2nd postoperative day he was free of headache and gradually over the course of the next 2 weeks he stopped holding his head and neck in a "goose-neck" position. In the ensuing 9 months he has had occasional headaches, but they have been brief in duration and unrelated to posture.

SUMMARY

Prolonged headache following spinal puncture is well documented⁵ and several theories have been advanced to account for it, i.e., psychic fixation, muscular tension, or cerebrospinal-fluid leakage. This case demonstrates the relief of prolonged post-puncture headache, associated with persistent arachno-dural leakage of cerebrospinal fluid, subsequent to surgical intervention of the leakage.

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