Prophylaxis of postmyelogram headaches

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One hundred patients undergoing myelography received prophylactic autologous epidural blood patches to prevent postmyelogram headache. The results indicate a significant reduction in the incidence and severity of this problem compared to a control group, without any significant side effects.

Key Words • myelogram • headache • spinal fluid • prophylaxis

The onset and persistence of headache following myelography is a continual problem to physicians who perform this procedure. While the incidence of headache after diagnostic lumbar puncture varies from 18% to 32%, headache following myelography is reported in 31% to 44% of cases.

An epidural injection of autologous blood has been reported to be an effective method of treating headache caused by a persistent cerebrospinal fluid (CSF) leak following diagnostic lumbar puncture and spinal anesthesia. However, the use of an intrathecal contrast medium in myelography adds an additional parameter to the etiology of the postmyelogram headache, and could affect the response to treatment by epidural blood patch. In most cases mild transient backache is the only reported sequela of treatment with epidural blood patch, but there has been a report of severe radicular pain following this procedure. Because most patients who undergo myelography already have significant back and radicular problems, the use of epidural blood patches could compound this problem.

For these reasons, we have studied the value and consequences of prophylactic autologous epidural patch in postmyelogram headaches.

Clinical Material and Methods

We studied 100 consecutive patients who underwent myelography with Pantopaque in a 10-month period. All patients who had a complete block to the flow of the contrast medium, bloody CSF, or multiple taps were excluded from the series. Any patient with more than a few scattered drops of residual Pantopaque was likewise excluded. The age of the patients varied from 17 to 80 years, with an average age of 51 years. There were 55 men and 45 women. The CSF protein varied from 17 to 110 mg%, with an average of 62 mg%. We used the 100 previous consecutive patients undergoing Pantopaque myelography as control patients. The age, sex distribution, and CSF results of the controls were not significantly different from the series studied.

All patients are hospitalized for myelography at our hospitals. All lumbar punctures for myelograms were performed under fluoroscopic control with the patient in the prone position. The lumbar puncture was performed with a No. 18 spinal needle, 4 to 6 cc
of CSF was removed for appropriate studies, and 6 to 12 cc of Pantopaque was used, depending on the individual procedure. All contrast material was removed after the study. The volume of CSF removed was the same in both groups.

The blood patch was placed as follows. The venipuncture site was prepared aseptically and 2.5 ml of blood was withdrawn. The lumbar puncture needle with a Cuatico stylet was withdrawn slowly, until there was no further flow of CSF. The needle was then withdrawn further and rechecked for any CSF flow. The blood was then injected slowly to plug the hole and deposit a clot in the epidural space at the puncture site. All patients in both groups were kept supine after the myelogram for 6 to 8 hours.

All patients were followed for at least 6 months postmyelogram by one of us or by reports from referring physicians to rule out any delayed headache problem. Those patients who were free of headache were graded as Class I. Patients with a mild headache lasting 24 hours or less were classified as Class II. Patients with mild to moderately severe headaches lasting less than 72 hours were classified as Class III. Patients with moderately severe headaches lasting over 72 hours or severe headaches were classified as Class IV.

**Results**

Thirty-nine patients of the control series developed postmyelogram headaches. Of these, 11 were in Class II, 13 in Class III, and 15 in Class IV (Table 1). Only five patients of the group who received the epidural blood patch developed postmyelogram headache, which was mild and transitory in all cases (Table 1). The results were significantly different by chi-square testing (p < 0.001).

Nine patients who received the epidural blood patch developed increased transitory low-back pain. No patients developed any increased radicular symptoms or neurological deficit during the follow-up period. There was no evidence of any other side effects. This did not differ significantly from the seven patients of the control group who developed increased back pain following myelography.

**Discussion**

There is considerable evidence that headaches following spinal puncture result from low CSF pressure caused by leakage through the puncture in the dural sac. In a case of prolonged headache after lumbar puncture, Brown and Jones performed an exploratory laminectomy and repaired a tear in the dura with surgical clips, thus relieving the headache. Nelson plugged the dural hole with dried catgut introduced through the spinal needle. He believed that catgut would swell and occlude the puncture site. This did reduce the incidence of headache but caused a cauda equina syndrome in a large number of the patients. Emory, however, reported failure with this technique. In 1960, Gormley published his initial studies of the use of epidural blood patches and reported immediate and permanent relief of headache after spinal puncture. Since that time other authors have reported similar results.

Ozdil and Powell reported prophylaxis of headaches after spinal anesthetic; they injected autologous blood clots on removing the spinal puncture needle. They found no headaches in 100 patients as compared to a 15% incidence in the control group.

The frequency of postspinal headaches was reduced by using small bore needles. Unfortunately, lumbar myelography with Pantopaque requires the use of larger gauge spinal-puncture needles, which obviates this advantage.

Our study showed a significant reduction in the incidence of postmyelogram headache. Indeed, one patient from the control group required an epidural blood patch for refractory postmyelogram headache.

No significant side effects were noted. There was some transient low-back pain, but this was not troublesome. Of course, we do not recommend this in patients with complete or almost complete blocks on myelography.
There was no incidence of infection or hepatitis in our series. Arachnoiditis can be a severe but infrequent complication of Pantopaque myelography. To avoid the intradural injection of blood, the spinal needle with a Cuatico stylet is withdrawn slowly until there is cessation of CSF flow, following which very slight further withdrawal with a repeat check for CSF flow is carried out. Any patients with residual intradural Pantopaque were excluded from the study.

During the follow-up period, although brief, no evidence of increasing clinical symptomatology was noted in these patients. Based on the results of our study, we believe that epidural blood patch is an effective prophylaxis and treatment for postmyelogram headache.

**References**


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