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## Radicular Back Pain Following Lumbar Epidural Blood Patch

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Until recently, management of patients with post-lumbar-puncture headache has been troublesome. In 1960, Gormley<sup>1</sup> described the cases of six patients in whom he injected 2-3 ml of autologous blood into the epidural space at the level of the original lumbar puncture and produced dramatic and lasting relief of the headache. This method received more widespread publicity when DiGiovanni<sup>2</sup> reported a series of 50 patients who received epidural blood patches. Complications following epidural blood patches have been mainly limited to low-back discomfort, transient paresthesias, and tenderness over the injection site. Only one case of a transient neurologic complication has thus far been reported.<sup>3</sup> In the case described below, severe low-back pain with signs of

nerve root involvement followed an epidural blood patch.

### REPORT OF A CASE

A 36-year-old woman had suffered an anterior septal myocardial infarction in December 1973. In April 1974, she was found to be pregnant, and was scheduled for therapeutic abortion and vaginal tubal ligation. Additional history revealed that she was taking no medication and had never taken anticoagulants, and she had not had a previous epidural or subarachnoid block.

The patient was 162 cm tall and weighed 47 kg. No physical or laboratory abnormality was found. Spinal anesthesia was administered for the operation. Lumbar puncture was performed without difficulty at the L3-4 interspace using a 25-gauge spinal needle. The day after operation, the patient complained of headache, and was instructed to increase her fluid intake. She was discharged from the hospital on the second postoperative day, still complaining of a moderate headache. On the fourth postoperative day, the patient returned to the hospital complaining of a severe incapacitating headache. On examination, the patient had a continuous headache, the severity of which increased markedly with upright posture. She was

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afebrile, and there was no sign of meningeal involvement.

With the patient in the lateral position, a 16-gauge Touhy needle was easily placed into the epidural space at L3-4. Autologous blood, 7.5 ml, was drawn aseptically from an antecubital vein and injected into the epidural space. There were no paresthesias with the injection. The patient was then placed supine for 50 minutes. At this time, the patient still had a slight headache, but upon sitting up, it did not worsen. An hour and 20 minutes after the procedure, the patient was ambulatory and voided without problem, but when she attempted to dress, she experienced a severe pain in the lumbar region with radiation to the right buttock. The severity of the pain was such that she was comfortable only when supine. Examination one and a half hours after the procedure showed normal strength, deep tendon reflexes, and sensation in both lower extremities. The straight-leg-raising test caused severe pain in the back radiating to the right buttock with 15-degree elevation of either leg. The patient was maintained in the supine position and the straight-leg maneuver was repeated several times. After half an hour, the legs could be elevated to 45 degrees before severe pain recurred. The patient was able to stand and walk with only moderate discomfort, but the sitting position was very painful. Straight-leg raising was performed several more times, and two hours and 15 minutes after the procedure, the patient was discharged, now being able to sit with only moderate discomfort. She was instructed to walk at will. The following day, she still had significant low-back pain, but could walk without assistance. Two weeks after the epidural blood patch, she had a slight soreness in her back that did not limit her activities in any way.

#### DISCUSSION

Animal experiments have shown that the placement of autologous epidural blood probably acts as a gelatinous plug, sealing the dural rent and thereby preventing further loss of cerebrospinal fluid.<sup>4</sup> The same experiments also demonstrated the lack of any inflammatory response to blood placed in the epidural space, a fact clinically evident from the postoperative courses of patients undergoing laminectomies. That our patient sat up at least four times and was ambulatory prior to the onset of her symptoms is perplexing. The two most probable mechanisms for explaining the onset and duration of her symptoms are that the clot gradually began to

retract, causing traction between the nerve roots and surrounding structures, or that the clot caused mechanical compression of the nerve roots when the patient flexed her spine. Another explanation is that of an inadvertent epidural hematoma secondary to the procedure. That this patient's symptoms responded favorably to repeated straight-leg raising and ambulation seems to discount any direct neural irritation or trauma from the procedure. In other reported case of radicular back pain following an epidural blood patch, the condition also responded favorably to flexion exercises, completely resolving in ten days.<sup>3</sup>

It is interesting that Gormley originally injected 3 ml of autologous blood when he first described the epidural blood patch. The recent literature seems to favor 10 ml as the therapeutic epidural blood patch volume, and indeed the other case of radicular nerve pain following an epidural blood patch occurred with the use of 10 ml of blood. If the volume of the clot or the attachment of the clot to adjacent structures is the cause of the radicular symptoms, it may be wise to use smaller volumes of blood.

Although permanent neurologic complications following epidural blood patches have not been reported, there is nonetheless a possibility that patients may suffer transient neurologic symptoms that can be as incapacitating as the original headache.

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