Herniated nerve root as a complication of spinal tap

Case report

TARIQ S. SIDDQUI, M.D., AND WILLIAM A. BUCHHEIT, M.D.

Department of Neurosurgery, Temple University Health Sciences Center, Philadelphia, Pennsylvania

A case is described in which a patient suffered severe radicular leg pain following myelography. At surgery, a nerve root was found to be herniated through the dural puncture site. The leg pain was relieved after the dura was opened and the nerve root repositioned. The possible mechanism of such an injury is discussed.

KEY WORDS spinal puncture • herniated nerve root • dural perforation • radicular leg pain • ruptured lumbar disc

The complications resulting from lumbar puncture have been well documented in the neurosurgical literature. These complications include mild backache, persistent headache, meningitis, and herniated disc, as well as inoculation of epidermal tissue, and the associated growth of epidermoid tumors. We are now reporting a case of an impacted lumbar nerve root, identified at surgery the day after myelography.

Case Report

This 24-year-old man was admitted to Temple University Hospital with the chief complaint of back pain that had been progressively increasing for 5 years. The pain was localized to the lumbar area, with radiation bilaterally to the buttocks and occasionally down the posterior aspect of the left leg into the ankle.

Examination. The patient had a positive Laseque's sign bilaterally and a decreased left Achilles reflex. Sensory examination was normal. He had no motor or sphincter weakness. There was bilateral lumbar paraspinal muscle spasm.

The lumbosacral spine films were normal. Pantopaque myelography was then performed. Spinal taps at the L2–3 and L3–4 levels did not produce cerebrospinal fluid, but an L1–2 puncture was successful. The myelogram demonstrated a complete block at the L2–3 level from a ventral extradural defect. Following the myelogram, the patient's back pain became acutely worse, with pain radiating down the posterior aspect of the left leg. This was associated with progressively increasing headache.

Operation. The day after myelography, a lumbar laminectomy was performed at the L2–4 level. At the L-2 level, a central extruded disc was identified and successfully removed. Following the disc removal, inspection of the dura at the L-3 level revealed a single nerve root herniating through the lumbar puncture site (Fig. 1). It was necessary to open the dura for 1 cm to return the nerve root to its normal position, after which the dura was closed primarily.

Postoperatively, the patient had immediate and complete relief of the postmyelogram leg pain, and within a few days his original back pain abated.

Discussion

Injury to lumbar nerve roots may at times be associated with myelography. Young and Burney3 reported a case of transection and withdrawal of a nerve filament by a spinal puncture needle. Morettin and Wilson1 described two cases of Sudeck's atrophy following injury of the cauda equina with a lumbar puncture needle. Weber and Weingarden2 reported electromyographic (EMG) abnormalities following myelography in 13 out of 32 patients with previously normal EMG's. These authors noted that the abnormalities developed by the 1st day following myelography and had usually resolved by the 4th day. Unfortunately, there was no correlation reported between
FIG. 1. Diagram showing the nerve root herniating through the dural puncture site.

to be herniation of the nerve root into the spinal needle while the contrast medium or cerebrospinal fluid is being withdrawn after the spinal tap. This suggests that the stylet should be placed before the needle is withdrawn. One wonders how often this phenomenon occurs as the etiology of sciatica and persistent headaches following myelography. In addition to the nerve root strangulation, this event may prevent the normal closure of the arachnoid and dura at the puncture site and facilitate the prolongation of postspinal tap headaches.

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References


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Address reprint requests to: Tariq S. Siddiqi, M.D., Department of Neurosurgery, Temple University Health Sciences Center, 3401 North Broad Street, Philadelphia, Pennsylvania 19140.