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# Use of Sitting Position to Relieve Myelographic Obstruction

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In some patients with lumbar spinal stenosis, opacification of the subarachnoid space beyond the stenosis is difficult to achieve during myelography. A second lumbar puncture caudal to the obstruction or computed tomography is often required to complete the examination.

We encountered this difficulty in seven patients with this condition, and when the patients assumed a sitting position during the examination, the contrast material was able to flow beyond the obstruction.

## Materials and Methods

Lumbar myelography was performed in the usual fashion by using 10–15 ml of metrizamide (180 mg/ml). When an obstruction in the lower lumbar subarachnoid space was encountered (eight patients), the patient was asked to assume a sitting position on the edge of the myelography table. After 5–10 min, the patient was turned prone. The head of the table was elevated 10–15° to facilitate moving the patient and to encourage flow of contrast material. Standard overhead radiographs were then made, if the presence of contrast material distal to the obstruction was confirmed by fluoroscopy.

## Results

In seven of the eight patients in which it was attempted, having the patient assume a sitting position during myelography resulted in satisfactory opacification of the subarachnoid space caudal to an obstruction caused by spinal stenosis (Fig. 1). In the eighth patient, the maneuver was successful at a block located at L3–L4, but not at a second obstruction at L4–L5.

## Discussion

Previous authors have noted the effect of posture on abnormalities seen during lumbar myelography. Extension of the back causes the intervertebral discs and the ligamentum flavum to bulge, thereby accentuating the radiologic findings of spinal stenosis [1].

Lumbar myelography in the prone position usually entails a

mild to moderate degree of lumbar extension. This enhances the degree of lumbar spinal stenosis and restricts the flow of contrast material beyond the narrowing. Since this condition often occurs at multiple levels, visualization of the entire lumbar subarachnoid space is particularly important.

Sortland et al. made lateral radiographs during myelography with patients sitting in flexion, extension, or a neutral position [2]. Thirty-six patients with symptoms of spinal stenosis were studied. The anteroposterior diameter of the subarachnoid space increased an average of 8.6 mm during flexion compared to extension. In eight of these, a subarachnoid block on extension was relieved by flexion. Yamada et al. performed myelograms on five patients with compression of the cauda equina. In these, complete obstruction of the subarachnoid space on myelography during extension was relieved by flexion [3].

All but one of the eight patients in our series underwent flexion maneuvers in the erect position during the myelograms. However, caudal opacification of the subarachnoid space did not occur until the patient assumed the sitting position.

We were prompted to try the sitting maneuver because patients had frequently reported that sitting gave them relief from back and leg discomfort. Other patients may find different positions to achieve symptomatic improvement. These positions should be determined and, when a block is encountered, they should be used during the myelogram to encourage flow of the contrast material.

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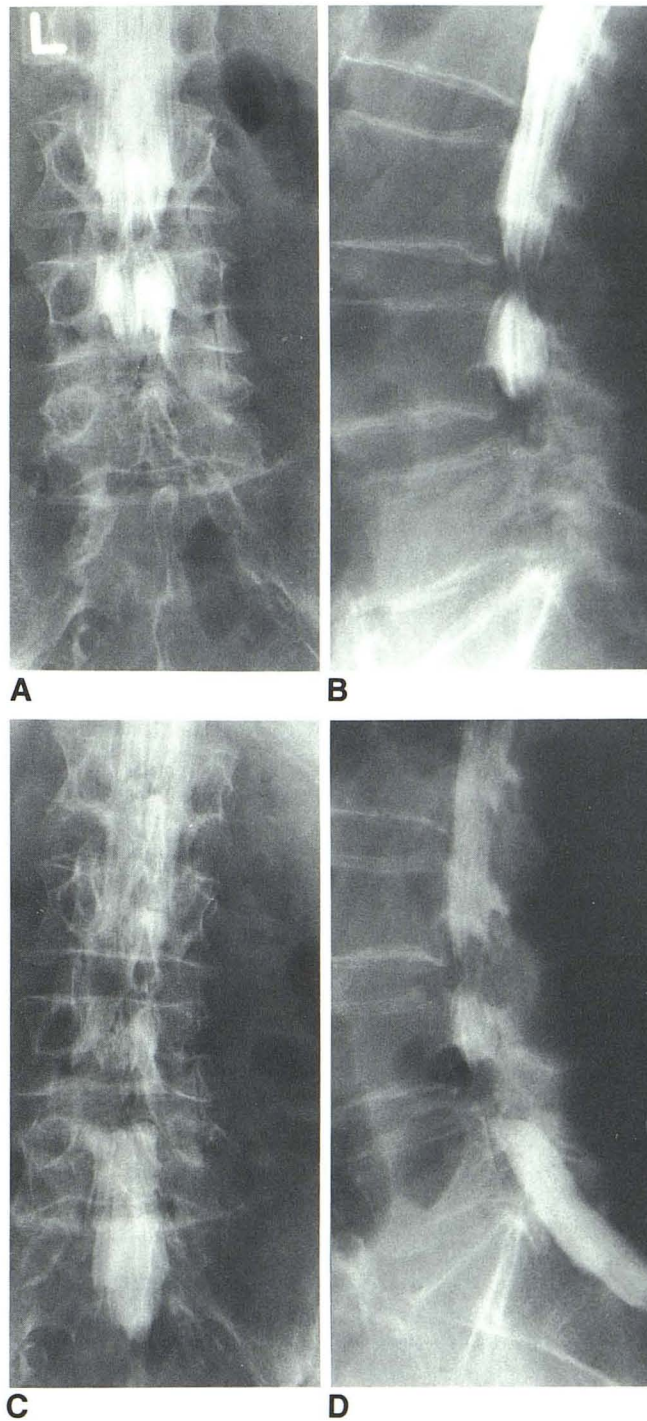


Fig. 1.—Views of 81-year-old man with symptoms of spinal stenosis. During metrizamide lumbar myelogram (A, posteroanterior; B, lateral). Markedly improved opacification distal to subarachnoid block after sitting maneuver (C, posteroanterior; D, lateral).