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## Lumbosacral Meningioma

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Meningiomas constitute 25% of all neoplasms of the spinal canal [1]. Most meningiomas occur at the thoracic level (83%), followed by the cervical region (16.5%), and are rare in the lumbar region (1.5%) [1]. Sacral meningiomas without lumbar extension have not been documented. Including the present case, two meningiomas have been documented at the L5-S1 level [2].

### Case Report

A 19-year-old man had a 10-month history of back pain radiating down the posterior aspect of the right thigh. The physical examination at the time was normal. The plain films and bone scan were normal, except for S1 spina bifida occulta. A noncontrast CT scan of the L4-L5 and L5-S1 disk space, with sagittal and coronal reconstructed images, was also normal, even in retrospect. Repeat studies with intravenous contrast material were not carried out at that time. Initially, the patient improved on a program of rest and exercise. One year later, however, he complained of more severe pain, worse at night, in the same distribution as before. He denied any bladder or bowel dysfunction. On physical examination, flexion to 45° produced low back pain radiating to both legs. Straight leg raising caused pain in the posterior thigh at 60° bilaterally. No leg weakness or other abnormalities were present. Repeat plain films of the lumbosacral spine were unchanged. The cerebrospinal fluid obtained at the time

of myelography was clear, with a glucose of 56 mg/dl and a protein of 111 mg/dl; no cells were present. A metrizamide myelogram (fig. 1) demonstrated an intradural lesion almost completely obstructing the canal at the L5-S1 level. A CT scan (fig. 2) at the L5-S1 level, after the myelogram, demonstrated a homogeneous filling defect with an attenuation value of about 45 H. There was no evidence of calcification or hyperostosis, but the canal appeared slightly expanded. No extradural component was seen. At surgery, an intradural tumor attached only to the arachnoid membrane at the L5-S1 level was completely removed. Pathology demonstrated a meningothelial meningioma with extensive hyalinization. Postoperatively, the patient recovered without any neurologic deficits, and was pain free.

### Discussion

The diagnosis of spinal meningioma is usually delayed about 2 years from the onset of symptoms, and misdiagnosis is common [3]. Pain, which is the most common symptom, is usually local and only occasionally radicular (21%) [3]. Other common symptoms are sensory loss and weakness, and bladder and bowel dysfunction. On physical examination, most patients have significant weakness and hyperreflexia. Our patient was initially thought to have a herniated lumbar disk, but the negative CT scan influenced no further workup at that stage. Later, with recurring symptomatology, a mye-

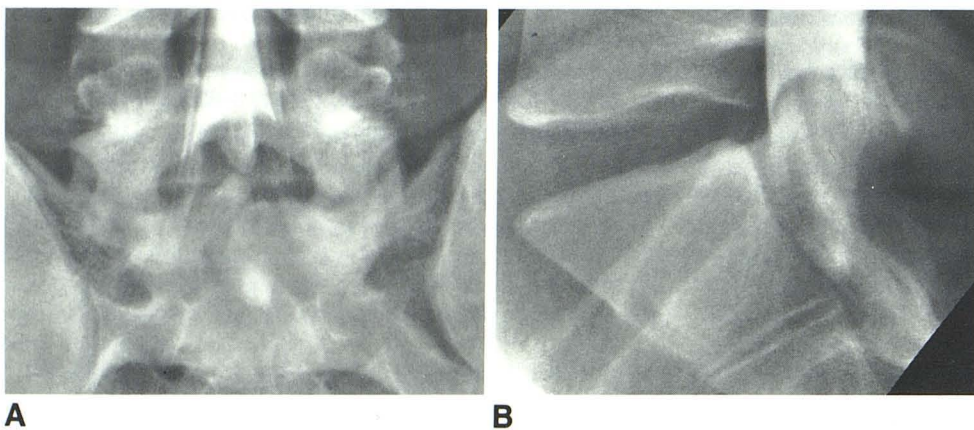


Fig. 1.—Anteroposterior (A) and lateral (B) views of metrizamide myelogram. Intradural lesion at L5-S1 level.

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Fig. 2.—Axial (A) and sagittal reconstructed (B) CT views after metrizamide myelography. Intradural lesion. Note slight anteroposterior expansion of spinal canal (arrows).

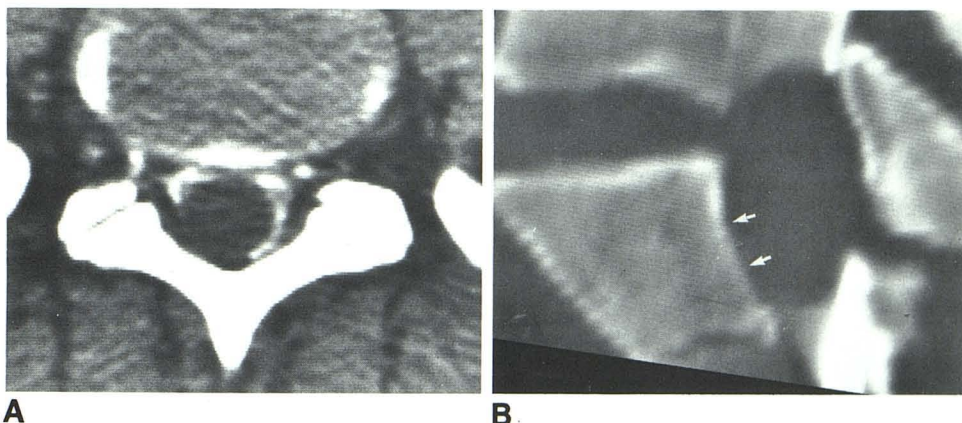


TABLE 1: Reported Spinal Meningiomas

	Reference		
	[2]	[3]	[10]
Total spinal meningiomas	130	97	126
L1	3	3	4
L1-L2	...	...	1
L2	...	1	...
L3	...	1	...
L4	1	1	...
L5	...	1	1
L5-S1	1	...	...

logram and a subsequent CT scan were obtained, and an epidermoid, a neurofibroma, or a drop metastasis was considered as a possible diagnosis.

The CT findings of a spinal meningioma [4] include a mass, with a density slightly higher than the spinal cord and occasionally dotted with calcification. Low-density areas representing cystic changes are rare. Hyperostosis can be seen on CT and is a relatively specific finding. The tumor enhances homogeneously with contrast material. On the metrizamide CT scan, the lesions are easily visualized.

Lumbar meningiomas are rare. As with other meningiomas, they occur more often in women than in men [3, 5-9]. Of the 18 lumbar spine meningiomas previously reported in large surveys [2, 3, 10], most occurred opposite L1 (table 1).

The distribution of meningiomas in the head reflects the distribution of the arachnoid cells, which is thought by most authors to be the cell of origin [11-15]. The distribution of meningiomas in the spine does not follow the distribution of the arachnoid cells. A recent study of the thoracic and lumbar arachnoid and dural membranes by Kido et al. [16] shows that the arachnoid villa and granulations are distributed on almost every nerve root in the thoracic and lumbar region. Although the number of arachnoid cells was slightly increased in the thoracic region, the data did not explain the preponderance of the thoracic meningioma. A recent study of 97 cases

of spinal meningiomas by Levey et al. [3] found that 59% were syncytial (meningothelial), 21% transitional (psammomatous), and most of the rest were classified as nonspecific (16%).

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