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Small Cauda Equina Neurinoma Detected by MR Imaging

Case Report

A 56-year-old man whose chief complaint was lumbago came to our outpatient clinic. He had mild muscle tenderness in his lower back; however, neurologic examinations showed no abnormality. Plain films of the lumbar spine were normal. On MR a small high-intensity area was seen in the spinal canal of the fourth lumbar vertebra in spin-echo sequences (1200/60 [TR/TE]) (Fig. 1A). The mass was isointense compared with CSF in inversion recovery sequences (1400/420 [TR/TI]). The possibility of a spinal tumor was considered, and the patient was admitted. Myelography (Fig. 1B) and X-ray CT showed a small mass less than 1 cm in diameter in the subarachnoid space of the fourth lumbar vertebral body. The mass was diagnosed as a small tumor of the cauda equina. The patient's lumbago disappeared after bed rest, and we did not think that it was related to the tumor. Surgery revealed a yellowish, elastic, soft mass 8 × 5 × 5 mm that was attached to one of the nerve roots of the cauda equina (Fig. 1C). Complete removal of the mass was easy. Pathologic examinations showed neurinoma. The patient had no neurologic deficit after the operation.

Discussion

Although MR imaging occasionally detects a small lesion in the brain that cannot be detected by X-ray CT scans, detection of an early tumor in the spinal canal has not been reported before [1–5]. Sarpel et al. [6] detected early metastatic lesions of vertebral bodies in patients who had malignant tumors but no intradural tumor.

Because the spinal cord is a longitudinal organ, sagittal MR sections are particularly advantageous. Also, MR is not disturbed by the bone that surrounds the cord [7–10]. Patients with spinal tumors usually come to the hospital after some neurologic abnormalities have occurred, and complete removal of the tumor without any associated neurologic deficit is usually difficult. Early diagnosis is therefore important.

Myelography and postmyelography CT have been the only effective methods for diagnosis of spinal tumors, but they are invasive and not suitable for outpatients. MR is remarkably useful and is noninvasive. This case suggests that spinal MR should be considered for patients who have low back pain. CT has proved useful for diagnosis of disk disease, but usually it cannot show intraspinal neoplasm.

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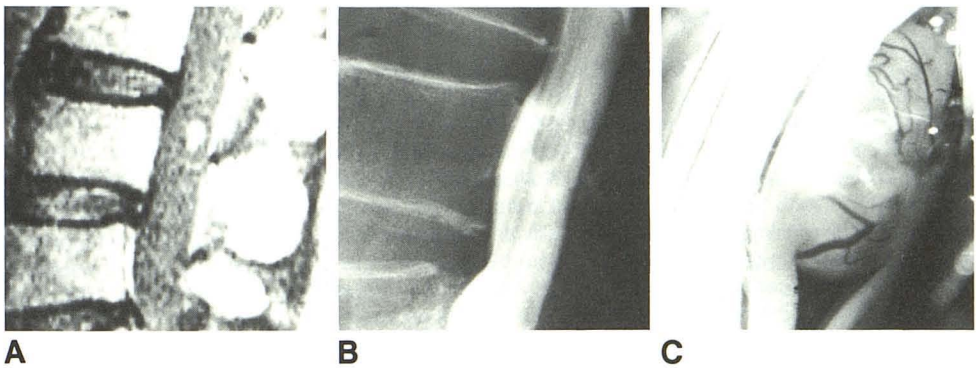

Fig. 1.—Neurinoma of cauda equina.
***A*, MR image (spin-echo sequence) shows a small high-intensity mass in lumbar spinal canal.**
***B*, Myelogram shows a mass in subarachnoid space of fourth lumbar vertebral body.**
***C*, Intraoperative photograph shows an 8 × 5 × 5 mm, yellowish, elastic, soft tumor of cauda equina attached to a nerve root.**

REFERENCES

1. Grafin EH, Loffler W. Nuclear magnetic resonance image of brain tumors unrevealed by CT. *Eur J Radiol* **1982**;2:226–234
2. Nose T, Kukita C, Yoshii Y, et al. A case of malignant glioma diagnosed by MRI. *Kaku Igaku* **1985**;22:1081–1086
3. Yamaura A. NMR: Basic and clinical research in diagnosis of CNS lesions. *No To Shinkei* **1985**;37:433–443
4. Enzmann DR, O'Donohue J. Optimizing MR imaging for detecting small tumors in the cerebellopontine angle and internal auditory canal. *AJNR* **1987**;8:99–106
5. Schörner W, Meencke HJ, Felix R. Temporal-lobe epilepsy: comparison of CT and MR imaging. *AJNR* **1987**;8;773–781
6. Sarpel S, Sarpel G, Yu E, et al. Early diagnosis by magnetic resonance imaging. *Cancer* **1987**;59:1112–1116
7. Han JS, Kaufman B, Yousef SJ, et al. NMR imaging of the spine. *AJNR* **1983**;4:1151–1159, *AJR* **1983**;141:1137–1145
8. Bradley WG Jr, Waluch V, Yadley RA, Wycoff RR. Comparison of CT and MR in 400 patients with suspected disease of the brain and cervical spinal cord. *Radiology* **1984**;152:695–702
9. Paushter DM, Modic MT, Masaryk TJ. Magnetic resonance imaging of the spine: applications and limitations. *Radiol Clin North Am* **1985**;23:551–562
10. Baleriaux D, Deroover N, Hermanus N, Segebarth C. MRI of the spine. *Diagn Imag Clin Med* **1986**;55:66–71