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Intradural epidermoid tumors occur more often in patients with a history of one or more lumbar punctures [1–4]. It is hypothesized that they result from skin fragments introduced into the thecal sac during lumbar puncture and that they differ from the congenital heterotopic lesions. This report details the characteristic patient history, the water-soluble myelographic findings, and the MR appearance of this lesion, with pathologic confirmation.

Case Report

A 35-year-old man noted the onset of an aching pain in the left leg and subjective weakness 7 months before presentation. His medical history was significant for encephalitis when he was 6 years old that was treated with multiple lumbar punctures. A seizure disorder had persisted since that time. On physical examination, motor strength was essentially normal, but hypesthesia to pin prick in the upper one-third of the thighs was noted bilaterally. Water-soluble myelography and MR examination were performed (Fig. 1). At surgery, a "pearly" mass was identified; it displaced the nerve roots and did not arise directly from a nerve root, the filum terminale, or the dura. Gross pathologic examination revealed a firm mass, which, on sectioning, contained a waxy appearing material resembling a cholesteatoma. Microscopic examination revealed fragments of keratin consistent with an epidermoid tumor.

Discussion

Acquired intraspinal epidermoid tumors are thought to differ from congenital heterotopic dermoids and epidermoids [4]. They lack the overlying epidermal defects such as spina bifida, hemi vertebrae, pilonidal sinus, focal hypertrichosis, telangiectasia, and subcutaneous lipoma that often are associated with the congenital lesions [5]. They almost always occur in the region of the cauda equina and may be multiple [2]. Bone changes have not been reported, in contradistinction to the congenital epidermoids and dermoids [6]. Although most cases of this entity have involved children who had multiple lumbar punctures for treatment of tuberculous or pyogenic meningitis, epidermoids have occurred in patients who have had a single lumbar puncture for spinal anesthesia or diagnostic studies [4]. Experimental evidence has shown that fragments of epidermis remain in the lumen of a nonstylet needle after 69% of skin punctures and that viable epidermoids and dermoids could be induced in 89% of animals by surgical implantation of skin fragments [7, 8].

The myelographic findings of acquired epidermoids are not specific. The MR appearance of this lesion is characteristic of its composition. Cholesterol, formed from keratin degradation, is present within the tumor in various amounts. The marked shortening of T1, as seen in some craniopharyngiomas, does not occur. This has been attributed to differences in hydration of the cholesterol. Epidermoids contain solid cholesterol whereas craniopharyngiomas contain liquid cholesterol [9]. The solid cholesterol crystal content of epidermoid tumors produces imhomogeneous signal intensity on T1-weighted images and increased signal on proton-density and T2-weighted images. The hyperintense signal on proton-density and T2-weighted images is thought to reflect the proteinaceous composition of the lesion [10]. As the MR appearance of an intraspinal epidermoid tumor is not specific, other entities to be included in the differential diagnosis are drop metastasis, ependymoma, astrocytoma, neurinoma, and cysticercus cysts.

Although the MR and myelographic findings are not pathognomonic for acquired epidermoid tumors, the clinical history is usually characteristic. Most patients are young and have a history of one or more lumbar punctures. They invariably have back pain that may radiate into one or both lower extremities [1–3]. The skin over the lumbar region may appear stippled from multiple previous lumbar punctures [3]. This characteristic clinical history and the MR findings may allow a confident diagnosis of this benign lesion in many cases.

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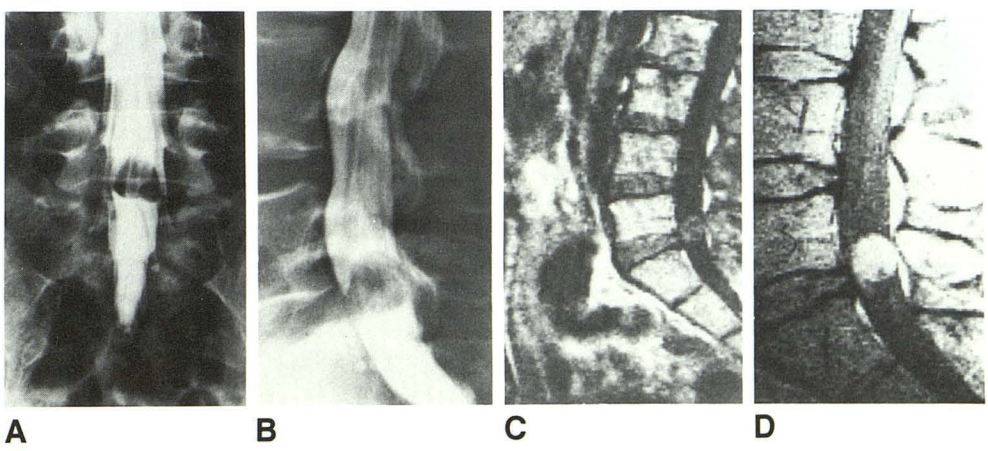

Fig. 1.—Acquired spinal epidermoid tumor.

***A* and *B*, Anteroposterior (*A*) and lateral (*B*) views from iohexol myelography show sharply demarcated, slightly lobulated intradural filling defect.**

***C*, T1-weighted MR image, 300/30, shows mixed signal intensity.**

***D*, Proton-density MR image, 1000/40, shows hyperintensity in mass.**