NEUROLOGICAL PICTURE

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Spinal endoscopic biopsy in the diagnosis of central nervous system neurosarcoidosis

A 55 year old woman was admitted to our hospital for progressive spastic paraparesis in March 2005. She had no history of systemic disease including sarcoidosis. Cerebrospinal fluid examination showed pleocytosis and increased protein levels. Gadolinium enhanced, T₁ weighted, magnetic resonance imaging (MRI) performed at the time disclosed diffuse meningeal enhancement from the cerebral basal cistern including the pituitary stalk (fig 1A), brain stem to the spinal cord, and the nodular lesions of the lumbar spinal cord, suggesting diffuse leptomeningitis (fig 1B–D).^{1 2} Screening tests for neoplastic spinal meningeositis, infections, and sarcoidosis, including serum and cerebrospinal fluid angiotensin converting enzyme were all negative.³

Based on the laboratory data and the MRI findings, central nervous system (CNS) neurosarcoidosis was suspected.^{1–4} In order to obtain a definite diagnosis, the nodular lesions of the lumbar spinal cord were biopsied using a spinal cord endoscope that was introduced from the L4/5 vertebral level (fig 2A).⁴ The histology of the biopsied specimen revealed noncaseating granuloma, compatible with sarcoidosis (fig 2B). The patient's neurological symptom of spastic paraparesis and her CSF findings improved in parallel with the attenuation of the enhanced lesions on MRI (fig 2E) after administration of a 3 day course of intravenous methylprednisolone (1 g/day), followed by 60 mg/day of oral prednisolone for a month.

Our case indicates that diagnosis of CNS neurosarcoidosis is not always easy and essentially requires histological examination.^{1–4} Spinal endoscopic biopsy could be of value for suspicious CNS neurosarcoidosis involving the spinal cord, as spinal endoscopy is less invasive than surgical resection, and permits a definite diagnosis and early treatment.

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Figure 2 (A) A spinal endoscope disclosed the nodular lesions, which were enhanced in contrast MRI (arrows). (B) The specimen biopsied from the lesion contained striated epithelioid cells (arrows) within granulomatous inflammation, compatible with noncaseating granuloma seen in sarcoidosis nodules.

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Figure 1 Gadolinium enhanced, T₁ weighted, MRI revealed diffuse or nodular leptomeningeal enhancement of basal cistern of the brain involving the pituitary stalk (A), and around the whole spinal cord, extending from the brainstem to the lumbar spinal cord, suggesting leptomeningitis (A–D). The enhanced MRI lesion disappeared following administration of corticosteroids (E).