Spinal cord vasculitis presenting as a spinal cord tumor in a heroin addict

Case report

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Progressive quadriparesis in a heroin addict was diagnosed on the basis of clinical and myelographic findings as an intramedullary cervical spinal cord tumor. A biopsy of the enlarged cervical spinal cord showed myelomalacia, vasculitis, and many doubly refractile bodies in the parenchyma and vessel walls.

KEY WORDS · spinal cord · vasculitis · drug addiction · laminectomy · tumor

TRANSVERSE myelopathy associated with heroin addiction was first reported in 1968 by Richter and Rosenberg. In searching the literature we found a total of 16 cases, but only two of them included microscopic studies of spinal cord tissue. The preponderant pathological change was necrosis, largely confined to gray matter without evidence of vasculitis. Results of myelography were normal in four of six patients for whom the procedure was done. Our report is of a heroin addict who had progressive myelopathy diagnosed as a spinal cord tumor because of clinical and myelographic findings. However, biopsy of the involved segments of cervical cord revealed necrotizing vasculitis with refractile foreign particles in the arterioles and surrounding tissue.

Case Report

A 36-year-old man had had progressive spastic weakness in his lower limbs for 1 month before admission to the hospital. At the time of admission in March, 1976, he was unable to walk without assistance, and during the preceding few days his upper limbs had developed a less severe weakness. He complained of numbness and dysesthesias in his lower limbs and lower body.

He admitted using heroin regularly for 6 years, but denied using it for the 9 months previous to hospital admission, during which he was incarcerated in Orleans Parish Prison for possession of heroin.

Examination. The patient had a spastic quadriplegia, more evident in the lower extremities. He had a mid-thoracic level to
touch and pinprick sensation, more severe distal to the mid-thigh level. He complained bitterly of a burning pain if his lower limbs or feet were touched.

All extremities were hyperreflexive, the lower limbs more severely so, with sustained ankle clonus and bilateral Babinski signs. His rectal tone was slightly decreased. Percussion of his spine did not cause pain. His hemoglobin was 16.6 gm/mm, and the white blood cell (WBC) count was 4500 with a normal differential. Results of latex agglutination test for rheumatoid arthritis, antinuclear antibody test, sedimentation rate, and venereal disease tests were all normal. His alkaline phosphatase was slightly elevated to 110 m\(\mu\)/ml (normal up to 40 m\(\mu\)/ml). Skull, spine, and chest x-ray films were all considered normal.

Three days after his admission, a myelogram showed his cervical cord to be symmetrically enlarged (Fig. 1). Spinal fluid studies revealed no WBC's, 125 red blood cells, and a negative culture. Because of the diagnosis of an intramedullary cervical spinal cord tumor, the patient underwent a laminectomy.

**Operation.** The cervical cord was edematous and enlarged. Several microbiopsy specimens taken through a midline myelotomy at the level of C-5 showed no evidence of neoplasm, but did show myelomalacia and vasculitis, mainly affecting small arteries and arterioles. There was a mixed inflammatory infiltrate in the necrotic parenchyma and the walls of the affected arterioles, which showed fibrinoid necrosis and proliferative thickening (Fig. 2). Many small, doubly refractile fragments were noted, both extracellularly throughout the entire specimen and within the walls of the affected arterioles (Fig. 3).

**Postoperative Course.** The patient was given intramuscular or oral dexamethasone during the next 2 months. When dexamethasone was stopped at one point, the patient complained of shooting pains in his back and lower limbs. The steroid treatment was resumed, diphenylhydantoin was added, and there was a remission of the sensory symptoms.

Three months postoperatively, the patient was able to walk with a cane and had good bowel and bladder function. He was released after his steroid dosage was gradually decreased and finally discontinued. Diphenylhydantoin was continued to control his dysesthesias.

**Discussion**

Since the original report of Richter and Rosenberg in 1968,\(^{10}\) myelopathy associated
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with drug abuse has become a recognized clinical entity. Characteristically, the onset of clinical signs of the syndrome usually appear when drug usage is resumed after a period of abstinence. Clinical signs of partial spinal cord lesions are usual, and the natural history seems to be one of gradual improvement to a variable extent. Cerebrospinal fluid chemistries and cell profiles have been reported as abnormal in about 40% of patients in whom these procedures were done. The patient reported by Lee, et al.,7 had an enlarged, partially blocked thoracic spinal cord, but no tissue diagnosis was made. In a patient reported by Rodriguez, et al.,11 the myelogram showed an intramedullary lesion. In all other cases, myelogram findings were normal.

These cases have been referred to as myelitis, but in the two cases in which the lesions were histologically confirmed, inflammatory change was hardly evident.9,10 The preponderant pathological change was necrosis of gray matter.

Although the diagnosis of heroin-related myelopathy was suspected in our case, several factors led to an erroneous preoperative diagnosis of intramedullary spinal cord tumor. The evolution of signs and symptoms was indolent, and no definite temporal relationship to drug ingestion was evident, although the verity of the patient's history is open to question. The abnormal myelogram findings reinforced our clinical impression that he had a cord tumor, which led to laminectomy, biopsy, and the histological diagnosis of necrotizing vasculitis.

Vasculitis has been described in many organ systems in association with methamphetamine and heroin abuse,8 but the causal relationship has been questioned.1,4,5 Vascular changes have been described in the cerebrum, cerebellum, and brain stem,3 but in our search we found no published reports on cases of spinal cord vasculitis. Vasculitis of the nervous system in drug abusers has been diagnosed on the basis of cerebral angiographic changes.2,8

Refractile foreign particles in association with drug abuse have also been reported present in skin6 and pulmonary parenchyma,3 but have not been reported in the nervous system. The particles have been postulated to represent adulterants present in black-market drugs, which may play a role in the distinctive arterial changes observed.6

This case demonstrates a combination of many phenomena associated with drug abuse, each of which has been described separately in previously reported cases. Although the true role of drugs is open to some question, this case demonstrates an unusual combination of myelopathy secondary to necrotizing vasculitis associated with refractile foreign bodies in the walls of the involved arteries. The clinical and myelographic findings are also unique, suggesting that the spectrum of drug-related problems involving the spinal cord may be very broad.

References


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