Extradural Aneurysm of the Spinal Cord

Case Report

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Vascular lesions of the spinal cord comprise approximately 4 per cent of spinal cord tumors.9,10 One of the rare lesions encountered is an extramedullary aneurysm of the spinal cord. In 1941 Echols and Holcombe,4 in reporting a case, concluded that “aneurysms of the cord are so rare as to be almost unknown.” Wyburn-Mason15 states that “aneurysmal formation within the vertebral canal is extremely rare.” We are reporting the successful surgical treatment of an aneurysm of the cervical spinal cord.

Case Report

History. J.I., a 27-year-old right-handed Negro male, was admitted to Hines Veterans Administration Hospital on March 25, 1964, with a 2-month history of progressive weakness of the right side, first noted when he became aware of the loss of dexterity in the right hand while playing his guitar. He also complained of vague occipital pain and discomfort of the right upper arm and shoulder. An ancillary complaint was that of impotence for the past 8 to 10 months; there was no difficulty with urination. Past history was not remarkable except for the fact that in 1956 he had had a “spontaneous subarachnoid hemorrhage” accompanied by severe suboccipital and neck pain with loss of consciousness. According to the patient, carotid angiography was carried out on the right side at that time, without the source of the bleeding being found. The patient subsequently developed an exfoliative dermatitis ascribed to sensitivity to iodine.

Physical Examination. The patient’s general physical examination was normal, except for evidence of a chronic dermatitis. Neurological examination revealed spastic right hemiparesis with Babinski and Hoffmann signs present on that side. There was also sustained ankle and knee clonus on the right. There was no evidence of sensory impairment.

Laboratory Data. Routine laboratory studies including urinalysis, CBC and blood serology were all normal. Spinal fluid examination revealed a total protein of 38 mg. per cent with a normal Queckenstedt’s maneuver. EEG was normal both awake and in sleep. X-rays of the cervical spine and skull were normal.

Hospital Course. The patient was first seen in consultation by the Neurosurgical Service on April 9, 1964. At this time, there was no evidence of any cranial nerve abnormality. There was right hemiparesis as previously noted. Abdominal reflexes were absent bilaterally. The sensory examination was normal. By May 20, however, there was a clear-cut left-sided sensory loss below the 4th rib, plus hypesthesia and hypalgesia to pin-prick over most of the left arm. Air contrast myelography was performed and was felt to be non-diagnostic. Queckenstedt’s maneuver at this time revealed evidence of an incomplete block.

Operation. On May 21, a cervical laminectomy was performed. There was no visible pulsation of the dura. As the dura was opened it was noted that the cord bulged posteriorly and was displaced to the left. The posterior root of C-4 was flattened by a ventral mass. Slightly above this level within the neural tissue of the cord itself, on the right anterolateral aspect, there was an area of bluish discoloration suggesting a small venous angioma. The sensory root of C-4 on the right side was sectioned; this immediately freed a pulsating tumor mass (Fig. 1). This aneurysm involved the radicular artery, which was sectioned; the mass was then removed. The wound was closed in the usual fashion.

Pathology. The gross specimen consisted of an aneurysm measuring 1×1 X ½ cm. Microscopically, the sections revealed an aneurysm containing some clot and fibrin in the lumen and showing some degree of fibrosis of the wall.

Postoperative Course. Since his operation, the patient has been on an extensive course of physical therapy and has had slow but definite return of function in his right arm. There is still marked deficit in the dexterity of his hand, and his right leg has shown only minimal improvement.

Discussion

A review of the literature reveals that most spinal cord aneurysms involve the anterior spinal artery7,11,15 and are usually associated with coarctation of the aorta. However, there is no mention that the latter feature was present in Guizzetti and Cordero’s case7 which they felt was on an inflammatory basis. Coarctation has also been blamed for the collateral circulation within the spinal canal that leads to “development” of an aneurysm. Our case did not involve the anterior spinal artery, was not associated with coarctation nor was there any evidence of inflammatory change.

Vascular lesions of the cord may manifest themselves gradually as in cord compression, or suddenly as in spinal subarachnoid hemorrhage or hematomyelia.9,16 Thrombosis of parent vessels may also precipitate the sudden onset of symptoms from a previously unsuspected lesion. The difference between a vascular malformation and an aneurysm may be poorly defined. They may be co-existent as in our case. Höök and Lidvall10 reported a case of an aneurysm arising from a branch of the vertebral artery at C-2, diagnosed prior to surgery by angiographic studies. The his-

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FIG. 1. Extramedullary aneurysm of the spinal cord. White arrow points to large anomalous vessel, black arrow to feeding vessel.

tory of a previous reaction to contrast media prevented these studies in our case. Spinal subarachnoid hemorrhage may be impossible to distinguish from subarachnoid hemorrhage of intracranial origin because of the rapidity with which the hemorrhage invades the cranial cavity. Our patient's previous "spontaneous subarachnoid hemorrhage" certainly may have been due to the cervical cord aneurysm. Severe neck pain without radicular components and associated with loss of consciousness was all our patient was able to recall of his previous incident.

The majority of vascular malformations of the spinal cord are found in middle aged men. Pain is the major complaint. Other diagnoses may be mimicked clinically including inflammatory and degenerative processes, neoplasms, multiple sclerosis, and the various neuritides. Certainly our case presented bizarre clinical findings. Although myelography usually has a characteristic pattern, the possibility of confusing diagnoses with arachnoiditis exists.1

Turner and Kernohan,14 in their excellent pathologic study of 46 cases, defined vascular malformations as "angiomatic developmental anomalies." Likewise, Brion et al.3 reviewed the embryologic basis of spinal vascular malformations. Globus and Doshay4 suggested the possibility of mechanical, degenerative or inflammatory bases for these malformations.

The reported surgical results have left much to be desired. Teng and Shapiro3 advocated laminectomy and denticulotomy and felt that irradiation was of little or no value. Scoville32 was successful in removing an intramedullary arteriovenous aneurysm from the conus with satisfactory results. When signs and symptoms of cord compression are clear, the need for surgical intervention becomes obvious.

Summary

We have reported a case of extramedullary aneurysm of the cervical spinal cord, with signs and symptoms of cord compression. The aneurysm was successfully removed.

References