Unruptured aneurysm of the anterior spinal artery presenting as paraparesis

Case report

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A case is presented in which spinal cord compression was caused by an unruptured aneurysm of the anterior spinal artery. The nature of the mass was not disclosed until it was surgically exposed. Resection of the sac was followed by neurological recovery.

KEY WORDS • aneurysm • spinal cord compression • spinal artery, anterior

A n aneurysm of the anterior spinal artery presenting as a mass lesion in the spinal canal is a rare occurrence. When subarachnoid hemorrhage is associated with neurological signs referable to the spinal cord, investigation of the area usually discloses a spinal arteriovenous malformation. When a mass lesion presents alone, the diagnosis of spinal artery aneurysm is not readily brought to mind.

Case Report

This 25-year-old woman was referred with a 10-week history of back pain located at the T-10 level and radiating in a girdle-like fashion bilaterally. For 3 weeks she had noted increasing spasticity of her lower limbs, constipation, and urgency of micturition. She had suffered no neurological symptoms during the birth of her child 8 months previously.

Examination. Clinical examination disclosed the features of an incomplete transverse cord lesion at T-8. In addition, there were multiple café-au-lait spots over the limbs and trunk. There were no cutaneous nevi and no bruits over the precordium. Plain films of the thoracic spine showed erosion of the pedicle of T-7 and a myelogram confirmed a space-occupying lesion at that site (Fig. 1). Cerebrospinal fluid protein was 74 mg%. A preoperative diagnosis of neurofibroma was made.

Operation. When the dura was opened, the mass was found in a central position anterior to the cord, to which it was densely adherent. It did not appear to pulsate and initially its feeding vessel could not be visualized. During dissection considerable bleeding was encountered and the correct diagnosis was made when bright red blood was obtained by puncturing the mass with a fine needle. The artery feeding the lesion was then identified and clipped, and the sac of the aneurysm resected.
Postoperative Course. In the initial postoperative phase, the patient’s neurological state was unchanged from her preoperative condition. During the months following surgery she underwent a rehabilitation program during which she gradually recovered the use of her legs and regained sphincteric tone. Eight months after surgery she was able to lead a totally independent existence with minimal neurological signs. A selective spinal artery angiogram performed at this time confirmed that the aneurysm no longer filled (Fig. 2). An aortic coarctation was also excluded by this study.

Histological Examination. The aneurysmal sac measured $1.5 \times 0.8 \times 0.4$ cm and was attached to an artery $3$ mm in diameter. The wall was calcified in places and there was marked thickening of the intima by loose fibrous tissue. The internal elastic lamina was reduplicated in some areas but in other segments there was no recognizable elastic tissue. There was no evidence of inflammatory disease within the vessel wall and the aneurysm was considered to be of a congenital saccular type.

Discussion

Aneurysms of the spinal arteries are similar in histological structure to their intracranial counterparts. The rarity of spinal artery aneurysms is thought to be related to the small caliber of the spinal vessels and the infrequency with which they are affected by atherosclerosis. In a review of spontaneous spinal subarachnoid hemorrhage Henson and Croft

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Fig. 1. Left: Myelogram (prone view) shows an extrinsic intrathecal mass level with the lower half of the body of T-7. The cord is displaced to the right. The mass was not seen to pulsate on fluoroscopy. Right: Myelogram (lateral projection, right side down) shows the cord displaced posteriorly by the mass which has a lobulated upper margin. Enlarged vessels (arrows) are seen beneath the mass.
Anterior spinal artery aneurysm

Fig. 2. Left: Selective intercostal spinal arteriogram (subtraction print). The right ninth intercostal artery is catheterized (open arrow). The radiculomedullary branch (artery of Adamkiewicz) can be seen (curved arrow) ascending to supply the anterior spinal artery, which is descending anterior to the cord (small straight arrows). Metallic clips mark the site of aneurysm excision (large straight arrow). Right: Intercostal arteriogram at the site of aneurysm excision (subtraction print). The catheter (open arrow) is in the eighth intercostal artery (middle arrow). An enlarged radiculomedullary branch can be seen (upper arrow) terminating abruptly at the operative site.

related the fatal case of a ruptured posterior spinal artery aneurysm at the cervicomedullary junction and commented that the diagnosis of spinal artery aneurysm is unlikely to be made in a living patient. Blackwood commented that spinal artery aneurysms can be associated with syphilis and coarctation of the aorta; he illustrated a case in which an aneurysm of the anterior spinal artery was associated with this latter condition.

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References


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