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Posttraumatic Spinal Pseudomeningocele: MR and Clinical Features

Pseudomeningocele results from a tear of the dura leading to extravasation of CSF and formation of a CSF collection that may develop a fibrous capsule [1–3]. The usual cause is an unintentional tear of the dura during surgery [4]. Rarely, a pseudomeningocele may develop after trauma to the spine. We report a case of a posttraumatic pseudomeningocele, not only because of the unusual clinical manner in which it was manifested but also because of the MR features, which allowed the diagnosis of its extradural intraspinal location.

Case Report

A 17-year-old man was struck by a car while riding a bicycle. The accident necessitated bilateral below-the-knee amputations. After his injury, the patient complained of severe burning dysesthetic pain in the C8 distribution on the left side only. During rehabilitation, he lost residual function of his legs and paraplegia developed despite the absence of any direct bony injury to the spine.

MR of the spine was performed 1 year later. Sagittal and axial T1-weighted images, 700/20/2 (TR/TE/excitations), and sagittal gradient-recalled echo images, 500/13/10° flip angle, were obtained. The images showed an extramedullary collection from C6–C7 to T3–

T4, compressing and flattening the spinal cord from behind (Fig. 1A). The epidural location of this mass was suggested by the splaying of the epidural fat, which created a capping of the collection. Intraoperative spinal sonography showed a hypoechoic epidural collection in the upper thoracic spine (Fig. 1B) and compression of the cord. A tear in the dura in the upper thoracic spine at the C7–T1 interspace on the left was found. The dural tear and CSF fistula were located circumferentially around the C8 nerve root on the left. The cyst was resected, and the dural tear was repaired. One month later, pinpoint leakage of CSF developed at the wound site. A lumbar drain and antibiotic therapy were started, and the thoracic wound was reopened and debrided. The patient has remained in stable condition and has recovered from his paraplegia.

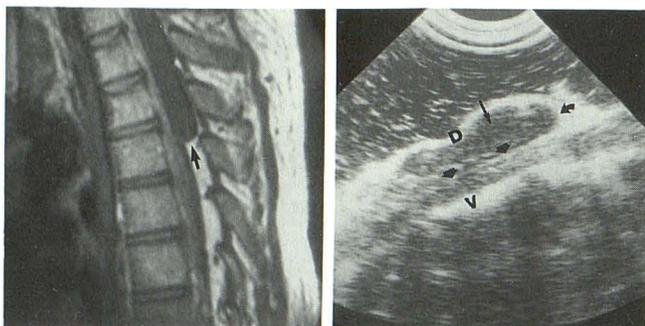
Discussion

A pseudomeningocele may result from an unintentional tear of the dura or, as in this case, as a sequela of trauma. After the tear heals, communication with the subarachnoid space often is lost, and therefore myelography frequently will not show the communication [1, 2]. CT myelography will show displacement of the contrast-filled subarachnoid space, confirming the extradural location of the lesion. On MR, the extradural location of the lesion is indicated by splaying of the fat in the epidural space [5]. Once the epidural location is known, an intradural subarachnoid cyst can be excluded from the diagnosis.

In conclusion, a pseudomeningocele is an unusual sequela of spinal trauma, particularly when the mass occurs at a site remote from the original injury. The extradural location of such a mass can be determined on the basis of the MR features described here.

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A

B

Fig. 1.—Posttraumatic spinal pseudomeningocele.

A, Sagittal T1-weighted MR image of upper thoracic spine shows hypointense extramedullary collection extending from C6–C7 to T3–T4 and compressing posterior aspect of spinal cord. Note splaying and capping of epidural fat (arrow), which places pseudomeningocele in epidural space.

B, Longitudinal intraoperative spinal sonogram at T3 level shows abrupt ending of cyst at level of hyperechoic epidural fat (curved arrow), corresponding to findings on MR. Pseudomeningocele (long straight arrow) consists of a hypoechoic extramedullary collection compressing spinal cord and displacing it anteriorly. Short straight arrows = dorsal aspect of cord. D = dorsal; V = ventral.

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