

- [19] Martin MJ, Yuan HA. Neurosurgical care of spinal epidural, subdural, and intramedullary abscesses and arachnoiditis. *Orthop Clin North Am* 1996;27:125-36.
- [20] Maslen DR, Jones SR, Crislip MA, Bracis R, Dworkin RJ, Flemming JE. Spinal epidural abscess: optimizing patient care. *Arch Intern Med* 1933;153:1713-21.
- [21] Messer HD, Lenchner GS, Bruit JCM, Resas S. Lumbar spinal epidural abscess managed conservatively. *J Neurosurg* 1977;46:825-9.
- [22] Morgagni GB. De sedibus et causis morborum per anatomen indagatis. [Translated from Latin] In: Alexander B, editor. The seats and causes of disease investigated by anatomy. New York (NY): Hafner; 1960. p. 220-2 [Letter X, Article 13].
- [23] Rankin RM, Flothow PG. Pyogenic infection of the spinal epidural space. *West J Obstet Gynecol* 1946;54:320-3.
- [24] Reihnsaus E, Waldbaur H, Seeling W. Spinal epidural abscess: a meta-analysis of 915 patients. *Neurosurg Rev* 2000;23:175-204.
- [25] Rigamonti D, Liem L, Sampath P, Knoller N, Numaguchi Y, Schreiberman DL, Sloan MA, Wolf A, Zeidman S. Spinal epidural abscess: contemporary trends in etiology, evaluation, and management. *Surg Neurol* 1998;52:189-97.
- [26] Russell NA, Vaughn R, Morley TP. Spinal epidural infection. *Can J Neurol Sci* 1979;49:484-5.
- [27] Schlossberg D, Shulman JA. Spinal epidural abscess. *South Med J* 1977;79:669-73.
- [28] Soehle M, Wallenberg T. Spinal epidural abscess: clinical manifestations, prognostic factors, and outcomes. *Neurosurgery* 2002;51:79-87.
- [29] Taylor AS, Kennedy F. A case of extrathecal abscess of the spinal cord. *Arch Neurol Psychiatr* 1923;9:652-3.
- [30] Walter RS, King JC, Manley J, Rigamonti D. Spinal epidural abscess in infancy: successful percutaneous drainage in a nine-month-old and review of the literature. *Pediatr Infect Dis J* 1991;19:860-4.
- [31] Wheeler D, Keiser P, Rigamonti D, Keay S. Medical management of spinal epidural abscesses: case report and review. *Clin Infect Dis* 1992;15:22-7.
- [32] Yang S-Y. Spinal epidural abscess. *N Z Med J* 1982;95:302-4.

## Commentary

Curry et al present a retrospective, single-institution review of 48 patients with spinal epidural abscess (SEA) and their outcome at discharge. They report that the presentation of these patients rarely consisted of the classic triad of fever, back pain, and progressive neurologic deficit. Rather, having a high-risk factor (83% had an identifiable risk factor) in the setting of neurologic compromise or pain was more suggestive of SEA, and serum leukocytosis is not a reliable marker of SEA. This is consistent with a recent

meta-analysis [2] and recent studies [1,3]. Half of their patients received urgent surgery and half received antibiotics as the initial therapy. In the surgical group, 8% were worse, 32% unchanged, and 60% improved in contrast to the antibiotic group (52%, 35%, and 13%, respectively). Multivariate ordered logistic regression analysis showed that the initial treatment therapy was the only significant predictor of outcome ( $P = 0.006$ ).

SEA remains a clinically important neurosurgical problem due to its high mortality rate of 16% [2]. Although a rare entity, the incidence is increasing with the rise in IVDA, and diagnosis can be elusive. Optimal management remains debatable. Curry et al report a detailed review of their institutional experience and thorough review of the literature. They reiterate the need for heightened awareness of SEA and that the diagnosis should not rely on the classic clinical triad. In addition to having a high suspicion in patients with associated risks, we also advocate evaluating for an elevated erythrocyte sedimentation rate (not collected on most of the patients in this series), which is more sensitive for SEA than serum leukocytosis [1,3]. A MRI is considered standard of care once there is suspicion of SEA. As their analysis suggests, we agree that all patients presenting with neurologic deficit should undergo urgent surgical drainage. Conservative therapy should be reserved for a select population with significant comorbidities; in those instances, they should be closely followed by a neurosurgical service for neurologic deterioration.

## References

- [1] Davis DP, Wold RM, Patel RJ, et al. The clinical presentation and impact of diagnostic delays on emergency department patients with spinal epidural abscess. *J Emerg Med* 2004;26(3):285-91.
- [2] Reihnsaus E, Waldbaur H, Seeling W. Spinal epidural abscess: a meta-analysis of 915 patients. *Neurosurg Rev* 2000;23(4):175-204 [discussion 205].
- [3] Rigamonti D, Liem L, Sampath P, et al. Spinal epidural abscess: contemporary trends in etiology, evaluation, and management. *Surg Neurol* 1999;52(2):189-96 [discussion 197].

Quoc-Anh Thai, MD  
Daniele Rigamonti, MD, FACS  
Baltimore, MD 21287, USA

[Religious liberty was] in its nature an inalienable right... because the opinions of men, depending only upon the evidence contemplated by their minds, cannot follow the dictates of other men.

—James Madison (1751–1836), U.S. president.  
“Memorial and Remonstrance against Religious Assessment” (1785).  
W.T. Hutchinson et al., *The Papers of James Madison*, vol. 8, p. 299,  
Chicago and Charlottesville, Virginia (1962–1991).