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INTRATHECAL MIGRATION OF A BULLET IN THE SPINAL CANAL

We are writing in regard to an article by Moon and colleagues, e-published in the March 2008 issue of *The American Journal of Orthopedics* (Moon E, Kondrashov D, Hannibal M, Hsu K, Zucherman J. Gunshot wounds to the spine: literature review and report on a migratory intrathecal bullet. *Am J Orthop*. 2008;37(3):E47-E51).

The authors must be complimented for excellent coverage of the complex topic of gunshot wounds. However, we think the literature review of the authors regarding intrathecal migration of bullets is insufficient. Moon and colleagues report only one case of intrathecal migratory missile in the English-language literature, while we had already reported one additional case of intrathecal migration of bullet in a 2007 article.¹ While reviewing the literature for our article, we found a few more cases reporting intrathecal migration of bullets.²⁻⁵ Subsequently, 2 more cases were reported by Spakauskas and colleagues⁶ in the same year (2007), and in 2008 one more case was reported by Ben-Galim and Reitman.⁷

Furthermore, special indications for surgery need to be expanded. Based on experience reported in the literature, once bullets show migratory characteristics, this by itself can be considered to be a relative surgical indication, since it seems to predispose the patient to the development of neurological complaints.^{1,7} Retention of metallic foreign bodies in the spinal canal may lead to neurotoxicity and impairment. Copper and lead fragments consistently cause a substantial area of neural injury within the spinal cord. In an animal study, copper fragments caused local neural toxicity in as much as 10% of the spinal cord area, suggesting that this may be scientific basis for removal of copper fragments

lodged in the spinal cord even in the absence of neurological deficit.⁸ Metallic breakdown products can also cause chronic inflammation and syringiform cysts.⁹ Some authors consider the retention of a bullet in the canal to be a nonsignificant adverse occurrence if asymptomatic.^{10,11} However, patients with retained bullet fragments in the spinal canal should be educated about the delayed complications of neurological deficits due to mechanical or irritative effects, infection, and the rare potential for plumbism and that long-term observation in such patients is recommended.

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