

Outcomes After Operative Management of Combat-Related Low Lumbar Burst Fractures

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Purpose: Combat-related lumbar burst fractures (53-A3.3) have been documented at an increased incidence during the Iraq and Afghanistan conflicts. Surgical management of these injury patterns is controversial, with high reoperation rates and persistent symptoms frequently reported. We set out to report the intermediate outcomes of service members with operatively managed low lumbar fractures.

Methods: A retrospective analysis of a surgical database at three military institutions was performed; patients undergoing spine surgery designated in as engaged in Operations Enduring and/or Iraqi Freedom between July 1, 2003 and July 1, 2013 were included. Medical records and radiographs were reviewed for all patients treated with combat-related lumbar burst fractures (L3-L5). We included all patients who underwent operative fixation in-theater or at our institution.

Results: 24 patients with an average age of 28.1 ± 67.2 years sustained low lumbar (L3-L5) burst fractures. The average ISS was 22.6. Six patients sustained gunshot wound(s), 15 sustained blast injuries from an improvised explosive device, in addition to one crush and one motor vehicle accident injury. The average number of thoracolumbar levels injured was 2.9 ± 1.4 . Nine patients had evidence of neurologic injury, three of which were complete. The average number of levels fused was 4.3 ± 2.1 with fixation extending to the pelvis in four patients (17%). Ten acute postoperative complications occurred; seven required reoperation. One patient required late reoperation for nonunion. Average clinical follow-up was 3.3 ± 2.2 years. At latest follow-up, all were retired from military service or were undergoing separation, 10 (43%) experienced persistent bowel/bladder dysfunction, 15 (65%) had persistent neurologic symptoms, 17 (74%) had documented persistent low back pain, and 19 (83%) had chronic pain.

Conclusion: Low lumbar burst fractures are rare injuries with an increased incidence in current combat casualties. Few studies have examined the intermediate outcomes after operative management of these injury patterns. We found a high rate of acute postoperative complications (43%), low back pain, and a high reoperation rate (30%). At over 3 years average follow-up, most patients with operatively treated low lumbar burst fractures had persistent neurologic symptoms and chronic pain, suggestive that surgical management of low lumbar burst fractures is fraught with complications.