

# Functional Outcomes After Nonoperative Treatment of Lateral Compression Type 1 (LC-1) Pelvic Ring Injuries With Complete Sacral Fractures

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**Purpose:** There is controversy regarding the optimum management of LC-1 fractures (OTA 61-B2), particularly for those with complete sacral fractures. Our hypothesis was that nonoperative treatment of these injuries would result in acceptable functional outcomes.

**Methods:** We conducted a review of a prospectively maintained database at a Level I trauma center over 3 years (2008-2011) to identify all LC-1 fractures (n = 315). We identified a subset of "more severe" LC-1 injuries characterized by complete fracture through Denis zones 2 or 3 of the sacrum (n = 76). Of these, 12 patients were managed operatively at the discretion of the treating surgeon due to fracture displacement greater than 1 cm or severe comminution, and are not included in this analysis. The 64 remaining patients with complete sacral fracture and displacement less than 1 cm were treated nonsurgically and form the population of interest. Two patients were excluded due to spinal cord injury and 6 patients were deceased, leaving 56 potential patients. 30 patients were successfully contacted for functional outcome assessment at an average follow-up of 24.4 months (range, 15-37). The mean age at time of injury was 38.8 years (range, 17-80). Primary outcome measures were the Majeed Pelvic Score and the Physical and Mental Component Summary scores (PCS and MCS) of the Short Form-12 v.2. Bivariate analyses were performed with respect to age, ISS, anterior pelvic ring injury (none/unilateral rami fractures vs bilateral), associated lower extremity (LE) injuries, and initial weight-bearing status (non vs weight bearing as tolerated).

**Results:** The average Majeed Pelvic Score was 81.7 (95% confidence interval [CI]: 75.1 to 88.4) yielding 19 excellent, 4 good, 3 fair, and 4 poor graded outcomes. Mean PCS and MCS scores were 46.9 (95% CI: 42.4, 51.3) and 48.2 (95% CI: 44.5, 51.8), respectively. Both intervals included 50, the mean score for a healthy, normative population. Patients with LE injuries had lower PCS scores than patients without LE injuries (38.1 vs 50.0, P = 0.04), and were less likely to have an "excellent" Majeed score (2 of 8 vs 17 of 22 in the non-LE injury group, P = 0.009). Additionally, all Majeed "poor" outcomes were in the subgroup of patients with concomitant LE injuries. There were no statistically significant differences in regard to weight-bearing status, anterior ring injury, or ISS.

**Conclusion:** Recent studies have shown that "more severe" LC-1 fractures are susceptible to future displacement, but the clinical consequence of nonoperative treatment is unknown. This study suggests that good outcomes can be expected with nonsurgical management of "more severe" LC-1 fractures with less than 1 cm of initial displacement. Improvement in long-term functional outcome does not seem to be a valid rationale to treat these injuries operatively.

## Alumni

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