Long-Term Hip Joint Survival and Clinical Results in Conservatively Treated Acetabular Fractures

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Background/Purpose: Nonoperative treatment of acetabular fractures is indicated in patients with no or minor fracture displacement. There are few studies describing the long-term results for patients treated conservatively according to modern principles. The purpose of the present work was to investigate the long-term survival of the native hip joint and the clinical results following a conservatively treated acetabular fracture.

Methods: Since 1994 all acetabular fractures treated at our department have been prospectively registered. In this study we included all patients treated nonoperatively from 1994 to June 2004; 236 patients were identified. For the survival analysis, all patients who were not diseased or expatriated within the first year after injury were included. 186 patients with 187 fractures were available for analysis. The average follow-up was 9 years (range, 1-20). The average patient age was 49 years (range, 12-92), and men constituted 78% of the study population. Data were analyzed for survival of the native acetabulum with Kaplan-Meier and log-rank test to identify differences in survivorship between groups. 104 patients with surviving hip joints had an average clinical follow-up of 12 years (range, 9-20), with Harris hip score (HHS) and Merle D'Aubigné score.

Results: Twelve patients received a total hip arthroplasty during the follow-up period, on average 6.9 years (range, 1.4-15.9) after injury. Thus, the average 10-year hip joint survival was 94% (95% confidence interval [CI] 89%-97%) and 20-year survival was 85% (95% CI 66%-94%).The surviving hip joints had an average HHS of 93 (range, 28-100) and Merle D'Aubigné score of 16.6 (range, 8-18). The most significant negative predictor for survival and clinical outcome was an intra-articular step >2 mm, as measured in the obturator oblique radiographic projection. The presence or absence of fracture lines in the upper 10 mm of the weight-bearing dome on CT scans did not predict differences in survival or clinical scores. When the data was stratified in roof arc more or less than 45°, there was a significant decrease in survival for the posterior roof arc ($P = 0.05$) as measured on the obturator oblique radiographs. The Letournel fracture classification did not predict hip joint survival or clinical outcome. There was no difference in survival, HHS, or Merle D'Aubigné score between genders or in age over or under 60 years.

Conclusion: For acetabular fractures with minimal dislocation the long-term survival and clinical outcome is excellent. Intra-articular step and roof arc <45° as measured on plain radiographs and in the obturator oblique projection in particular is the most significant predictor of survival. Conventional radiographs with oblique projections (Judet views) are a valuable tool when deciding treatment strategy for acetabular fractures, especially when nonoperative treatment is considered.

See pages 47 - 108 for financial disclosure information.