

Basicervical Fractures and Fixation Strategies

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Purpose: Basicervical (31B3) hip fractures are rare and represent a unique subset of proximal femoral fractures with distinct anatomic and biomechanical properties. Despite their rarity, these fractures pose significant challenges in fixation and functional recovery, with limited evidence on how their outcomes compare to other hip fracture types. This study evaluates functional recovery, complication rates, and the impact of fixation constructs in basicervical fractures compared to intertrochanteric (31A1.2, 31A1.3) and femoral neck fractures that undergo fixation (31B1.1).

Methods: From a cohort of 5152 hip fractures, 145 (2.8%) were classified as 31B3 and met inclusion criteria. For comparison, two cohorts of patients, impacted femoral necks (31B1.1) and intertrochanteric (31A1.2, and 31A1.3) fractures, were matched. Fixation constructs for the 31B3 group comprised 23.3% treated with plate and screws, 3.33% with cannulated screws only, and 73.3% with intramedullary nails. Outcomes included fracture healing, complications, return to baseline assistive device usage, and 30- and 90-day readmissions. In-hospital complications included shock, pneumonia, deep vein thrombosis, pulmonary embolism, acute kidney injury, stroke, ulcer, urinary tract infection, acute respiratory failure, cardiac arrest, postoperative delirium, among other unexpected medical events. Statistical significance was set at $p < 0.05$.

Results: Patients analyzed had ≥ 6 months follow up (average: 9 months). Healing rates were similar across groups ($p = 0.453$): 100% of 31A1.2, 98.7% of 31A1.3, 97.4% of 31B1.1, and 96.7% of 31B3 fractures healed. Return to baseline assistive device usage was highest in 31B3 fractures (80%) compared to 31B1.1 (67.5%), 31A1.2 (64.3%), and 31A1.3 (55.8%), with a near-significant difference favoring 31B3 over 31A1.3 ($p = 0.112$). In-hospital complications were significantly higher in 31B3 fractures (63.3%) compared to 31B1.1 (17.1%) ($p < 0.001$). No significant differences were observed in 30-day ($p = 0.096$) or 90-day ($p = 0.132$) readmissions.

Conclusion: Basicervical hip fracture patterns were associated with higher in-hospital complication rates. However, no difference in healing or revision surgical rates were seen.