

Acute Plate Fixation of Displaced Midshaft Clavicle Fractures Is Not Associated With Earlier Return of Normal Shoulder Function When Union Is Achieved

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Purpose: It is unclear whether acute plate fixation facilitates earlier return of normal shoulder function following a displaced midshaft clavicle fracture compared to nonoperative management when union occurs.

Methods: Patient data from a randomized controlled trial was used to compare acute plate fixation with nonoperative management of united fractures. Return of shoulder function was based on the age and sex-matched Disabilities of the Arm, Shoulder and Hand (DASH) scores for the cohort. Independent predictors of an early recovery of normal shoulder function was investigated using a separate prospective series of consecutive nonoperative displaced midshaft clavicle fractures recruited over a 2-year period (≥ 16 years). Patient demographics and functional recovery were assessed over the 6 months post-injury using a standardized protocol.

Results: Data from the randomized controlled trial consisted of 86 patients who underwent operative fixation compared to 76 patients who united with nonoperative treatment. The recovery of normal shoulder function, as defined by a DASH score within the predicted 95% confidence interval for each respective patient, was similar between each group at 6 weeks (operative 26.7% vs nonoperative 25.0%, $P = 0.80$), 3 months (52.3% vs 44.2%, $P = 0.77$), and 6 months post-injury (86.0% vs 90.8%, $P = 0.35$). The mean DASH score and return to work was also comparable at each time point. In the prospective cohort 86.5% ($n = 173$ of 200) achieved union by 6 months post-injury (follow-up rate 88.5%, $n = 200$ of 226). Regression analysis found no specific patient, injury, or fracture predictor was associated with an early return of function at 6 or 12 weeks.

Conclusion: Return of normal shoulder function was comparable between acute plate fixation and nonoperative management when union was achieved. One in two patients will have recovery of normal shoulder function at 3 months, increasing to 9 out of 10 patients at 6 months following injury when union occurs irrespective of initial treatment.