

Clavicle Nonunion Repair 2016: What Can Patients Expect?

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Background: While surgical fixation of clavicle fractures has gained popularity and has been well studied, there is little information available on the functional outcomes of patients treated surgically for clavicular nonunions. The purpose of this study was to compare the long-term functional status of patients treated surgically for a clavicular nonunion with patients treated either operatively or non-operatively for an acute clavicle fracture.

Methods: Twenty consecutive patients treated by a single surgeon for a clavicle fracture nonunion using a standard algorithm were identified. Patients were evaluated radiographically and functionally using the Short Musculoskeletal Functional Assessment (SMFA) at routine time-points (pre-operatively, and at 3 months, 6 months, 12 months, and greater than 12 months post-operatively). For comparison of outcomes, acute clavicle fractures were identified from an EMR query from 2011 to 2015 of a single orthopaedic surgeon using the ICD-9 codes for clavicle fractures. All patients who had been treated for an acute clavicle fracture either operatively or non-operatively were contacted for long-term follow-up to assess their current functional status using the SMFA. Chart review was also completed to determine time to healing. SMFA scores were compared between groups only at the long-term follow-up time point. Multivariate analysis was performed using a one-way ANOVA for continuous variables and Pearson's chi-squared analysis for categorical variables.

Results: Twenty-seven patients who sustained an acute clavicle fracture were available. Eighteen (66.7%) patients were treated operatively (average age of 39.06 ± 16.3) and 9 (33.3%) were treated non-operatively (average age of $40.00 \pm 18.444.2$). Of the patients who were treated for a clavicle nonunion, 18 (90%) patients were originally treated non-operatively. The average age of the clavicle nonunion group was 44.1. The average follow-up interval was 28 months for the nonunion patients and 34 months for the acute fracture patients. There were no significant differences between clavicle nonunion, operative, and non-operative patients in terms of age, gender, BMI, smoking status, education level, marital status, life activity status, or energy of injury. The average time to healing was 4.4 ± 4.1 months for nonunions, 4.93 ± 3.5 months for operative patients, and 3.80 ± 2.5 months for non-operative patients ($p = .817$). There was no significant difference in SMFA or pain scores between nonunion patients and acute fracture patients ($p = .167, .156$).

Conclusions: Patients who are treated surgically for clavicular nonunions ultimately regain a similar functional status as patients who are treated either operatively or non-operatively for an acute clavicle fracture who heal acutely. Orthopaedic surgeons can counsel patients who develop a clavicle nonunion that they will not be debilitated from this injury in the long-term.