

Outcomes of Interposition Arthroplasty for Post Traumatic Elbow Fractures with Internal Joint Stabilizer Augmentation

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INTRODUCTION: The elbow is a complex hinge joint essential for daily activities but is highly susceptible to injury and degeneration. Interposition Arthroplasty (IPA) is a surgical option that improves motion and reduces pain by placing graft tissue within the joint, often used in younger, active patients. However, limited postoperative stability remains a concern. The Internal Joint Stabilizer (IJS-E) offers enhanced joint support temporally. This study examines outcomes of IPA with IJS-E augmentation in post-traumatic elbow cases.

METHODS:

A retrospective review was conducted of patients who underwent Interposition Arthroplasty with Internal Joint Stabilizer Augmentation at our institution between 2020 and 2025. The inclusion criteria were age greater than 18 at time of evaluation and patients with post-traumatic elbow fracture. Exclusion criteria included patients with current nerve injuries, open fracture or arthrotomy, and any current additional trauma to the ipsilateral arm.

RESULTS: There were 7 (3 female and 4 male) patients who underwent the procedure. The average follow-up time has been 5.7 ± 3.8 months. Preoperative and postoperative range of motion were tested in each patient. A paired t-test was executed with a p-value threshold of 0.05. There was significance in flexion from 56.4 ± 51.5 to 112.9 ± 14.1 with a p value of 0.032. The other planes of motion, extension, pronation, and supination did not yield significance with p values of 0.284, 0.082, and 0.217 respectively. A common postoperative complication, seen in two patients, was elbow contracture fixed by release of capsular tissue.

DISCUSSION AND CONCLUSION:

Interposition arthroplasty with Internal Joint Stabilizer augmentation is a promising alternative to total elbow arthroplasty in younger patients. Data show significant improvement in elbow flexion, while other motion parameters remained relatively unchanged. Continued research is needed to optimize outcomes and long-term function in this patient population using this novel, combined technique.



Image 1. Pre-operative anterior-posterior and lateral views of right elbow



Image 2. Intra-operative view of right elbow. Internal joint stabilizer installation



Image 3. Post-operative anterior-posterior and lateral views of right elbow

Age, years	37.3 ± 13.5
Sex	
Female	3 (43%)
Male	4 (57%)
BMI	25.6 ± 7.9
Osteoarthritis	2 (29%)
Rheumatoid Arthritis	1 (14%)
Diabetes Mellitus	1 (14%)
Injured Side	
Right	6 (86%)
Left	1 (14%)
Prior Elbow Surgery	6 (86%)

Values reported as mean ± standard deviation or numbers (percentages).

	Pre-operative	Post-operative	P-value
Flexion	56.4 ± 51.5	112.9 ± 14.1	*0.032
Extension	20.0 ± 9.2	18.0 ± 10.7	0.284
Pronation	45.0 ± 41.9	68.0 ± 33.5	0.082
Supination	18.0 ± 19.1	60.0 ± 17.3	0.217

*Significant relative to pre-operative
Values are reported as mean ± standard deviation