Title: Patient Outcomes after Revision of Failed Radial Head Arthroplasty

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Background/Aims of Study:

Failed radial head arthroplasty has been increasing due to the increasing number of primary arthroplasties being performed for complex elbow fractures. Revision radial head arthroplasty is an option, but there is limited patient outcomes data in the literature. The aim of this study was to evaluate the patient outcomes in patients undergoing revision from a failed radial head arthroplasty.

Methods:

A retrospective review was performed at a single institution of patients who underwent revision radial head arthroplasty between October 2014 to October 2019. Patient demographics, pre and postoperative range of motion, patient reported pain and outcome scores, and radiographic outcomes were collected. In all cases, prior radial head prosthesis was removed and converted to a long stem radial head prosthesis.

Results:

13 patients had undergone revision radial head arthroplasty from a prior failed radial head arthroplasty. Mean age was 55 years (range, 34-69 years). Mean follow-up was 58 months (range, 16-105 months). Most common indication for the index surgery was comminuted radial head fracture (6 cases) followed by terrible triad injury (4 cases). Most common reason for revision was pain with signs of radiographic loosening (10 cases). Frozen sections and cultures were done for all cases, which had no positive findings. Average preop range of motion (ROM) was 19˚-130˚ (ext-flex) and 60˚-59˚ (sup-pron) with postop ROM of 20˚-137˚ (ext-flex) and 63˚-68˚ (sup-pron). There were no statistically significant differences in patients' pre and postoperative ROM, nor patients' Disability of the Arm, Shoulder, and Hand or Mayo Elbow Performance Score at final follow-up. Only difference was found in improvement in Visual Analog Score from 6 to 3 ($P<0.001$).

Discussion and Conclusion:

Revision of failed radial head arthroplasty to a long stem radial head prosthesis can provide good pain relief in patients with painful radial head arthroplasty with radiographic signs of loosening without loosing their preoperative motion.