

## 11441 - Early results of reconstruction using reverse shoulder arthroplasty with proximal humerus replacement

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### Background

Proximal humerus resection is often necessary for the treatment of bone tumors and post-traumatic conditions. Shoulder reconstruction options have employed various surgical techniques to secure a stable fulcrum to preserve limb function distal to the shoulder with the expectation for poor shoulder function due to limited active motion at this joint.

### Purpose

We have incorporated reverse shoulder arthroplasty with segmental endoprosthetic reconstruction on a series of patients requiring proximal humerus replacement with favorable early and midterm outcomes allowing patients to maintain active shoulder function as part of a limb sparing surgical treatment.

### Methods

Thirteen patients (11-79 years old, average 43 years) were treated with radical resection and reverse shoulder arthroplasty with segmental endoprosthesis between January 2012 and March 2015, eleven for proximal humerus tumors and two for fractures in the setting of systemic inflammatory disease. In each patient, we resected the proximal humerus and reconstructed with a segmental endoprosthetic device with a reverse shoulder arthroplasty without use of allografts or muscle transfers. The majority of the deltoid muscle however was preserved in each patient. Passive motion and isometric exercises began on the first postoperative day. Ten of the thirteen patients were alive and available for continued follow-up evaluation. MSTs functional scores were obtained in each patient.

### Results

An average of 12 cm of bone was resected (range 5-21 cm) as necessary for adequate margins. There were no intraoperative complications. Follow-up ranged from 2 to 30 months (average 12 months). Most of the range of motion gained was within the first 2-3 months. Mean active forward flexion of 88 degrees (range 45-120 degrees) and mean active abduction of 82 degrees (range 40-100 degrees) were observed. Seventy-eight percent (7/9 patients) achieved at least 90 degrees of active forward flexion. Three patients died from complications of their systemic disease. Two patients had postoperative complications, one with a loose glenoid component diagnosed at 6 months and one with early glenosphere disengagement from the baseplate.

### Conclusions

When compared to the limited active function and problems of instability inherent to hemiarthroplasty or other static reconstruction methods employed for the shoulder in conjunction with proximal humerus replacement, our results demonstrate improved active shoulder motion with no compromise of stability. A larger patient cohort with long-term follow-up is necessary to further evaluate implant survival.