

Stemless Metaphyseal Reverse Shoulder Arthroplasty - Long-Term Clinical and Radiologic Outcome in Prospective 10 to 17 Years Follow-Up Study

Ofer Levy, Ira Bachar Avnieli¹, Paolo Consigliere², Naama Gruber, Giuseppe Sforza, Luis Natera³, Andreas Leonidou, Georgios Panagopoulos, Panagiotis Anastasopoulos, Georgios Arealis, Carlo Ambrosini

¹Orthopaedics, ²East Kent Hospitals University NHSFT, ³Hospital De Sant Pau

INTRODUCTION:

Stemless metaphyseal humeral components were developed to minimize bone resection and preserve bone.

The aim of this study is to evaluate the long-term clinical and radiologic outcomes (10 to 17 years follow up) using a stemless metaphyseal reverse total shoulder arthroplasty (rTSA).

METHODS:

Between 2005 - 2012, 207 consecutive patients underwent rTSA with stemless metaphyseal rTSA (51M/156F). A total of 121 cuff arthropathy, 19 fracture sequelae, 26 rheumatoid arthritis, 16 massive rotator cuff tear and failed repair, 7 anatomic prosthesis with cuff deficiency, 7 osteoarthritis, and 11 acute trauma. Forty-nine of these were revision TSA. Ninety-five patients died before 10y from surgery but were pleased with their shoulder at their last FU, 9 patients were lost to FU. A total of 103 patients were available for long term follow up of more than 10 years (10 -17 years; 120 - 193 months).

RESULTS:

Mean age at surgery was 74.8 years (range, 38-93 years). Subjective Shoulder Value (SSV) improved from 14/100 to 89/100. Mean Constant score (CS) improved from 17.5 to 66 points, age/sex adjusted CS improved to 107 (P < .0001). Range of motion improved from 58° to 145° elevation, 22° to 38° external rotation, and 32° to 83° internal rotation. In total, 98/103 patients felt much better or better since the operation (84 much better), 4 same, and 1 worse. Radiographic analysis showed no lucencies, subsidence, or stress shielding around the humeral or glenoid components. Glenoid notching was found in 21% of the patients (mainly grade 1-2). Eighteen cases had to be reoperated: 3 for dislocation, 4 plating of scapular spine fracture, 7 revised due to traumatic periprosthetic fracture (3 humeral, 3 glenoid and one both), and 2 revised for infection.

DISCUSSION AND CONCLUSION:

The stemless metaphyseal rTSA design shows good long-term results in 10 to 17 years follow up, with excellent pain relief and shoulder function, restoration of good active range of motion, and high patient satisfaction scores. The design of this bone preserving stemless implant seems to result good long-term fixation and incorporation in the metaphyseal bone with low incidence of glenoid notching, and no implant loosening, subsidence, or stress shielding. The good clinical, functional, and radiographic outcome was maintained throughout the long-term follow up with no deterioration.