EQUINOXE® HUMERAL RECONSTRUCTION PROSTHESIS (HRP) OUTCOMES DATA

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Two-Year Outcomes of the Reverse Humeral Reconstruction Prosthesis (HRP)

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BACKGROUND

Proximal humeral bone loss represents a difficult challenge when performing shoulder arthroplasty. Achieving adequate fixation with standard humeral prostheses can be problematic. Allograft prosthetic composites have been used as one solution to this problem, but high rates of complications have been reported. Another solution, modular proximal humeral replacement systems, are also available, but there is a paucity of outcome data on these implants. This study reports the 2-year minimum follow-up outcomes and complications of a single system reverse proximal humeral reconstruction prosthesis for patients with extensive proximal humeral bone loss.

METHODS

We retrospectively reviewed all patients with minimum two-year follow-up who underwent implantation of a humeral reconstruction prosthesis for rTSA (Exactech, Inc., Gainesville, FL) for either 1) failed shoulder arthroplasty or 2) proximal humerus fracture with severe bone loss (Pharos 2 and 3) and/or sequelae thereof. Thirty-seven patients met inclusion criteria (average age 67.5 ± 13.4 years). The average follow-up was 37.0 ± 12.7 months. Demographic information, operative data, and complications were recorded. Pre- and post-operative range of motion (ROM), pain, and outcome scores were compared.

RESULTS

Of the 37 Equinoxe® Humeral Reconstruction Prostheses evaluated, 86% had undergone prior surgery, and 72% were performed for failed arthroplasty. ROM improved significantly in abduction by 20° ($P = .007$), forward elevation by 25° ($P = .010$), and internal rotation by 1.0 points ($P = .047$), but not external rotation. Average pain on a daily basis and pain at worst improved significantly, by 4.4 points ($P < .001$) and 5.4 points ($P < .001$), respectively. Mean SST score improved by 3.2 ($P < .001$), Constant score by 13.2 ($P = .010$), ASES score by 29.8 ($P < .001$), UCLA score by 10.6 ($P < .001$), and SPADI score by 37.4 ($P < .001$). A majority of patients achieved the MCID for all outcome measures assessed (56-85%). The SCB was exceeded by most patients for forward elevation and external rotation (52%), daily pain (63%), the Constant score (50%), ASES score (58%), and UCLA score (58%). There were twenty complications (26%) recorded from 77 patients eligible for 2-year follow-up; most commonly dislocation requiring closed reduction. Notably, there were no occurrences of humeral loosening requiring revision surgery.

DISCUSSION

This data demonstrates that the Equinoxe Humeral Reconstruction Prosthesis for rTSA resulted in significant improvements in ROM, pain, and PROMs, without humeral component loosening and/or risk of allograft-host junction nonunion and fatigue fractures seen with APC reconstructions. RHRP represents a valuable option for shoulder arthroplasty surgeons to address extensive proximal humerus bone loss.

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The Use of Tumor Prostheses for Primary or Revision Reverse Total Shoulder Arthroplasty with Proximal Humeral Bone Loss

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BACKGROUND

During shoulder arthroplasty with substantial bone and soft tissue loss, reverse shoulder arthroplasty (RSA) with a tumor prosthesis may restore function, reduce pain, and improve implant fixation.

METHODS

Thirteen adult patients undergoing RSA using a tumor prosthesis system were retrospectively reviewed. Preoperative visual analog score (VAS), single assessment numeric evaluation (SANE), American Shoulder and Elbow Surgeons (ASES) score, simple shoulder test (SST), and forward flexion were compared to latest follow up. Postoperative radiographs and complications were recorded.

RESULTS

Mean age at surgery was 68.4 years. Eight patients had undergone at least 1 prior operation on the indicated shoulder. Six patients required wide excision of proximal humerus tumor. At mean of 34 months postoperatively, significant improvements were noted in VAS (P =.03) and ASES score (P =.04). Active forward elevation was 81.1 degrees. For all patients, postoperative radiographs demonstrated satisfactory alignment. Complications occurred in 38% of patients, with 31% requiring reoperation.

CONCLUSION

In cases of failed shoulder arthroplasty with excessive bone and soft tissue loss or substantial tumor burden, RSA with a tumor prosthesis can reduce pain levels and improve functional outcomes. However, forward elevation remains limited, and postoperative complications are a concern.

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