Total Shoulder Arthroplasty for Advanced Arthritis in Young Patient

Advanced arthritis in relatively young patients is a difficult problem to manage. Most authors do not recommend formal glenoid replacement in very young patients despite glenoid involvement. In these instances, some investigators have recommended replacement with a soft tissue patch to act as a pillow on the glenoid in combination with traditional hemiarthroplasty of the humerus.

Patient Profile/History

The patient is a 24-year-old female who underwent previous arthroscopic surgery to her right shoulder approximately three years ago for instability. Despite the surgery, she developed rapid chondrolysis of the joint and pain. She presented with severe limitation of motion to her shoulder with approximately 60 degrees of flexion and no external rotation. She was very crippled with pain with any type of motion to the shoulder and was quite tearful.

Radiographs anterior/lateral showed marked cartilage loss with bone-on-bone appearance. On the axillary view, the normal oval appearance of the humeral head had completely flattened to a square configuration.

Surgical Treatment

The patient was brought to surgery and went to standard deltopectoral approach. Evaluation of the glenohumeral joint revealed a flat sclerotic humeral head with marked deformity. The glenoid showed complete cartilage loss and deformity as well. It was elected, in this patient with severe deformity both of the glenoid and humeral head, to utilize a soft tissue patch on the glenoid to help cushion the humeral hemiarthroplasty. It was felt the patient was too young for consideration of a traditional glenoid component. Multiple suture anchors were placed around the four corners of the glenoid, passed through the soft tissue patch then tied down and secured to the glenoid. An Integra® Titan™ Modular Shoulder System press-fit hemiarthroplasty was placed on the humerus avoiding cement in this young patient.

The patient returned following physical therapy quite pleased with the final result. At last follow-up visit, she had approximately 140 degrees of flexion, 100 degrees abduction, 70 degrees rotation, and 80 degrees of internal rotation with minimal pain.
Advanced arthritis in a young person is a relatively rare problem. However, when it occurs, it is very difficult to manage. In a young patient, the goal would be to avoid cement if at all possible. In this instance, utilizing the press-fit humeral component of the Integra Titan Modular Shoulder System allowed good distal fixation with minimal bone loss of the calcar. By impacting the stem and utilizing a smaller metaphyseal body, this preserved bone which was vital in this young patient. Looking ahead, if she requires any type of revision, it was important to preserve as much bone as possible. The Integra Titan Shoulder System allows for excellent press-fit stability by removing a minimal amount of bone compared to other shoulder systems.

**Physician Conclusion**

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**Pre-Op and Post-Op Radiograph/MRI/CT Images and Surgical Pictures**

[Figure 1 – Anterior/posterior radiograph demonstrating advanced glenohumeral arthritis in this young patient.]

[Figure 2 – Axillary view showed advanced collapse of the humeral head with bone on bone contact.]

[Figure 3 – Photograph demonstrating the advanced collapse and deformity to the humeral head. It was extremely deformed in this young patient.]

[Figure 4 – The patient’s glenoid was quite deformed matching the humeral head. Suture bone anchors were placed at the four corners of the glenoid. The suture was passed through a soft tissue patch which is then tied down to help support and cover the deformed glenoid.]

[Figure 5 – Anterior/posterior radiograph showing the hemiarthroplasty of the humerus in good position and alignment with the soft tissue patch of the glenoid]

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**Figure 5 – Anterior/posterior radiograph showing the hemiarthroplasty of the humerus in good position and alignment with the soft tissue patch of the glenoid.**

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