Title: Reconstruction with Scapular Hemiarthroplasty Endoprosthesis After Total Scapulectomy

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Abstract

Background/Objectives Surgical treatment of malignant scapular tumors can be complex due to their relative rarity and the variability of presentation. As such, options for limb-preservation are limited after total scapulectomy; options include soft-tissue suspension, scapular allograft reconstruction, and endoprosthetic reconstruction. The most commonly reported endoprosthetic reconstructions involve instrumentation of the humerus resulting in either a constrained or unconstrained endoprosthetic articulation at the glenohumeral joint. There have been few reports of scapula-only endoprosthesis, otherwise known as scapular hemiarthroplasty. In the face of a lack of consensus on optimal treatment of scapular tumors, the purpose of this study was to evaluate the outcomes of patients treated by intraarticular total scapula resection and reconstruction using a scapular hemiarthroplasty endoprosthesis.

Materials and Methods A retrospective review of 5 consecutive patients from September 2004 to April 2008 who underwent scapular hemiarthroplasty endoprosthesis reconstruction after total scapulectomy was performed. Demographic, surgical, and oncologic data was collected on all patients. Functional outcomes were assessed by range of motion and the Musculoskeletal Tumor Society Upper Extremity Scoring System.

Results All but one of the patients were alive at the time of follow-up. The mean age of the patients at the time of surgery was 39.6 (17-65) years. Mean follow-up was 60.6 (38-79) months. The diagnoses included 2 patients with chondrosarcoma and one each with Ewing sarcoma, extraskeletal myxoid chondrosarcoma, and myofibroblastic sarcoma. All resections were Type III shoulder girdle resections. There were no local recurrences. One patient developed lung metastases and eventually succumbed to his disease. One failure occurred in the form of deep infection resulting in endoprosthetic removal. The mean shoulder forward flexion was 48.8 (30-60) degrees and the mean shoulder abduction was 45 (30-60) degrees. Mean Musculoskeletal Tumor Society score was 24.2 (80.8%).

Conclusions Reconstruction using a scapular hemiarthroplasty endoprosthesis resulted in acceptable surgical, functional, and oncologic outcomes in this case series. These were consistent with previously reported data on other reconstructive treatments. Scapular hemiarthroplasty after total scapulectomy adds to the surgical options available in the treatment of these challenging cases.