

POSTER 12

Title: Durability of Intercalary Endoprosthesis for Humeral Reconstruction

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Introduction: The humerus is a common site of long bone metastases and primary bone tumors, and the treatment for these lesions are pain relief and immediate and unrestricted functional restoration. For certain where there is segmental defect and/or diaphyseal cortical destruction a cemented intercalary device may provide a more reliable construct, however data on their use is limited.

Methods: We reviewed 41 (26 male, 15 female) patients treated with an intercalary humeral spacer at a single tertiary referral center between 1989-2018. Humeral lesions were secondary to metastatic disease in 25 patients, hematologic malignancy in 12 patients and sarcoma in 4 patients. Mean age and body mass index were 66 years and 28.3 kg/m². First generation taper joint device were used in 21 patients and second-generation lap device in 20 patients. Mean follow-up for surviving patients was 5 years.

Results: Over the course of the study 39 patients ultimately died of disease progression at a mean of 2 years (range 2 months– 15 years). Nineteen (46%) deaths occurred within the first year, with a median survival of 10 months for metastatic disease, 17 months for hematologic malignancy, and 3 years for primary sarcoma ($p=0.51$).

Over the course of the study, five patients (12%) underwent reoperation. Indications for reoperation included forequarter amputation for disease recurrence ($n=2$), revision due to distal segment failure ($n=2$), and open reduction internal fixation due to periprosthetic fracture ($n=1$).

Four patients (10%) had aseptic loosening of the cement mantle, however only 1 patient was revised secondary to loosening. The areas of cement loosening included the distal segment ($n=3$) and proximal segment ($n=1$).

Following the procedure, mean American Shoulder and Elbow Surgeons score and Musculoskeletal Tumor Society scores were 78% and 80%.

Conclusion: Reconstruction of the humeral diaphysis with an intercalary endoprosthesis provides a durable means of reconstruction and restoration of function, with a low rate of reoperation due to hardware failure.