

Introduction: Restoration of glenohumeral stability and mobility following wide resection proximal humerus present a major challenge

Methods: Between 1988 to 2013 twenty four patients underwent wide resection proximal humerus. Ages 11-54 years. Male (14), Female (10), Diagnoses osteosarcoma (12), GCT (5), Chondrosarcoma (4), Ewing (1), leiomyosarcoma (1), angiosarcoma(1). Primary resection and replacement in (19), revision of failed osteoarticular allograft (3), revision of failed prosthesis in (2). Resection level from 7 to17cm. Reconstruction modality using fresh frozen allograft with joint capsule and tendon attachment assembled into custom long stem prosthesis press fitted to the host bone

Results: Follow up from 2 years to 27 years.. Follow-up was lost in (3). Four patients with osteosarcoma died during the follow-up. No immediate complications. One local recurrence. Long-term rigid, stable fixation with complete healing of the allograft host bone achieved in all patients. All regained stable painless limited range of motion. One surgery for all, no revision. MSTS functional result score was excellent with respect to pain control, emotional acceptance and manual dexterity, Unsatisfied with respect to range of motion.

Discussion and Conclusion: reconstruction of gleno-humeral joint is challenging. Osteoarticular allograft provide good early results with poor long term result related to fragmentation and high revision rate. Shoulder arthrodesis provides stability with good use of elbow, however, the procedure is very demanding with high complication rate. In our experience the use of combined allograft prosthesis has been successful; provide painless range of motion with lifelong durability emotionally and esthetically well accepted