

# Functional Outcome Of Patients Following Biological Reconstruction And Amputation For Musculoskeletal Sarcomas

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## INTRODUCTION:

One of the primary goal of surgical management of musculoskeletal sarcomas following limb salvage with local control of disease, is to ensure a return to function to as normal as possible. Amputation was considered to be the treatment of choice in the past, to ensure local control of tumors. However with recent advances, amputation are reserved only for unsalvageable cases.

## MATERIALS AND METHODS:

The medical records for 34 patients who underwent biological reconstruction and 11 patients who had amputation done, with a minimum follow up period of six months, were identified from the orthopedic oncology unit of University Malaya Medical Centre (UMMC). Their functional outcome were evaluated using Musculoskeletal Tumor Society Score (MSTS) and Toronto Extremity Salvage Score (TESS).

## RESULTS:

### Biologic Reconstruction:

Mean age of the population was  $35.53 \pm 16.39$ . There were 14 male and 20 female subjects in this study. The most common histologic diagnosis was GCT, for 21 cases (61.8%), followed by osteosarcoma for 7 cases (20.6%) and Ewing's sarcoma for 3 cases (8.8%). The most common location for the tumor was upper limb, especially the distal radius. The average follow up period was at 46.65 months (ranging from 6 months to 120 months). The mean MSTS score was  $78.13 \pm 14.8$  (ranging from 33% to 100%) and TESS score was  $87.52 \pm 9.46$  (ranging from 67.8% to 100%).

### Amputation:

Mean age of the population was  $41.45 \pm 21.30$ . There were 8 male and 3 female subjects. The most common histologic diagnosis was osteosarcoma for 7 cases (63.6%) followed by a one case of Ewing's Sarcoma, squamous cell carcinoma and liposarcoma each. All amputations were done for lower limb sarcoma. A majority of the patients underwent above knee amputation (AKA) (81.8%), while below knee amputation

was done for 2 patients (18.2%). The average follow up period was 105.09 months (ranging from 6 month to 270 months). The mean MSTS score was  $65.75 \pm 22.95$  (ranging from 30% to 100%) and TESS score was  $73.52 \pm 20.94$  (ranging from 43% to 100%).

## DISCUSSION:

**Biologic reconstruction** : There is no ideal method of reconstruction following limb salvage surgery. Different methods like autograft, allograft, bone distraction or rotationplasty are mentioned for biologic reconstruction. The functional outcome also depends on many factors including the patients age, graft type, the extent and location of tumor, availability of surgical facilities and expertise.

**Amputation**: It is still a valid option for the tumors that cannot be excised with safe margins and does not have added survival benefit compared to limb salvage surgery. Functional outcome also depends on many factors including age of amputation, site of amputation and availability of the prosthetic limbs.

## CONCLUSION:

Biological reconstruction was the limb salvage method of choice for aggressive benign bone tumors, especially in younger age groups. They had good functional outcome as shown by good MSTS and TESS score. Amputations were the treatment of choice for aggressive malignant bone tumors. The functional outcome following amputation, measured using MSTS and TESS score, were lower than biological reconstruction, but was comparable to other amputation studies.

## REFERENCE:

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