

## Functional Audit of Limb Reconstruction using Mega Prosthesis in Musculoskeletal Tumors – A Retrospective Single-Center Study

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### Abstract

**Introduction:** Medical advancements in musculoskeletal oncology has significantly reduced the mortality rate associated with limb-sparing surgery, making it comparable to amputation. The use of modular megaprosthesis for sarcoma treatment has now become a standard practice. However, these non-biological implants are not without their complications.

**Materials and Methods:** A retrospective cohort study was conducted on all patients who underwent wide resection of locally aggressive and malignant bone tumors, followed by reconstruction with megaprosthesis between January 2018 and January 2023 at tertiary care hospital. Patients were evaluated based on oncological outcomes, functional outcomes, and complications with a minimum follow-up period of 6 months.

**Results:** The study included a total of 30 patients, comprising 16 males and 14 females, with a mean age of  $33.6 \pm 15.6$  years. They all underwent wide resection and reconstruction with megaprosthesis. Diagnosis among the patients included 19 cases of giant cell tumors, 5 cases of osteosarcomas, 2 cases of metastatic bone tumors, and 1 case each of chondrosarcoma, malignant fibrous histiocytoma, multiple myeloma, and chondromyxoid fibroma. These tumors were predominantly located in the distal femur (15 patients) and proximal tibia (12 patients). The average follow-up period was  $33 \pm 21$  months, resulting in an average final Musculoskeletal Tumor Society (MSTS) score of  $81\% \pm 9\%$ . Complications were observed in 21 patients, with infection being the most common, specifically Type 4 (10 patients, 37%), followed by Type 1 (4 patients, 13%) and Type 3 (4 patients, 13%). Two patients (7%) experienced Type 5 complications, while three succumbed to their illnesses. Additionally, two patients required amputation, one due to local recurrence and the other due to a deep-seated infection.

**Conclusion:** Megaprosthesis is a viable reconstruction option following wide resection of bone tumors. Infection remains the most common issue, and cost poses a significant challenge.