

Title: Functional Outcome in Children undergoing Resection-Arthrodesis for Malignant Tumors Around the Knee Joint

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Place of Study:

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Background:

Knee is the commonest site of bone sarcomas in the paediatric population. In view of lack of available resources and poor socio-economic status, Knee arthrodesis following wide excision of malignant tumors around the knee still forms an important means of limb salvage in many developing countries.

Objectives: The main aim of our study was to evaluate the functional outcome in children (less than 18 years) undergoing knee arthrodesis for malignant tumors in and around the knee joint.

Methods: We retrospectively evaluated the results of knee arthrodesis following wide excision of bone sarcomas in and around the knee joint in children (that is less than 18 years of age at the time of presentation). The study included 32 cases of knee arthrodesis following excision for either a sarcoma of the distal femur or the proximal tibia. Our inclusion criteria was a minimum follow-up of 4 years following the primary procedure. Patients were evaluated for age, type of tumor, survivorship and functional outcome using the MSTS scoring and the knee function. Knee function was evaluated using the Knee Society Score.

Results: There were 21 males and 11 females in the study. 25 patients had Osteosarcoma while 7 had Ewings Sarcoma. All Patients underwent neo-adjuvant chemotherapy. Knee arthrodesis following tumor excision was achieved using different methods using autograft, morcellised allograft, non-vascularized fibular grafting, turnoplasty (using the remaining tibia or femur) and mother's fibula. Dynamic Compression Plates were used in 17 children (prior to advent of LCP) while the Locking Compression Plates were used in 15. The mean follow-up in the study was 48.6 months. The average age was 14.7 years. Oncological survival: after 4 years a total of 21 patients were alive and they were evaluated for MSTS scoring and the Knee Society Scores. The median MSTS score was 60% (5% to 80%). The average Knee Society Score was 60. 11 children required multiple procedures at an average of 19.4 months after the primary surgery.

Conclusions: Our study shows satisfactory results of Knee arthrodesis in malignant lesions around the knee joint in the paediatric population. Knee arthrodesis is an important tool in the armamentarium of the Musculoskeletal oncologist particularly when dealing with paediatric sarcomas around the knee more so if an endoprosthesis is not doable either due to too young an age or due to lack of resources.