

**FC-142****Limb salvage in skeletal immature patients: Japanese experience****T. Ozaki, T. Kunisada, K. Takeda, T. Fujiwara***Okayama University Hospital, Okayama, Japan*

Selecting a reconstruction method in children is difficult because they may have a complication as they mature physically. In this paper, I highlight the patients with bone sarcoma under the age of 15 and discuss limb salvage surgery and complications in those patients.

**Patients and Methods:** We selected 34 patients under the age of 15, who underwent limb salvage surgery including rotationplasty after 1992 after excision of sarcoma of the extremity. There were 28 patients with osteosarcoma, 5 with Ewing sarcoma, and one with mesenchymal chondrosarcoma. The age ranged between 4 and 15 (average, 12.6) years at operation. Tumors in 5 patients were located in the upper extremity and 29 in the lower extremity. The average follow-up period was 108 months. In those 34 patients, types of surgical procedures, postoperative function (MSTS), complications, additional surgery, and prognosis were evaluated.

**Results:** All patients received both pre- and post-operative chemotherapy. Reconstruction methods were as follows; tumor prosthesis in 12 (including expansion type in 5), vascularized fibula in 4, irradiated bone in 4, pasteurized bone in 3 (including 1 with vascularized fibula ), frozen bone treated by liquid nitrogen in 2, arthrodesis in 1, "clavicle pro hemero" in 1, amputation and re-implantation in 1, and rotationplasty in 6. At the last follow-up, 18 patients were CDF, 6 were NED, 1 was AWD, 8 were DOD, and 1 was death for some other reason. The 5-year overall survival was 81.1% and progression-free survival was 61.2% by the Kaplan-Meier analysis. As for complication, leg length discrepancy over 2cm at the final follow-up was observed in 7 patients, fracture in 3 (including nitrogen liquid treated bone in 1), bone absorption of radiated bone in 2, and breakage of prosthesis in 1. Additional surgeries were as follows: elongation of the growing prosthesis in 5 patients (9 times in total), implantation of tumor prosthesis due to breakage of irradiated bone in 2, amputation due to local relapse or infection in 3, revision of prosthesis in 1, local flap in 1, and excision of relapsed tumor in 1. The MSTS functional evaluation was 85.3% and 74.4% in average for the patients with reconstruction of the upper extremity and of the lower extremity, respectively.

**Discussion:** For selection of the limb salvage technique in the growing children, postoperative complications such as prosthesis loosening or breakage of the grafted or recycled bone may happen because the patients' prognosis is keep improving and they are active after treatment. It seems important to plan the initial operation with consideration to the possibility for additional surgery as the patients mature physically.