

Allografts In Children Aged Under 10 Years Old After Resection Of Malignant Long Bone Tumors. Mid To Long-Term Follow-Up

Orthopaedics / Musculoskeletal Tumors / Malignant Tumors

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Introduction

Musculoskeletal tumours in children are still a challenge for surgeons. Big bone defects after tumoral resections are difficult to manage, especially when patients are still growing up. In patients younger than 10 years, allografts or vascularized bone grafts are usually carried out. However, there are not many studies showing long-term results.

Objectives

We present a case series patients with primary malignant bone tumors in children aged under 10 years old, treated in our center and reconstructed with allograft. We aim to describe survival and outcomes at long-term follow-up.

Methods

Eighteen cases of malignant bone tumors between 1994 and 2002 were included in the study. Only patients aged under 10 years at diagnosis with primary malignant bone tumors of long bones (femur, tibia or humerus) were included. A retrospective review of clinical histories, radiological and pathological studies was done. Type of resection, complications and survival results were recorded. All patients alived at end-point (December 2013) were clinically and radiographically reviewed.

Results

Median age at diagnosis was 7.6 years (range 2-10). There were 12 male and 6 female. Osteosarcoma was the first diagnosis (n=10). There were 7 cases of femoral affection, 6 affecting tibia and 5 humeral tumors. Distal (n=7) and proximal (n=5) metaphysis were the most affected zones in the bone. 11 cases had soft tissue mass and 2 patients presented metastasis at diagnosis. Wide resection was performed on all the cases. Metaphyseal (n=6), diaphyseal (n=4) and transepiphyseal (n=4) were the more frequent resections performed. Fourteen intercalary allografts were utilized. Median allograft follow-up was 102.6 months (range 8-156). Average patient follow-up was 106.6 months (range 8-156). 14 patients had some kind of complication with the allograft, including 3 infections, 1 local recurrence, 2 graft fractures, 3 graft resorbitions, 2 degenerative osteoarthritis, 6 pseudoarthrosis and 2 problems of soft tissues coverture. Sixteen patients (88.9%) needed to be reoperated in the same or in the contralateral side. Four allografts had to be removed. There were 16 alive patients at the end of the follow-up period.

Conclusions

Allograft reconstruction in skeletal immature patients is a procedure with a high rate of complications. However, its use still remains as an option to manage big defects in

growing-up patients when prosthesis cannot be performed as well as it provides bone stock for future procedures.