

How is the joint survival in patients with epiphyseal chondroblastoma of bone treated with curettage?

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Abstract

Background: Chondroblastoma is an uncommon benign but locally aggressive bone tumor located in apophysis and epiphyses of long bones, which affects young patients. Although sometimes massive en bloc resections is required, extensive curettage and bone grafting is usually performed in order to preserve the joint. This aggressive intralesional resection may generate serious consequences in the growth plate and articular cartilage over time, affecting long term functional outcomes.

Questions: To evaluate the long term outcome of the joint in a group of patients with epiphyseal chondroblastoma of bone treated with an intralesional resection, we purposed to answer the following questions: 1) Which local complications could be expected in this group of patients? 2) How many patients with symptomatic joint osteoarthritis required a second surgical procedure? 3) Which was the joint survival? 4) How was the functional outcome in this group of patients?

Patients and methods: A retrospective review of our prospectively collected database between 1975 and 2013 was done. We analyze all patients with diagnosis of epiphyseal chondroblastoma of the limb treated with an intralesional resection and joint preservation surgery. All patients with a minimum follow-up of 2 years were included. Tumor location was: 14 cases at the distal femur, 11 at the proximal tibia, 10 cases at the proximal humerus, 8 at proximal femur, 7 cases at the talar bone, 1 case at the second metatarsi bone, and the remaining two cases were at the distal tibia and the calcaneus bone. Local complications including joint degeneration and tumor recurrence were evaluated. Secondary osteoarthritis was diagnosed in joints that exhibited classical

radiological findings. Patients which required joint replacement due to advanced symptomatic osteoarthritis, was considered as joint failure. Survival of the affected joint was estimated using the Kaplan-Meier method. Functional results were evaluated with MSTS functional score.

Results: Fifty-three patients with a mean age of 18 years and an average follow-up of 77 months were included for the study. Neither patient died of disease nor metastases was found in this series. Twenty-two patients (42%) developed 26 local complications. The main local complication was osteoarthritis in 20 patients (77%; 20 out of 26 complications). The second local complication was tumor recurrence in 4 patients. The remaining complications were a patient with an intrarticular fracture and a case of superficial infection treated with a surgical debridement and antibiotics.

Of the 20 patients with osteoarthritis, only four had a very symptomatic disease that required a joint replacement. Radiologic arthritis was more frequent in the proximal femur followed by the talar location. All joint replacements were at the proximal femur. Worst joint cartilage survival was evidenced in proximal femur when compared to other locations ($p < 0.05$).

Joint survival was 90% at five years (CI 95%: 76%-100%) and 74% at 10 years (CI 95%: 48%-100%).

The Mean MSTS functional score was 28 of 30 point (93%). Proximal femur location had the worse functional score (24 of 30: 80%).

Conclusions: Aggressive curettage and bone grafting achieved good oncological results with a low recurrence rate. Nevertheless, osteoarthritis is a frequent complication of this procedure. Furthermore, secondary osteoarthritis of the proximal femur seems to be more symptomatic than in other locations, resulting in worse functional results and increasing the risk of prosthetic replacement.