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Length of bone window correlated with length of restricted weight-bearing after curettage of bone tumors and tumor-like lesion with beta-tricalcium phosphate grafting **M. Watanuki**, M. Hosaka, M. Hatori, E. Itoi

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Introduction: We examined the association of length of restricted weight - bearing after treatment with the clinical and demographic characteristics of patients with benign bone lesions in the femur or tibia which had been treated with curettage followed by application of ethanol and β -TCP grafting.

Methods: Fifteen patients with benign bone lesions in the femur or tibia had undergone curettage followed by application of ethanol and β -TCP grafting between 2004 and 2011. After surgery, the patients were maintained using crutches until complete relief of pain at full-weight-bearing ambulation was achieved. The period of using crutches after treatment was noted (length of restricted weight-bearing). Two patients under 4 years old were spending 12 weeks in non-weight bearing castings. For these patients, the period of walking with a limp was noted as length of restricted weight-bearing.

Results: The mean age of patients was 20 (4-39) years. There were 10 males and 5 females. The average follow up was 49 (12-97) months. The histological diagnosis were giant cell tumor in 6 patients, osteofibrous dysplasia in 5, aneurismal bone cyst in 3 and non-ossifying fibroma in 1. The locations of the lesions were: proximal femur (1), mid-shaft femur (1), distal femur (3), proximal tibia (3), mid-shaft tibia (4), and distal tibia (2). The mean width, depth, and height of the lesions were 2.2 (1.1-4.0) cm, 2.3 (1.0-4.1) cm, and 4.5 (2.1-8.9) cm, respectively. The mean length and width of the bone windows were 4.1 (1.3-12) cm and 1.9 (0.8-4.4) cm, respectively. Partial weight-bearing was allowed after an average period of 14 (1-36) weeks. An average length of restricted weight-bearing was 32 (13-110) weeks.Single regression analysis showed that length of restricted weight-bearing correlated with tumor height (γ =0.876, p<0.01) and bone window length (γ =0.964, p<0.01). Multiple regression analysis revealed that gender and bone window length were significantly and independently correlated with length of restricted weight-bearing.

Conclusion: β -TCP was good bone filler for treatment of benign bone lesions. However, length of the restricted weight - bearing was very long. Gender and bone window length were significantly and independently correlated with length of restricted weight-bearing.