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Chondrosarcoma: Does a pathological fracture of the femur have prognostic importance?

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Background: The incidence and implication of a pathological fracture in patients with chondrosarcoma of the femur is not clear. The aim of this study is to report overall survival, local recurrence and development of metastasis in a group of patients with chondrosarcoma that suffered a pathological fracture of their femur.

Methods: We performed a retrospective review of 182 patients with chondrosarcoma of the femur treated by oncologic surgery. Mean age at diagnosis was 50.5 year old (range 8-90) and mean follow-up was 110 months (range: 3-216). Patients were divided into two groups whether they presented with or without a pathological fracture of the femur. Cancer specific overall survival, development of metastasis, and local recurrence were analyzed. A subgroup comparative analysis of both groups by histologic grade was done.

Results: Thirty-nine patients suffered a pathological fracture of the femur. Seventy-two percent of these fractures occurred in the proximal femur and 79% were grade 2, 3 or dedifferentiated tumors. The local recurrence rate of pathological fracture group was 33% and 24% for control group ($p=0.14$). For grade 3 and dedifferentiated, a pathological fracture significantly increased the risk of local recurrence ($p=0.002$). Pathological fracture group developed metastasis in 59% of the patients versus 27% for control group ($p=0.0003$). Five and ten year overall survival in the fracture group were 52% and 35%, lower than in the control group (77% and 67%) ($p=0.0004$). Subgroup analysis by histologic grade revealed that a pathologic fracture in grade 1 & 2 tumours was significantly associated with lower survival (84% vs 73% 5year survival, $p=0.03$) while it only approached significance for grade 3 & de-differentiated tumours (35% vs 10% 5year survival, $p=0.09$).

Conclusion: A pathological fracture of the femur has a negative prognostic influence in patients with chondrosarcoma.

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