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LONG-TERM OUTCOME IN 64 PATIENTS AFTER CURETTAGE WITH POLYMETHYLMETHACRYLATE FOR GIANT CELL TUMOR AROUND THE KNEE: HIGHER RISK OF OSTEOARTHRITIS?

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BACKGROUND Standard treatment for giant cell tumors (GCT) is curettage with polymethylmethacrylate (PMMA). It has been hypothesized that hyperthermic reactions and rigid elasticity of PMMA in the subchondral area may increase the risk for degenerative changes, but a clear definition or evaluation system has not been presented. Study goals were the determination of prevalence, risk factors and clinical relevance of radiological osteoarthritis after curettage with PMMA for GCT around the knee.

METHODS In this retrospective single-center study, we included 64 patients (from 78) with GCT around the knee treated with curettage and PMMA (1987-2010). Radiological osteoarthritis was defined as Kellgren&Lawrence-grade (KL) 3-4. We determined influence of age, gender, tumor-cartilage distance, subchondral bone involvement, intra-articular fracture and number of curettages on KL3-4 progression. SF-36, MSTs and KOOS were obtained to assess functional outcome and quality of life.

RESULTS Median age at final follow-up was 42 years (19-70). There were 34 males. At a median follow-up of 79 months (24-286), eight patients (12%) had progression to KL3, two (3%) to KL4 and one had preexistent KL4 (Table 1). No patient underwent surgery for clinical osteoarthritis. Multivariate Cox regression demonstrated increased hazards of KL3-4 progression when more subchondral bone was affected (hazard ratio=5.7; 95%CI=1.1-31; p=0.042) (Figure 1). In univariate Cox regression, this risk was most apparent when >70% was affected (HR=4.7; 95%CI=1.2-18; p=0.0026) and was also increased when tumor-cartilage distance was <1mm (HR=9.4; 95%CI=1.1-82; p=0.042). Age, gender, intra-articular fracture and number of curettages did not influence KL3-4 progression. Patients with KL3-4 reported lower KOOS symptoms (62vs.82; p=0.022), but scores were similar for pain, daily activities, sports/recreation and quality of life as well as MSTs (22vs.24) and SF-36 (77vs.80) (Figure 2).

CONCLUSION 15% of patients with GCT around the knee had progression to radiological osteoarthritis (KL3-4), compared with 0.3-1.8% in the general population. No lesser function or quality of life was reported and no patient required surgery for clinical osteoarthritis, supporting the assumption that clinical relevance of radiological osteoarthritis after curettage with PMMA may be questioned. Curettage with PMMA is a good treatment option, even in the presence of risk factors for radiological osteoarthritis.

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