

Enchondroma versus low-grade chondrosarcoma in long bones: clinical and radiological criteria

Kyung Il Kim, Min Wook Joo, Yong-Koo Kang, Yang-Guk Chung

Department of Orthopaedic Surgery, College of Medicine, The Catholic University of Korea, Banpo-daero 222, Seocho-gu, Seoul 137-701, Republic of Korea

Background

As management and prognosis are too different between enchondroma and low-grade chondrosarcoma, differential diagnosis is very important in chondroid bone tumors. Although various clinical and radiological criteria have been applied for differential diagnosis, it is not easy to distinguish both lesions, which are difficult to even by pathological examinations.

Questions/Purposes

We evaluated the efficacy of relatively object criteria, of various known ones, which can be easily used by clinicians.

Patients and Methods

We retrospectively reviewed the medical records on patients who were pathologically diagnosed as enchondroma or low-grade chondrosarcoma in long bones. Age, gender, associated symptom, location and main length of lesions, endosteal scalloping, radioisotope uptake on bone scintigraphy were elected as criteria for differential diagnosis, statistically analyzed.

Results

Fifty-nine patients were investigated. There were 34 enchondromas, and 25 low-grade chondrosarcomas, with median ages of 50 (14 to 74) and 47 (28 to 76) years respectively. Median main lengths were 44.5 (15 to 119) mm in enchondromas, and 52 (29 to 171) mm in chondrosarcomas. Findings of endosteal scalloping were observed in 6 (24 %) enchondromas, and 13 (52 %) chondrosarcomas. Logistic regression analysis showed endosteal scalloping was a significant parameters to indicate the low-grade chondrosarcoma ($p=0.009$), and main length approached significance ($p=0.080$).

Conclusions

While radiological finding of endosteal scalloping is an important parameter for predicting low-grade chondrosarcoma in this study, differential diagnosis was still challenging. Development of radiological and pathological method to solve this issue should be mandatory.