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How safe is curettage of low-grade cartilaginous neoplasms following radiological diagnosis alone?

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Background: Low-grade chondrosarcomas are managed with intralesional curettage +/- adjuvant measures. Pre-operative differentiation between enchondromas, low-grade chondrosarcomas and high-grade chondrosarcomas remains a diagnostic challenge.

Aim: To ascertain the accuracy and safety of radiological grading of cartilaginous neoplasms through assessment of, (1) pre-operative radiological and post-operative histological concordance and, (2) recurrence in lesions confirmed as high-grade on surgical histology.

Method: A retrospective review of cartilaginous neoplasms managed as low-grade between 2001 and 2012 was completed at our Sarcoma Unit. Pre-operative diagnoses resulted from multi-disciplinary consensus solely following radiological review.

Results: Fifty-five patients were reviewed [mean age 47.3 years (8 - 71); 24 males, 31 females]. Neoplasms involved the femur (n=21), humerus (n=18), tibia (n=9), fibula (n=3), radius (n=3) and ulna (n=1). Surgical histology confirmed 2 enchondromas, 51 low-grade chondrosarcomas and 2 high-grade chondrosarcomas (located in the femur and tibia). A single grade 2 case underwent revision with tibial diaphyseal replacement. Three low-grade patients developed local recurrence [mean 15 months (12 - 17)], with two recurring once and one recurring twice. All recurrences were curetted. No high-grade cases, having demonstrated low-grade disease on pre-operative investigations, developed local recurrence or metastasis [mean 4.1 years (3.3 and 4.9 years)].

Conclusion: Cartilaginous neoplasms identified as low-grade on pre-operative imaging should be managed as low-grade without the need for pre-operative histology. A small proportion of these cases may demonstrate high-grade features on surgical histology but this does not appear to affect recurrence rates. Neoplasms demonstrating borderline high-grade radiographic features should be considered for pre-operative biopsy.

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