A 39-year-old male in general good health had aching in his left fifth DIP joint for several years that occurred with use of his hand. The joint appeared slightly deviated, which he attributed to a history of multiple episodes of jammed fingers playing basketball as a youth. Over several years, the DIP joint became progressively enlarged with increasing tenderness to bumps and repeated bending. Medical care was sought when he realized that the distal finger itself was enlarging.

The physical exam revealed a fifth DIP, which deviated 10° towards adduction. The distal finger pad and joint appeared enlarged with tenderness at the joint line. There was no effusion or synovial inflammatory change. The range of motion was limited to 45° flexion.

An x-ray shows a mass replacing the distal phalanx. Degenerative sclerosis involves the joint line, and the mass appears to have nearly eroded the cortex. There is no periosteal bone reaction or cortical thickening. The lucent ovoid mass is easily demarcated with linear calcifications that occasionally appear like "popcorn" (see Figure 1).

The differential diagnosis of this bone mass includes either an enchondroma, a benign cartilage tumor, or a malignant chondrosarcoma. Even with biopsy material the differentiation between these two is often very difficult. The diagnosis relies heavily upon clinical presentation.

This tumor was a benign enchondroma. This case presented atypically with pain. Most enchondromas are found as incidental, asymptomatic lesions on bone scan done to assess for metastatic diseases. Pain is a presenting symptom more commonly seen in malignant chondrosarcoma, except in the cases where benign tumor growth is associated with nearby arthritis or stress fractures. This case reveals both the degenerative arthritic changes of an irregular, narrowed joint line at the distal interphalangeal joint, along with areas of cortical disruption that are likely areas of cortical fracture (see Figure 2).
Enchondromas are usually solitary lesions, most commonly found in the diaphyses and metaphyses of the femur, and followed in frequency by the humerus, tibia, and then the short tubular bones of the hands and feet. Enchondromas are the most common bone tumors in the tubular bones of the hands and feet, where they attain a diameter of 1-2 cm. In larger bones they grow to an average diameter of 6 cm.

Chondrosarcomas are most frequently found in the pelvis. They are also found in the femur, humerus, tibia, and ribs. Chondrosarcoma frequently arises within a benign enchondroma. When this occurs, it is designated as "secondary chondrosarcoma," showing both benign and malignant histologic patterns. For a particular bone, chondrosarcomas grow to about twice the size of the average enchondroma in that bone.

The presentation of a well-circumscribed, ovoid tumor in a phalanx, without cortical
thickening or expansion into the soft tissue, was nearly pathognomonic for benign enchondroma. Amputation of the distal phalanx confirmed the diagnosis and was curative.

Grade 1 chondrosarcomas metastasize less than 15% of the time, having a poorer prognosis when they involve the axial skeleton because of invasion into vital organ structures. Grade 2 chondrosarcomas may metastasize up to 50% of the time and Grade 3 chondrosarcomas metastasize over 50% of the time, often to the lungs. Five-year survival of Grade 3 chondrosarcomas has been reported to be as low as 15%.

REFERENCE