Enchondromas in the Foot

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My disclosure is in the Final AOFAS Program Book. I have no potential conflicts with this presentation.
Incidence of enchondroma in the foot is relatively uncommon as compared with hand. Enchondromas are usually asymptomatic but can cause pain secondary to pathologic fracture or pressure due to an expanding lesion.

The purpose of this study is to evaluate clinical and imaging features of enchondromas in the foot and to assess outcome of surgical treatment.
Materials and Methods

- A retrospective review of 15 enchondromas from January 2005 to November 2010

- Review and analysis:
  - Radiography
  - CT and MR images
  - Medical record
  - Operative notes
Results

- Mean age of patients: 36 years (range, 12-56 years)
- Four men and eleven women
- Location: proximal phalangeal bone except one
- Clinical symptoms: pain and swelling
- Duration: 1 week - 5 years
- Pathologic fractures: 11 cases (73%)
- Radiographic and CT: well-defined margins (all cases), sclerotic rim (9), smooth contour (7), lobular contour (8)
Results

- MR enhancement pattern: peripheral, septal and/or nodular enhancement within the lesions in 8 cases
- Adjacent soft tissue edema: 8 cases
- Surgical treatment: curettage of tumor and bone graft in all cases; autograft in 6, allograft in 6 and bone substitute in 4
- Internal fixation: 11 cases with K-wires for the pathologic fractures
- No recurrence and postoperative complication were occurred during follow up period.
Fig. 1. Enchondroma in a 37-year-old woman. Radiographs (A, B) revealed ostolytic intramedullary lesion in the 4th proximal phalanx with pathologic fracture and soft tissue swelling. T1-weighted MR image (C) showed a well-defined lesion of low signal intensity. T2-weighted MR image (D) showed high signal intensity lesion. Postcontrast T1-weighted MR image (E) showed peripheral and nodular enhancement of the lesion.
Fig. 2. Enchondroma in a 21-year-old man. Radiographs (A) revealed ostolytic intramedullary lesion in the 3rd proximal phalanx with internal matrix fine calcifications. T1-weighted MR image (B) showed a well-defined lesion of low signal intensity. T2-weighted MR image (C) showed high signal intensity lesion. Postcontrast T1-weighted MR image (D) showed peripheral and nodular enhancement of the lesion.
Case 3

Fig. 3. Enchondroma in a 60-year-old woman. Preoperative radiographs (A) and CT (B) revealed ostolytic intramedullary lesion in the 2th proximal phalanx. Immediate (C) and one year (D) postoperative radiographs showed bone graft material in the proximal phalanx.
Enchondromas in the foot mostly involve proximal phalangeal bone with associated pathologic fracture. Clinical and imaging features are characteristic, and easily diagnosed. Appropriate treatment and good surgical outcome can be expected.

References
2. Gajewsk DA, Burnette JB, Murphey MD, Temple HT. Differentiating clinical and radiographic features of enchondroma and secondary chondrosarcoma in the foot. Foot Ankle Int 2006;27:240-244