

Enchondroma

- Location: 50% occur in hands and feet
- Long bones: proximal humerus > distal and proximal femur > proximal tibia
- Geographic central lesion; usually not truly lytic
- No complete cortex destruction or soft tissue mass (in absence of pathologic fracture)
- Usually < 5 cm in length
- Most common tumor of phalanges of hand

Enchondroma

- In small tubular bones, may be expansile and bubbly
- May cause mild scalloping of endosteal cortex over short length of lesion
- If scalloping $> 2/3$ cortical thickness or $> 2/3$ length of lesion, consider transformation to chondrosarcoma (CS)

Enchondroma

- Chondroid matrix: may be subtle or absent, especially in hands and feet
- EC protuberans: exophytic EC
- May show cortical defect, appearing aggressive
- MR fluid-sensitive sequences: lobulated high signal typical of cartilage lesions
 - Enhancement: peripheral and septal, accentuating lobules

Image Interpretation Pearls

- In detecting transformation of EC to CS, note following
 - Extensive endosteal scalloping is concerning
 - Endosteal scalloping is normal in EC arising adjacent to cortex
 - Change in character of lesion (seen on any modality) must be considered suggestive of transformation to CS
- Note that EC may normally enlarge or show change in matrix;
 - Does not necessarily indicate transformation to CS, but full work-up and surgery are likely required in such circumstances

DDx:

- **Small Tubular Bone Enchondroma**
- **Giant cell tumor (GCT)**
 - Lytic, expansile lesion
 - Inhomogeneous/low T2 signal different from lobulated cartilage signal of EC
- **Aneurysmal bone cyst**
 - Lytic, expansile lesion
 - Generally younger patient population
 - Fluid-fluid levels present on MR
- **Simple bone cyst**
 - Lytic, expansile lesion
 - Generally seen in childhood
 - Entirely cystic on MR

Enchondroma



Enchondroma



chondroid
matrix



endosteal
scalloping

Hands (>) and feet most common site

Multiple Enchondromas

Increased risk of
chondrosarcoma in
Olliers and Maffucis



Maffucci's syndrome

