

Mimics of bone tumors

Sir,

We read with interest the pictorial essay, "Bone tumor mimickers: A pictorial essay," by Mhuirheartaigh *et al.*^[1] The article discusses about numerous benign processes that mimic the radiographic appearance of bone tumors. We found the article excellent and informative. We would like to contribute by adding to the list of differentials a few other benign pathologies simulating a neoplasm, which are discussed below and in the table that follows [Table 1].

- Congenital unilateral agenesis of vertebral body pedicle^[2]
 - Unilateral absence of a pedicle on the frontal view may not always represent an osteolytic metastasis (winking owl sign); a unilateral, congenitally absent pedicle has a similar radiologic appearance. Contralateral enlargement of the pedicle surrounded by a sclerotic margin, however, is seen only in the latter [Figure 1]. This expansion is compensation to weight-bearing stresses.
- Osteopoikilosis^[3]
 - It is a hereditary benign condition with symmetric distribution of radiopaque densities around the joints. This appearance can mimic an osteoblastic metastasis, especially when osteopoikilosis is present diffusely throughout the pelvis rather

Table 1: Mimics of bone tumors (other than in Ref.^[1] and those discussed above)

Bone island ^[2]
Costochondritis ^[3]
Discogenic vertebral disease ^[3]
Fibrous dysplasia ^[2]
Neurofibromatosis ^[2]
Pseudo-lytic lesion of lumbar vertebra ^[4]
Sacral ossification defect ^[4]
Supraclavicular foramen ^[4]



Figure 1: Congenital unilateral agenesis of vertebral body pedicle. Radiograph lumbosacral spine depicts absence of pedicle of L4 vertebra. There is compensatory enlargement and sclerosis of the contralateral pedicle

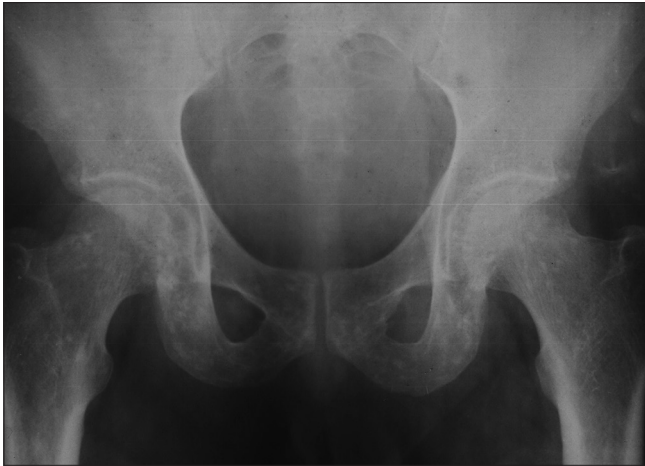


Figure 2: Osteopoikilosis. Radiograph pelvis reveals multiple small sclerotic densities situated predominantly around the joints. Distribution around the joints, rather than diffusely, is typical of osteopoikilosis

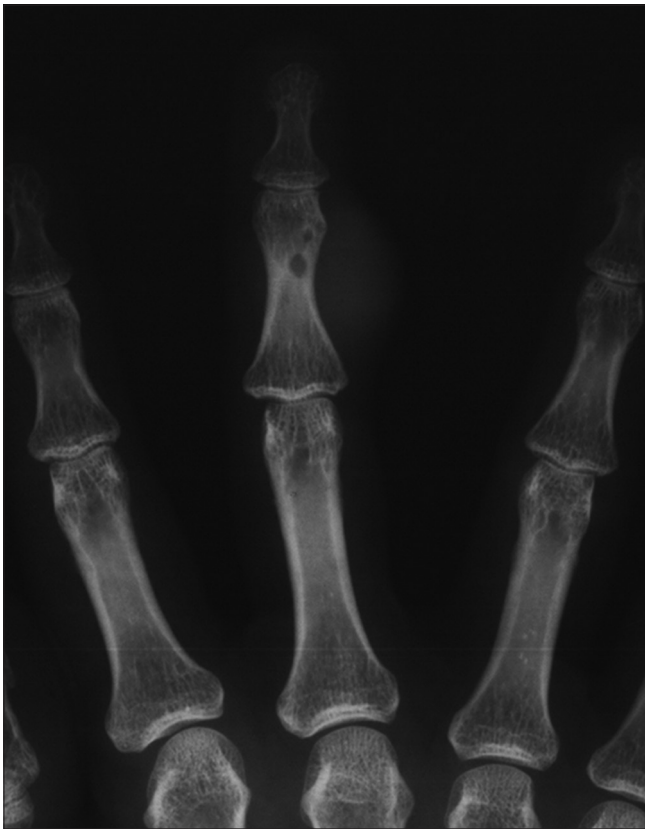


Figure 3: Epidermal inclusion cyst. The radiograph shows lytic lesions in the middle phalanx of the third finger with adjacent soft tissue swelling. The lesion was an epidermal inclusion cyst on histopathology

than just around the joints. A uniform size and symmetric juxta-articular distribution are, however, characteristic of osteopoikilosis [Figure 2].

- Epidermal inclusion cyst^[5]
 - Ectopic rests of surface epidermal cells in dermis especially due to trauma may cause focal proliferation



Figure 4: Paget's disease. The radiograph reveals cortical thickening and bone expansion of tibia with subarticular extension. The femur, patella, and fibula appear uninvolved. The mottled opacities within the tibia represent cotton wool appearance. Also noted is a pathologic transverse fracture in the mid-diaphysis of tibia



Figure 5: Bulbous ischiopubic synchondrosis. Radiograph pelvis depicts unilateral bulbous enlargement of ischiopubic articulation

which may erode into the adjacent bone [Figure 3]. More frequent in terminal phalanges, these lytic bony lesions may mimic neoplastic process. Epidermal inclusion cyst has a low signal both on T1 and T2 images due to increased lipid content; low T2 signal, however, may be seen due to crystalline cholesterol or keratin. There is distinct absence of contrast enhancement.

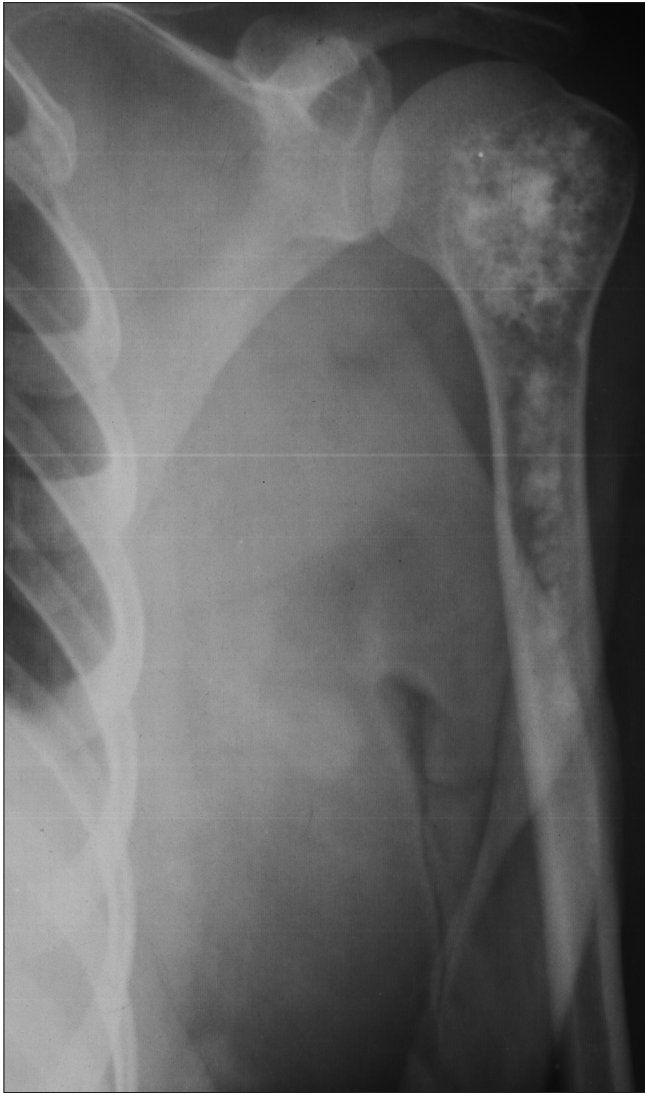


Figure 6: Bone infarction. The radiograph shows two infarcts, one in metaphysis and the other in proximal diaphysis. The margins of the lesion are minimally sclerotic with areas of localized internal sclerosis. The overlying cortex is uninvolved

- Paget's disease^[2]
 - Radiologic appearance varies as per the stage of the disease. However, the general features include changes in bone density, coarsening of trabeculae, cortical thickening, bone expansion, subarticular disease, and pathological fractures [Figure 4]. Highly aggressive lesions may show periosteal reaction. Paget's disease mimics both the osteolytic as well as osteoblastic malignancies. The neoplasm, however, shows lack of cortical expansion; there is rather cortical disruption. Subarticular involvement is characteristic of Paget's disease.
- Bulbous ischiopubic synchondrosis^[4]
 - The junction of ischium and pubis may undergo considerable enlargement. This bulbous expansion

may be unilateral [Figure 5] or bilateral. It is usually an asymptomatic variant, but may be confused with a neoplasm, especially in symptomatic individuals. Lack of marrow and adjacent soft tissue edema on MRI helps distinguish this normal growth variant and a neoplasm.

- Bone infarction^[6]
 - A bone infarction is a diametaphyseal process in a long bone that has serpiginous sclerotic border. This sclerotic border has a low signal on MRI (due to reactive new bone formation) with central high signal (of yellow marrow). Such an appearance is not always seen. It is often difficult to distinguish bone infarction from enchondroma [Figure 6]. The latter causes endosteal scalloping and lacks a sclerotic border.

We conclude by once again commending the authors for an excellent article on an important topic.

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