Fibrous dysplasia

- Uncommon, occurs in children and adults and can affect all age groups.
- It is usually first diagnosed in children and young adults.
- True incidence is not known but it is estimated to make up for ~5% of benign bone lesions.
- No gender predilection
- General lytic and well-defined, but can look like almost anything

Imaging

- Radiographic appearance
  - Varies from lytic to densely sclerotic in same lesion
  - Lytic, bubbly appearance often in pelvis lesions
  - Intermediate ground-glass attenuation related to fibrous component
  - Densely sclerotic areas common
  - Bowing deformities of long bones
  - Varus femoral neck (shepherd's crook)
  - Polyostotic form → limb length discrepancy (70%)
- MR appearance
  - T1: homogeneous intermediate signal intensity (SI)
  - Fluid-sensitive sequences: overall decreased SI (on non-FS images) with superimposed on areas of mildly high to very high SI
  - FS may obscure characteristic low SI
  - Heterogeneous enhancement
  - May have aneurysmal bone cyst-like changes
- FDG PET can show high uptake

Fibrous Dysplasia

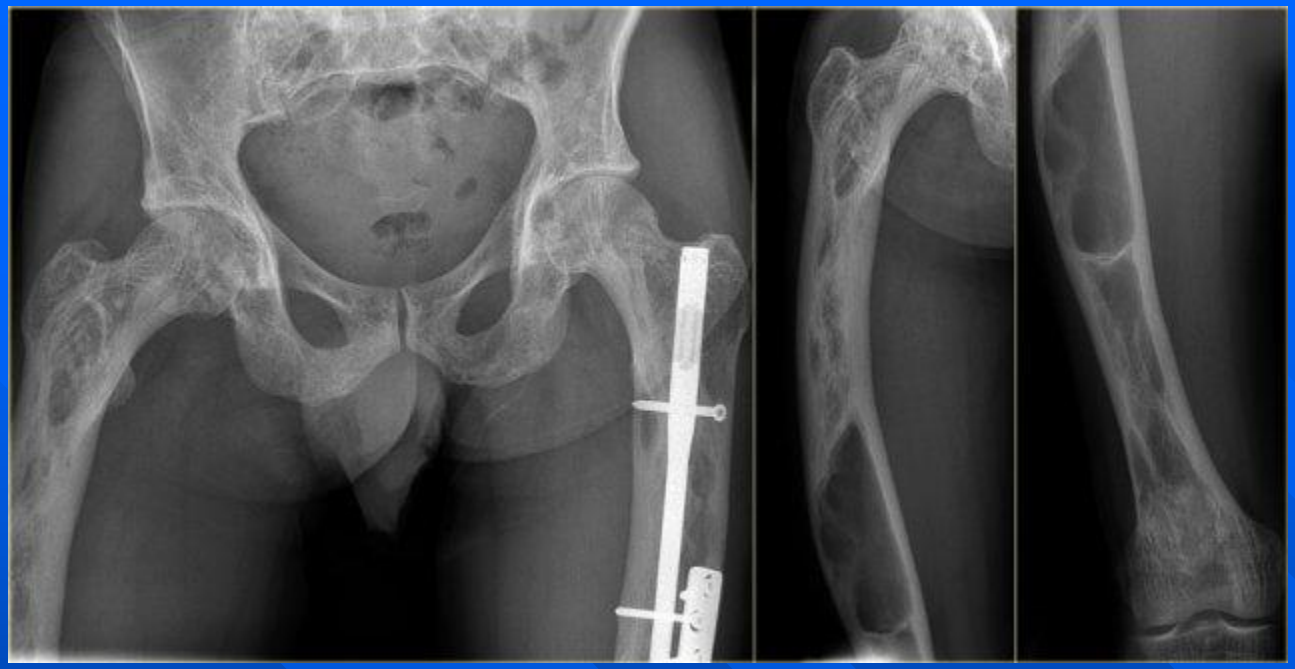
Typical X-ray
Mostly well-defined osteolytic
but can look like anything.
bone deformity

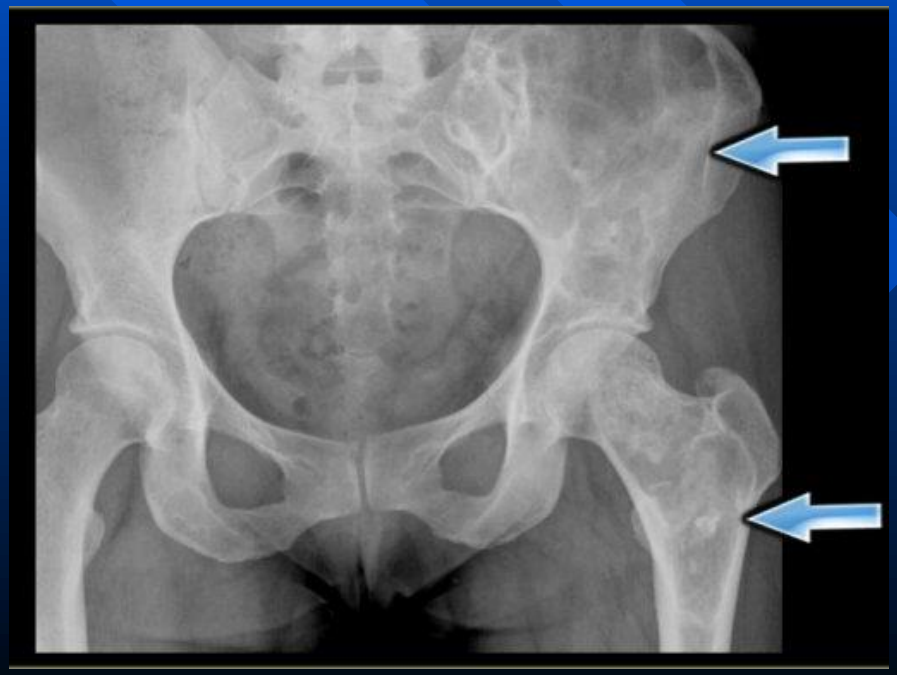
Clinical
usually asymptomatic
uncommonly pain and swelling

Age
10 - 30 years

Favorite location
femur, tibia, rib,skull
humerus

Diff diagnosis





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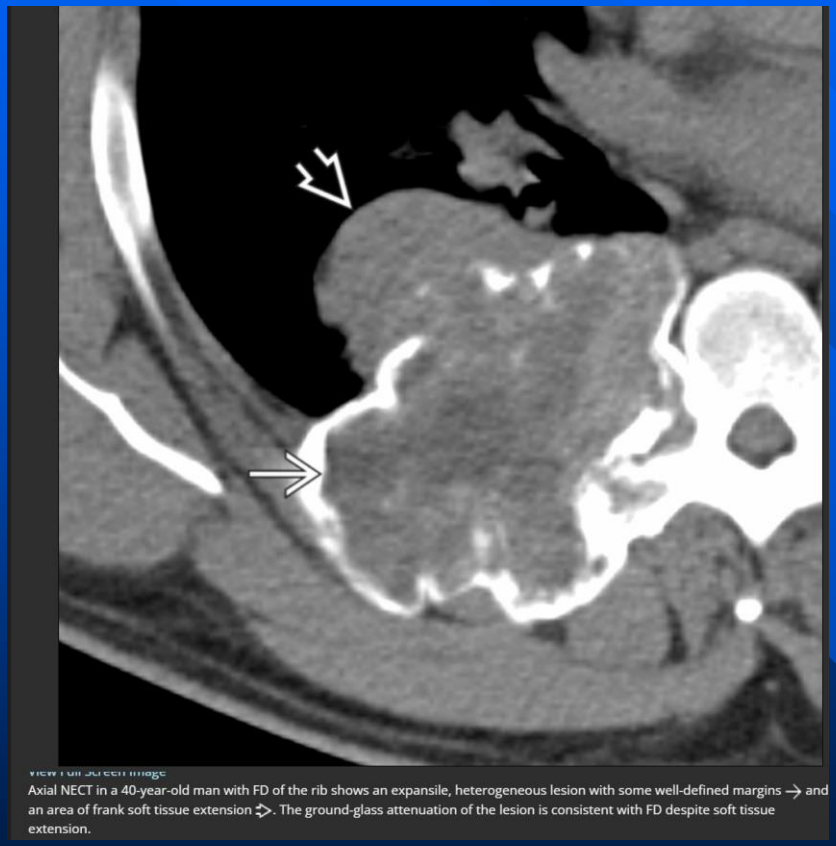
Lateral radiograph of the tibia in a 35-year-old man with FD shows a long, expansile lesion with mixed density ranging from lytic → to ground glass ↗. FD often presents as a long lesion in a long bone.

Bone scan increased uptake in majority of lesions
FDG PET shows variable metabolic activity and can be relatively high



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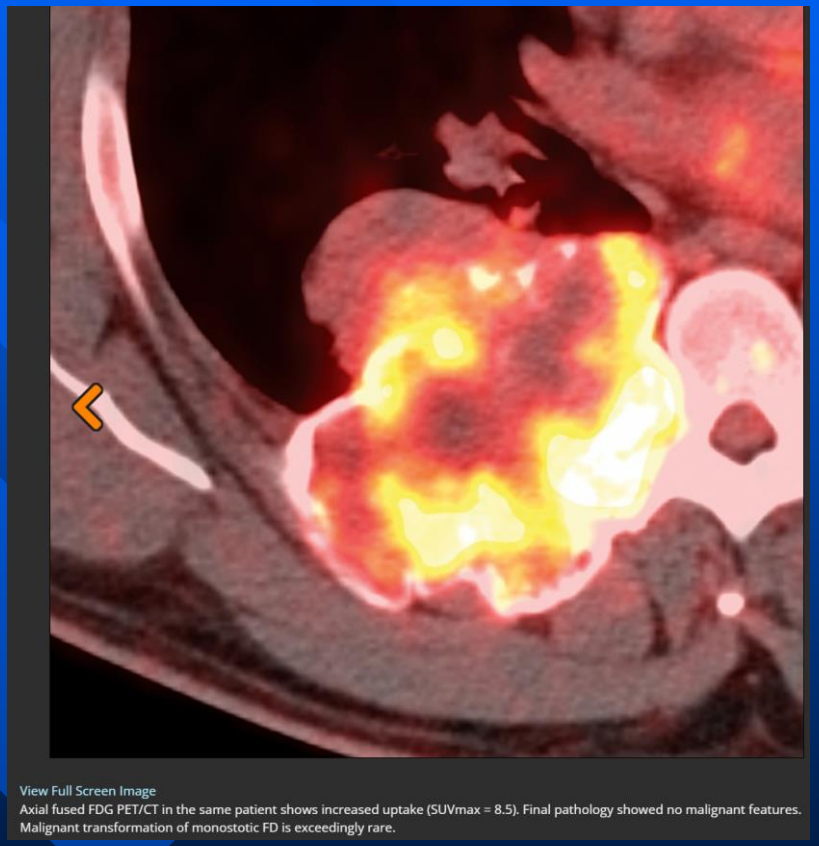
Axial NECT in a 40-year-old man with FD of the rib shows an expansile, heterogeneous lesion with some well-defined margins → and an area of frank soft tissue extension ⇨. The ground-glass attenuation of the lesion is consistent with FD despite soft tissue extension.



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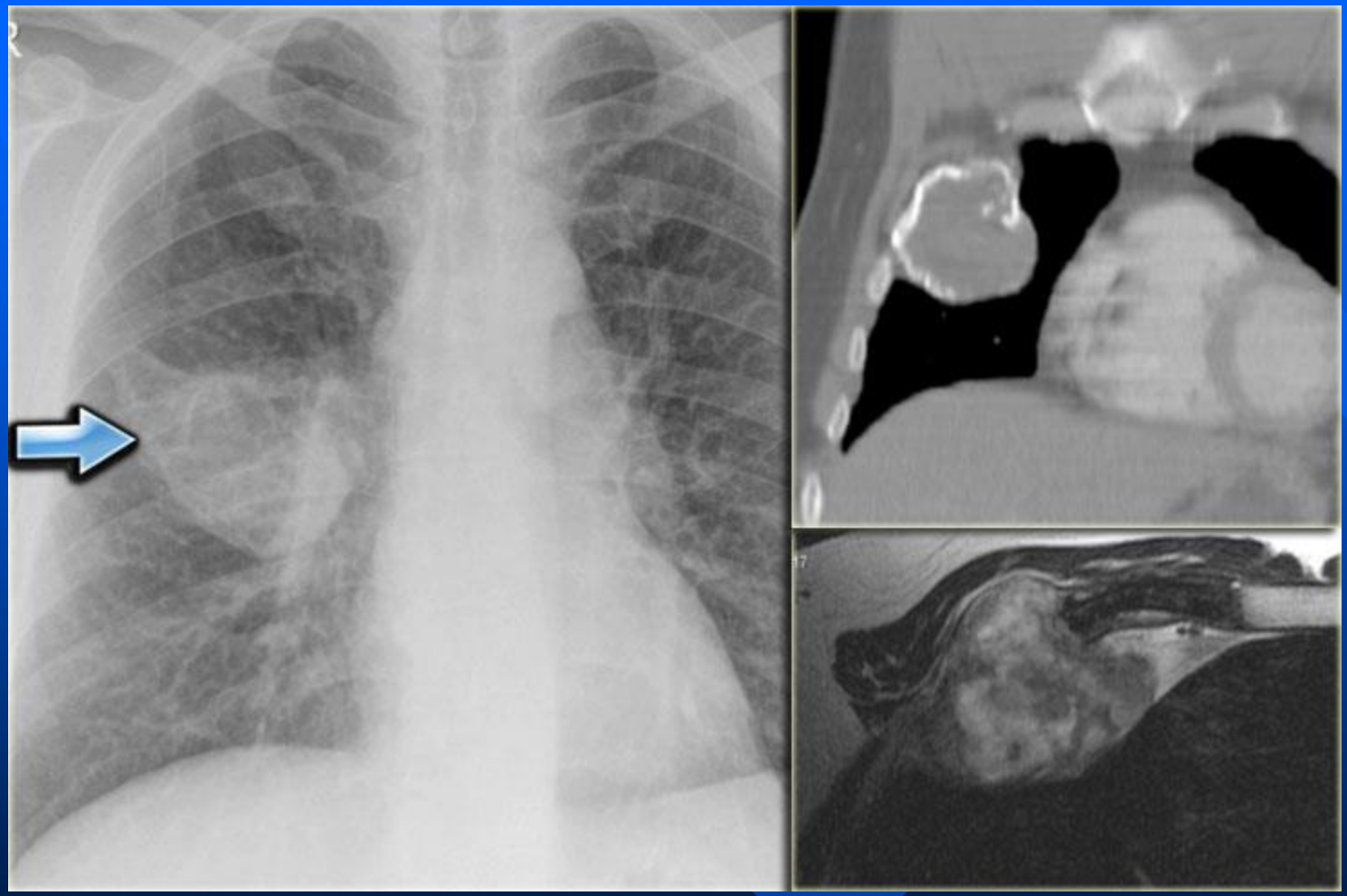
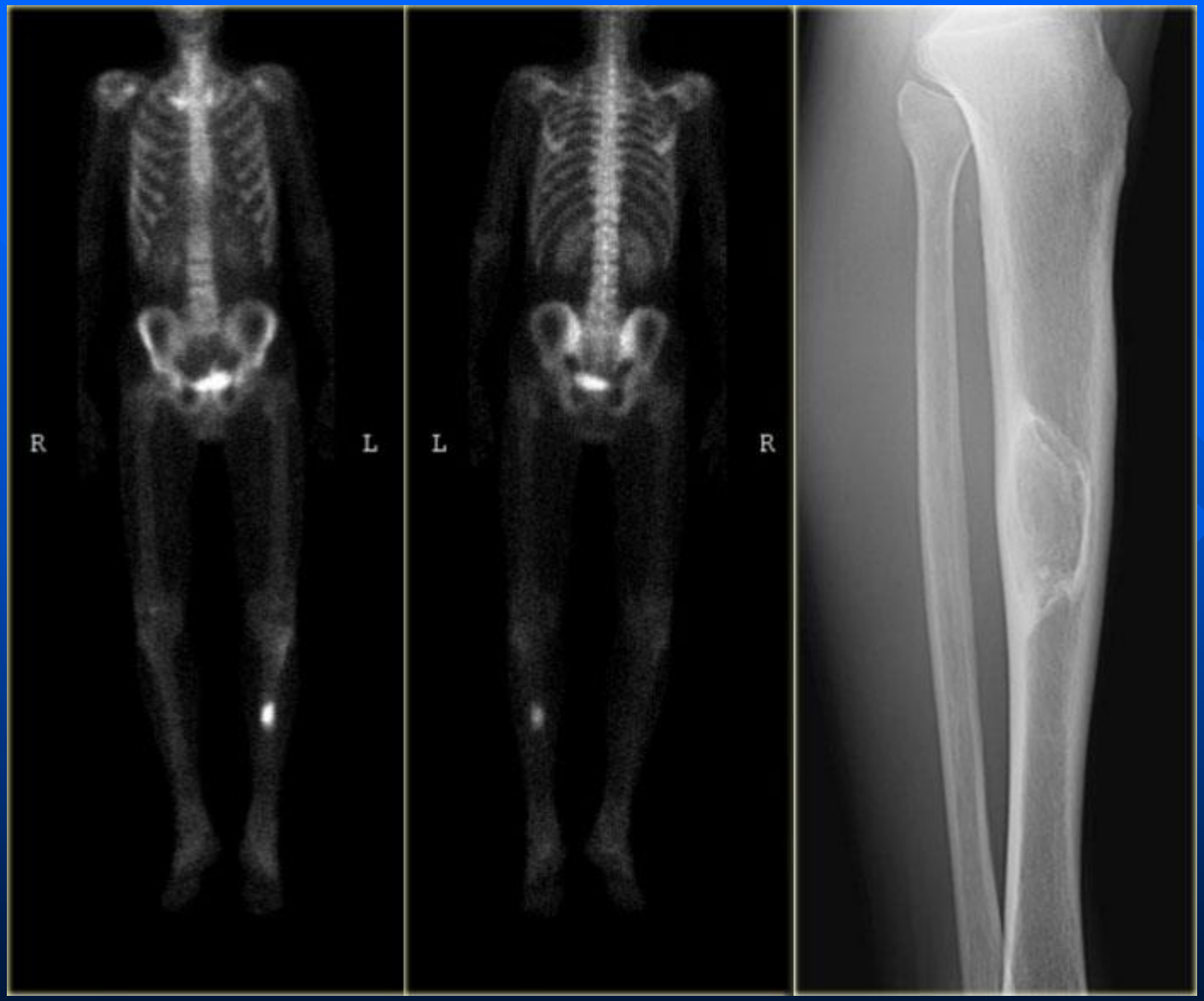
Axial fused FDG PET/CT in the same patient shows increased uptake (SUVmax = 8.5). Final pathology showed no malignant features. Malignant transformation of monostotic FD is exceedingly rare.

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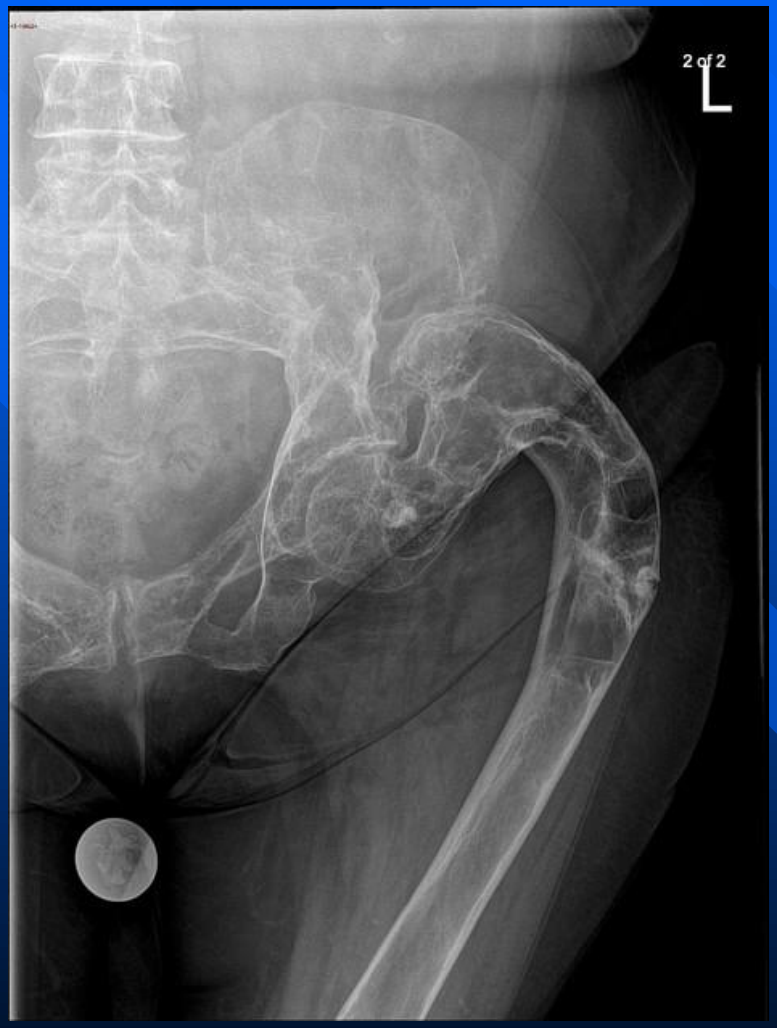
Shepard Crook



Fibrous dysplasia of the right humerus (50 yo female)

Fibrous dysplasia with epiphyseal involvement

Fibrous dysplasia