6 year old male presents with abnormal gait

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Metaphyseal location
Permeative, ill-defined appearance
Cortical destruction
Soft tissue component
Aggressive periosteal reaction
Codman’s triangle
Metaphyseal location
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Conventional Osteosarcoma

Malignant osteoid-producing tumor originating in intramedullary space

• DDx in a child of this age includes:
  – Ewing sarcoma (usually diaphyseal but can be metaphyseal).
  – Osteomyelitis
  – Myositis ossificans
  – Bone Infarct
Conventional Osteosarcoma

Imaging pearls:
- Metaphyseal lesion (91%), diaphyseal in 9%. Femur (40-45%) > tibia (16-20%) > humerus.
- Rapid growth
- Permeative, destructive lesion located in metaphysis
- Wide zone of transition, no sclerotic margin
- Variable density, amorphous osteoid matrix
- Aggressive periosteal reaction: Codman’s triangle, interrupted, “sunburst” reaction.
- Lung mets may be ossified.
- Generally diagnosed on radiograph, CT used to eval for lung mets and image-guided biopsy.
Conventional Osteosarcoma

Periosteal reaction:

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Conventional Osteosarcoma

Clinical:

• Most commonly occur in 2\textsuperscript{nd} decade (75% in patients <25 years old). Rare in patients <6 and >60.
• Most common malignant bone tumor in children/adolescents.
• 5-10\% have pulmonary metastases at presentation.
• Multidisciplinary therapy results in disease-free survival of 60-80\% if patients are good responders to chemotherapy.
• Local recurrence or systemic metastases generally occur within 2 years but long-term surveillance is still required.
References

2. Radiologyassistant.nl