36-year-old male with acute onset right hip pain

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Patient Presentation

• **HPI:** 36-year-old male presented to ED with sudden onset of right-sided hip pain and low back pain. Patient reported that the pain awoke him from sleep and felt crampy in nature, with occasional sharp pain shooting from lower back into leg. Patient denied trauma.

• **PMHx:** asthma, sleep apnea

• **PSHx:** no past surgical history
Patient Presentation: Pertinent Labs

- **CBC**
  - Hgb: 14.7 g/dL
  - Hct: 44.7
  - WBC: $8.9 \times 10^3/\mu L$

- **Alkaline phosphatase:** 96 IU/L

- **ESR:** 6 mm/hr

- **CRP:** 1.00 mg/dL

- **Lyme titer:** negative
Patient Presentation: Physical Exam

• **Vitals**
  • Temp: 97.9
  • Pulse: 86
  • Resp: 18
  • BP: 141/86

• **PE**
  • Active range of motion of right hip limited by pain
  • Tenderness to palpation right lateral hip and groin
What Imaging Should We Order?
Select the applicable ACR Appropriateness Criteria

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
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</thead>
<tbody>
<tr>
<td>Radiography hip</td>
<td>Usually Appropriate</td>
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<tr>
<td>Radiography pelvis</td>
<td>Usually Appropriate</td>
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<td>Radiography pelvis and hips</td>
<td>Usually Appropriate</td>
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<td>CT pelvis and hips with IV contrast</td>
<td>Usually Not Appropriate</td>
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<td>CT pelvis and hips without and with IV contrast</td>
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<tr>
<td>Bone scan hips</td>
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<tr>
<td>US hip</td>
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This imaging modality was ordered by the ER physician.
Findings (unlabeled)

XR Femur
Findings: (labeled)

- Sclerotic lesion involving the proximal femoral metaphysis (red arrow)
What Imaging Should We Order?

Because of the patient’s painful presentation, further imaging is needed to characterize the lesion and rule out malignancy. What imaging is most appropriate?
Select the applicable ACR Appropriateness Criteria

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This imaging modality was ordered by the admitting physician.
MRI Findings (unlabeled)

T1 coronal

STIR coronal
MRI Findings: (labeled)

- In the central medullary canal of the proximal right femoral shaft: circumscribed bone lesion with a lobular hypointense border corresponding with the sclerotic border on the radiographs
- There are foci of T2 hyperintensity centrally within the lesion consistent with chondroid matrix
- Normal surrounding bone marrow signal
- No bone marrow edema or fracture is seen around the lesion
Final Dx:

Enchondroma of right proximal femur
Case Discussion - Enchondroma

• Overview
  • Benign intramedullary neoplasms of mature hyaline cartilage
  • Occur in any tubular bones, most commonly metacarpals and phalanges of the hands
  • Rarely (<5%) may transform into low-grade chondrosarcomas

• Epidemiology
  • Peak incidence between 10-30 years of age
  • Comprise ~5% of all bone tumors and ~17.5% of benign bone tumors

• Pathophysiology
  • Not fully understood
  • Arise from chondrocytes, then become encased in mature bone
Case Discussion-Enchondroma

• Symptoms
  • Enchondromas are asymptomatic, though may present with pain in small bones if there is pathological fracture
  • Transformation into low-grade chondrosarcoma may present with pain

• Treatment
  • Asymptomatic enchondromas require no treatment
  • Pathological fractures can be surgically treated with curettage and bone graft
Case Discussion-Enchondroma

• Case
  • Further workup determined that patient’s hip pain was referred from sciatica secondary to degenerative disc disease
  • Enchondroma of femur required no further workup
References:

