AMSER Case of the Month
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Hip Pain

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Patient Presentation

66 y.o. M with past medical history of ACS, CVA, HTN, presents for evaluation of worsening right hip pain.
What Imaging Should We Order?
### ACR Appropriateness Criteria

**Variant 1: Chronic hip pain. Initial Imaging.**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiography pelvis</td>
<td>Usually Appropriate</td>
<td>💫💫💫💫</td>
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<tr>
<td>Radiography hip</td>
<td>Usually Appropriate</td>
<td>💫💫💫💫💫</td>
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<tr>
<td>US hip</td>
<td>Usually Not Appropriate</td>
<td>🌟</td>
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<tr>
<td>Image-guided anesthetic +/- corticosteroid injection hip joint or surrounding structures</td>
<td>Usually Not Appropriate</td>
<td>Varies</td>
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<tr>
<td>MR arthrography hip</td>
<td>Usually Not Appropriate</td>
<td>🌟</td>
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<tr>
<td>MRI hip without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>🌟</td>
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<tr>
<td>MRI hip without IV contrast</td>
<td>Usually Not Appropriate</td>
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<tr>
<td>Bone scan hip</td>
<td>Usually Not Appropriate</td>
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<tr>
<td>CT arthrography hip</td>
<td>Usually Not Appropriate</td>
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<td>CT hip with IV contrast</td>
<td>Usually Not Appropriate</td>
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<tr>
<td>Fluoride PET/CT skull base to mid-thigh</td>
<td>Usually Not Appropriate</td>
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</tbody>
</table>

These imaging modalities were obtained for the patient.
Frontal Hip, Frog Lateral, Frontal Pelvis Views (unlabeled)
Findings (labeled):

- Enlargement, flattening, and deformation of right femoral head
- Severe right hip joint space narrowing and subchondral sclerosis
- Increased valgus angulation of right hip
Final Dx:

Coxa Magna secondary to Legg-Calve Perthes Disease
Coxa Magna:

- Defined as >10% asymmetry in femoral head size with circumferential enlargement

- Causes limb length discrepancy and proximal displacement of greater and lesser trochanters

- Occurs secondary to injury of femoral head or epiphysis
  - Legg-Calve-Perthes disease
    - Slipped capital femoral epiphysis
    - Developmental dysplasia of hip
Legg-Calve-Perthes Disease:

- Necrosis and repair of femoral capital epiphyseal ossification center
- Secondary changes and hyperactive growth may lead to coxa magna
- Structures affected include articular cartilage, femoral head, physeal cartilage, and acetabulum
- Causes predisposition to degenerative arthritis
Patient Case Discussion

Coxa Magna is diagnosed based on radiographic findings:

- Remote history of Legg-Calve-Perthes disease in this patient
- Coxa magna is a major residual effect of patients with LCPD
- Severity of coxa magna correlates with long-term outcome of hip function and integrity
- Superimposed osteoarthritis observed as well
References:


Rowe, Sung Man MD; Moon, Eun Sun MD; Song, Eun Kyoo MD; Seol, Jong Yoon MD; Seon, Jong Keun MD; Kim, Seung Sik MD. The Correlation Between Coxa Magna and Final Outcome in Legg-Calve-Perthes Disease. Journal of Pediatric Orthopaedics 25(1): p 22-27, January 2005.