AMSER Case of the Month April 2022

64-Year-old female with pelvic and lower back pain following a mechanical fall

Pranav Patel, MS1, Cooper Medical School of Rowan University

Aluko Titilope, MD, PGY4, Cooper University Hospital

Mark T. DiMarcangelo, DO, MS, FACR, FAOCR, Cooper University Hospital

Cooper Medical School of Rowan University

Cooper University Health Care

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Patient Presentation- History

- HPI: 63-year-old female presented to the ED following a fall out of bed in an assisted living facility. She denies LOC, vision change, dizziness, or confusion prior to the fall. Pt reports a new-onset lower back pain with L-sided hip pain.
- PMHx: Chronic back pain, DJD of knee, DM, HTN and peripheral vascular disease
- PSHx: Spine surgery for C3-T1 spinal fusion, ORIF L humerus

Patient Presentation- Physical/Pertinent Labs

- Vitals: BP 113/15; Pulse 97; Temp 101 F; Resp. 16
- PE
  - Constitutional – No acute distress, well-developed, and not diaphoretic
  - MSK - No step-offs, deformity, or tenderness in spine
  - Cardiac – Normal rate, regular rhythm, and no murmurs
  - Pulmonary – No respiratory distress, normal breath sounds, and no wheezing
- Labs

WBC - 13.9 x 10^3/uL
RBC - 3.6 x 10^6/uL
Hgb - 9.4 g/dL
Hct - 29.2%

Platelet - 413 x 10^3/uL
Calcium - 9.1 mg/dL
Glucose - 190 mg/dL

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 1: **Acute hip pain. Fall or minor trauma. Suspect fracture. Initial imaging.**

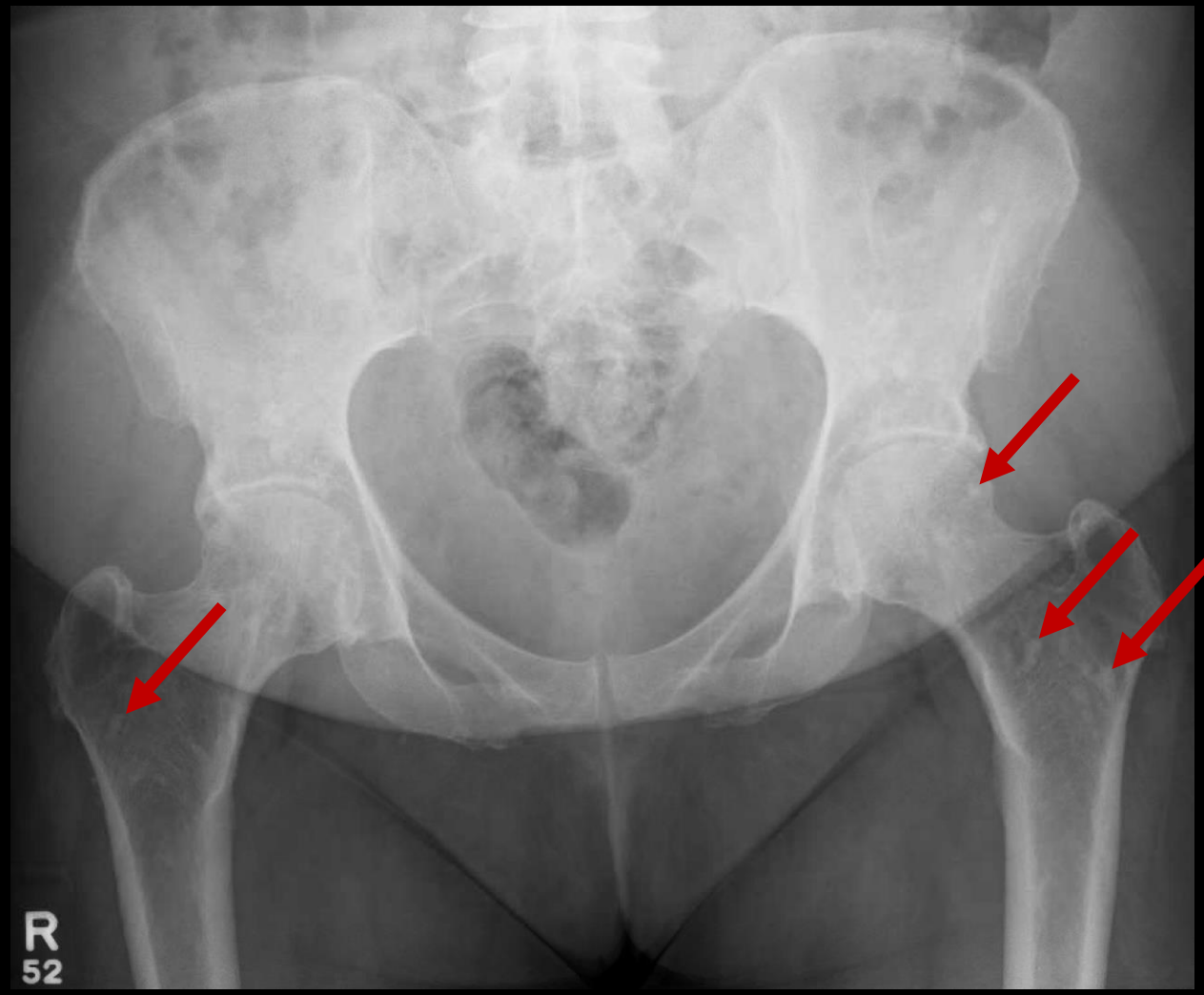
Procedure	Appropriateness Category	Relative Radiation Level
Radiography hip	Usually Appropriate	☢☢☢
Radiography pelvis	Usually Appropriate	☢☢
Radiography pelvis and hips	Usually Appropriate	☢☢☢
CT pelvis and hips with IV contrast	Usually Not Appropriate	☢☢☢
CT pelvis and hips without and with IV contrast	Usually Not Appropriate	☢☢☢☢
CT pelvis and hips without IV contrast	Usually Not Appropriate	☢☢☢
MRI pelvis and affected hip without and with IV contrast	Usually Not Appropriate	O
MRI pelvis and affected hip without IV contrast	Usually Not Appropriate	O
Bone scan hips	Usually Not Appropriate	☢☢☢
US hip	Usually Not Appropriate	O

This imaging modality was ordered by the ER physician

Imaging (unlabeled)

XR Pelvis

Findings: Imaging (labeled)



- Findings indicate no acute displaced fracture, dislocation, or destructive osseous pathology
- Sclerotic Foci (red arrow) can be discerned in the femoral head, neck, and intertrochanteric region.

ACR Appropriateness Criteria- What's Next?

While the pelvic radiograph provided important information regarding no acute traumatic pathology, the multiple sclerotic lesions were not fully characterized due to limits of resolution of plain radiography. What should we order next? What is ACR appropriate?

Select the applicable ACR Appropriateness Criteria (Continued)

Variant 2: **Major blunt trauma. Hemodynamically stable. Not otherwise specified. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
CT whole body with IV contrast	Usually Appropriate	☢☢☢☢
Radiography trauma series	Usually Appropriate	☢☢☢
US FAST scan chest abdomen pelvis	Usually Appropriate	O
CT whole body without IV contrast	May Be Appropriate	☢☢☢☢
Fluoroscopy retrograde urethrography	Usually Not Appropriate	☢☢☢
MRI abdomen and pelvis without and with IV contrast	Usually Not Appropriate	O
MRI abdomen and pelvis without IV contrast	Usually Not Appropriate	O

This imaging modality was next ordered by the ER physician

Since the patient sustained a traumatic fall, CT whole body was appropriately ordered which also further evaluates the sclerotic bone lesions

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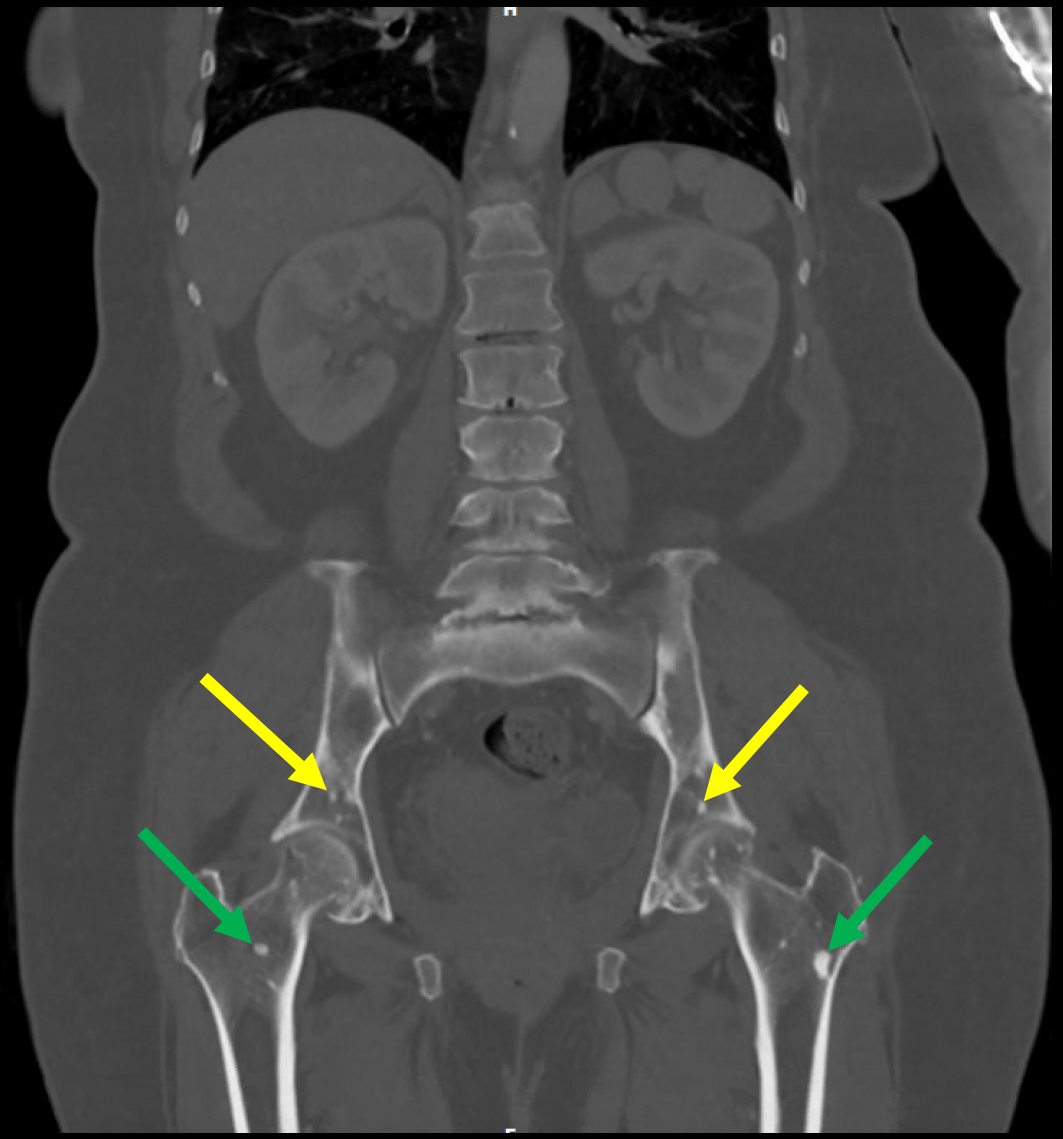
Findings: Coronal CT Imaging (unlabeled)

CT Pelvis + Hips w/ contrast

Findings: Coronal CT Imaging (labeled)



- Multiple scattered sclerotic lesions (green arrows) can be seen once again in the bilateral femurs
- Lesions are also present in the iliac bones (yellow arrow) and sacrum (not visualized on this image)

Final Dx:

Osteopoikilosis

Case Discussion- Osteopoikilosis

- Epidemiology
  - Rare sclerosing bony dysplasia with a prevalence estimated of 1 in every 50,000 people
  - Often observed as an incidental finding on x-rays
  - Autosomal dominant
- Pathophysiology
  - Characterized by multiple benign sclerotic islands of compact bone (enostoses) within medullary bone.
  - Lesions are predominately located in the pelvis and appendicular skeleton.
  - LOF mutation in the LMD3 gene which regulates TGF-B and its role in cellular proliferation
- Symptoms
  - Generally Asymptomatic
  - 20% may present with articular pain

Case Discussion- Osteopoikilosis

CASE

- MRI C-spine was ordered following CT of C-spine demonstrating soft tissue fluid collection
  - Determined to be pseudomeningocele and no medical intervention was required
- Treated with a 3-day course of Abx for concurrent UTI, which likely contributed to her febrile presentation upon admission to the ED
- No further evaluation or treatment of osteopoikilosis was necessary

Case Discussion- Osteopoikilosis

- Considered a “skeletal leave alone” lesion due to the characteristic findings on diagnostic imaging and does not require further workup
- Differential Dx must include osteoblastic metastasis. Whole body bone scintigraphy reveals multiple foci of tracer avidity in metastasis and is negative for abnormal uptake in osteopoikilosis
  - Biopsy should only be done following exclusion of osteopoikilosis to prevent unnecessary surgery
  - Other sclerosing bone disorders such as mastocytosis, osteopathia striata, melorheostosis, and tuberous sclerosis are included in the differential
- No consensus on treatments as the condition is considered benign
  - Associated pain can indicate the use of NSAIDS or other classes of analgesics

References:

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