75-year-old male presenting diffuse pain and inability to bear weight

Perpetual Taylor, MS3

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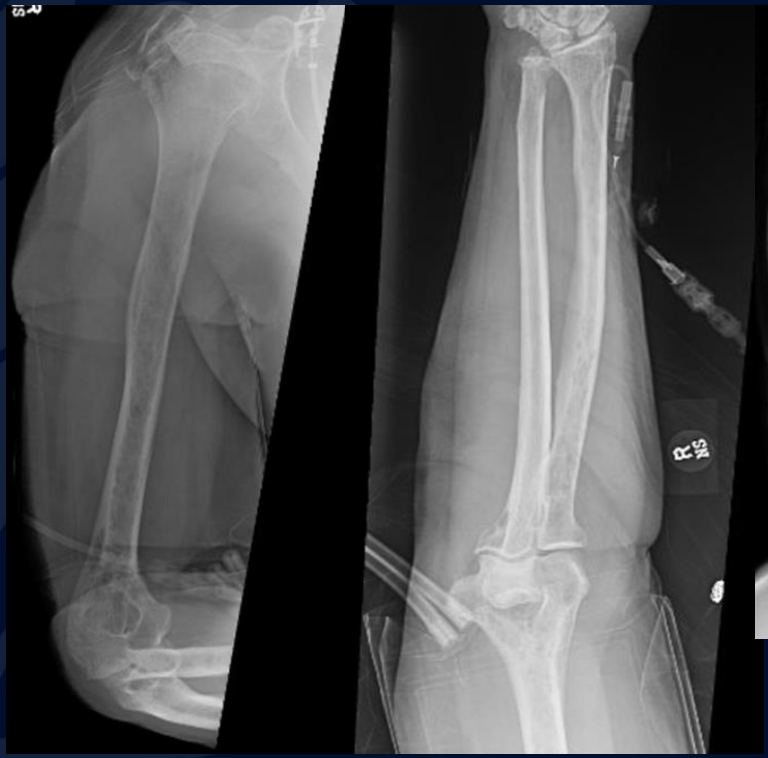
Radiograph



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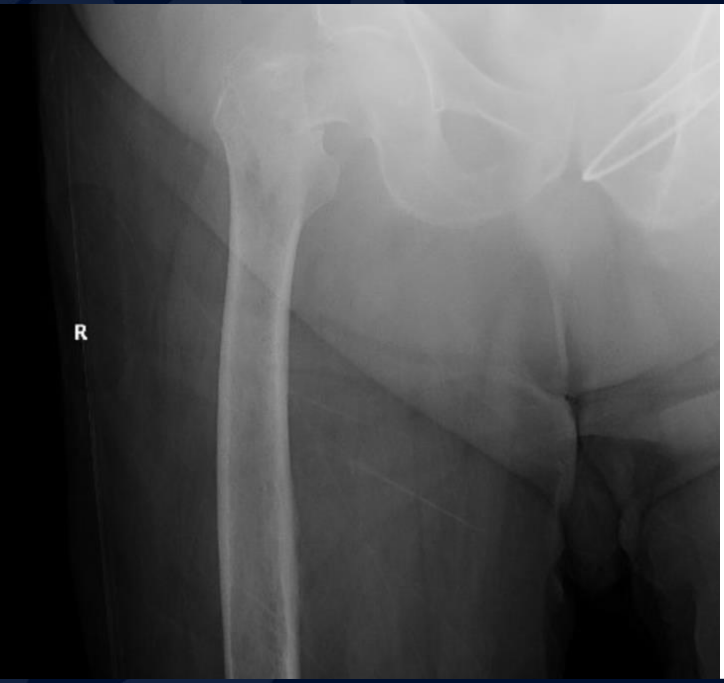
Radiograph



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Radiograph

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CT

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Multiple Myeloma

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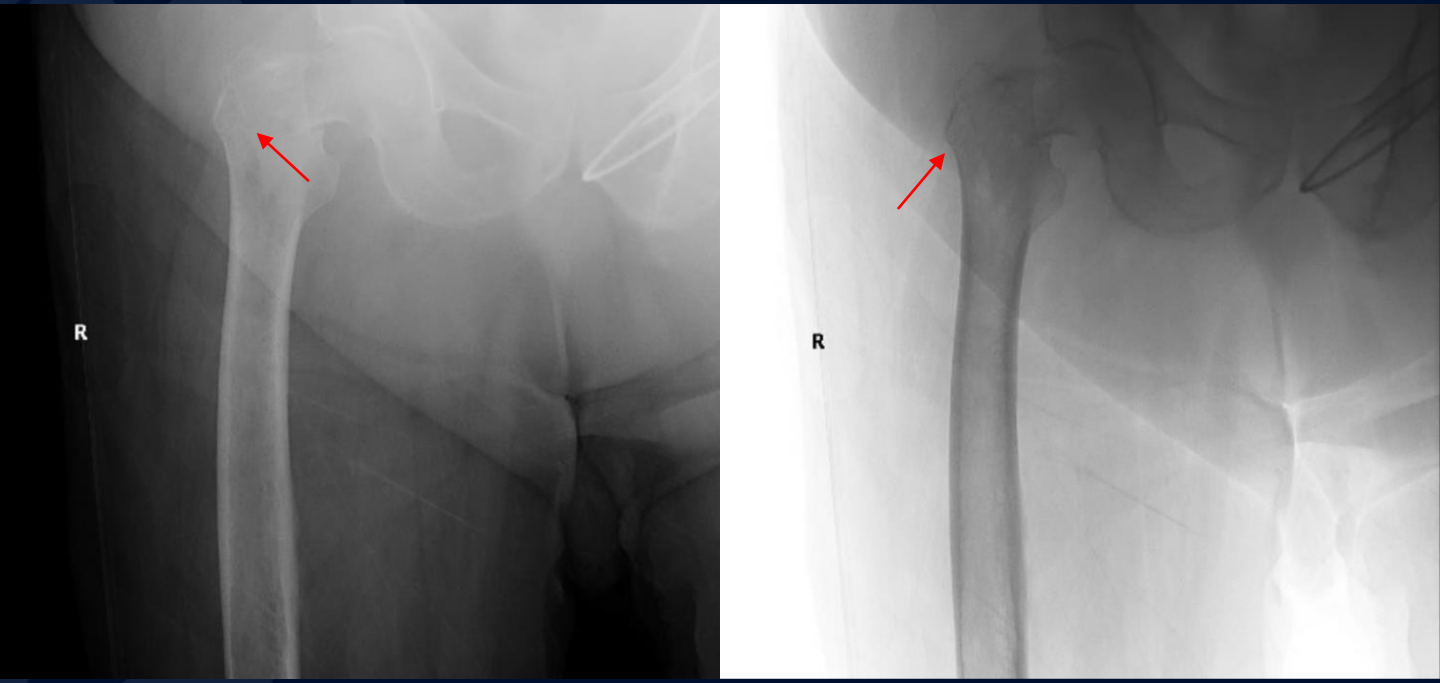
Radiograph



Right intertrochanteric proximal femur fracture

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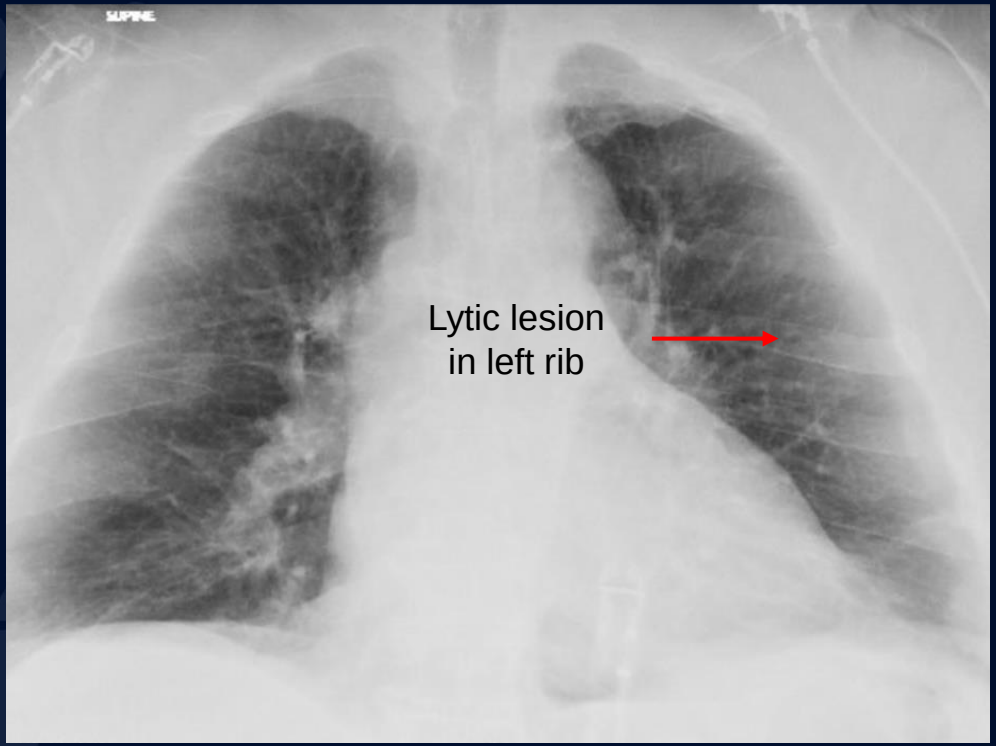
AP Radiograph



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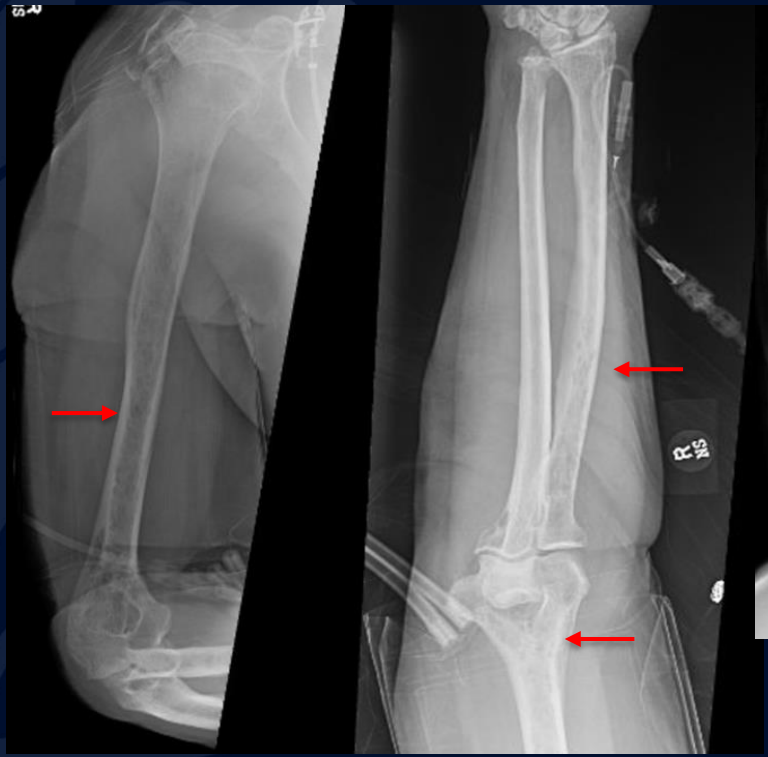
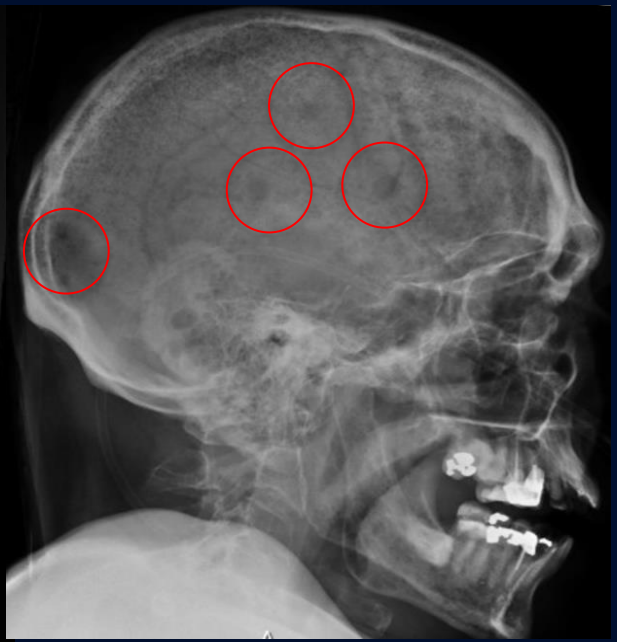
Skeletal Survey



Lytic lesions on diaphysis of right humerus

Subtle lytic lesions of right radial diaphysis and distal right humerus



Punched-out lytic lesions

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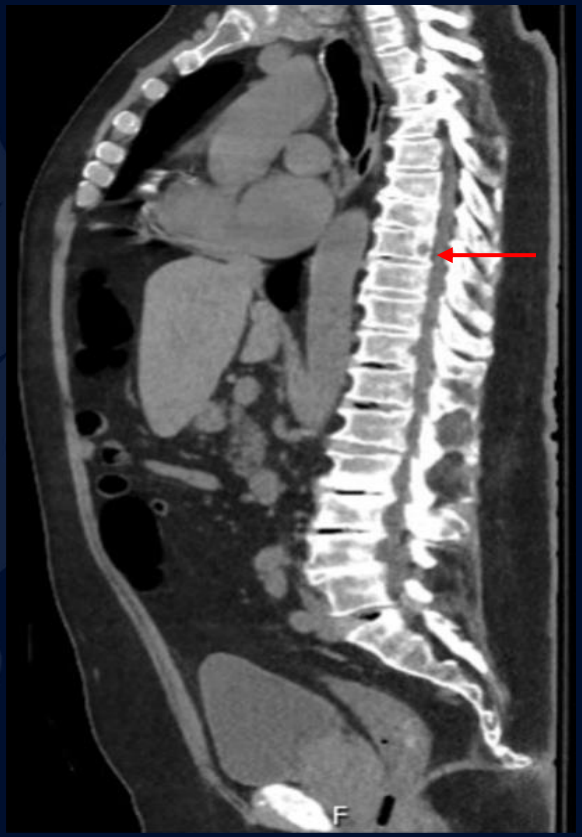

T8 posterior vertebral body lytic lesion

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Multiple Myeloma

Epidemiology
- ~ 1 to 2% of cancers and 17% of hematologic cancers
- Annual incidence of about 7 per 100,000 in the U.S
- Most common in African American men aged 65 to 75

Etiology
- Hyperplasia of plasma cells in bone marrow

Diagnosis
- Serum protein electrophoresis (SPEP) - monoclonal spike
- Urine protein electrophoresis (UPEP)
- Serum free light chain analysis - elevated light chain
- Serum protein immunofixation - immunoparesis
- Urinalysis - light chain casts
- Peripheral blood smear - Rouleaux formation
- Bone marrow biopsy - >10% plasma cells
- **Whole body MRI/F-FDG-PET/CT**
- **Skeletal survey- punched-out lytic lesions, osteopenia, and pathologic fractures**

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Multiple Myeloma

Clinical Presentation
- Hyper**c**alcemia
- **R**enal failure
- **A**nemia (typically normocytic)
- **B**one pain
- Weight loss
- Infection

Treatment
- Proteasome inhibitors
- Induction chemotherapy
- Hematopoietic stem cell transplant
- Anti-CD38 monoclonal antibody
- Palliative radiation therapy

Differential
- Osteoporotic fracture (i.e., vertebral compression fracture)
- Trauma-related fracture
- Hyperparathyroidism
  - Primary
  - Secondary
  - Tertiary
- Small cell lung secreting PTHrP
- Osteomalacia
- Paget's disease
- **Multiple myeloma**

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References

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- Laubach, J. P. (2023). *Multiple myeloma: Overview of management*. UpToDate. Retrieved March 29, 2023, from https://www-uptodate-com.online.uchc.edu/contents/multiple-myeloma-overview-of-management?search=multiple+myeloma&topicRef=6649&source=related_link

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