UW TASP tele-antimicrobial stewardship program | echo

July 17, 2018

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Agenda

- John Lynch: *Osteomyelitis*
- Case Discussions

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Osteomyelitis

John Lynch
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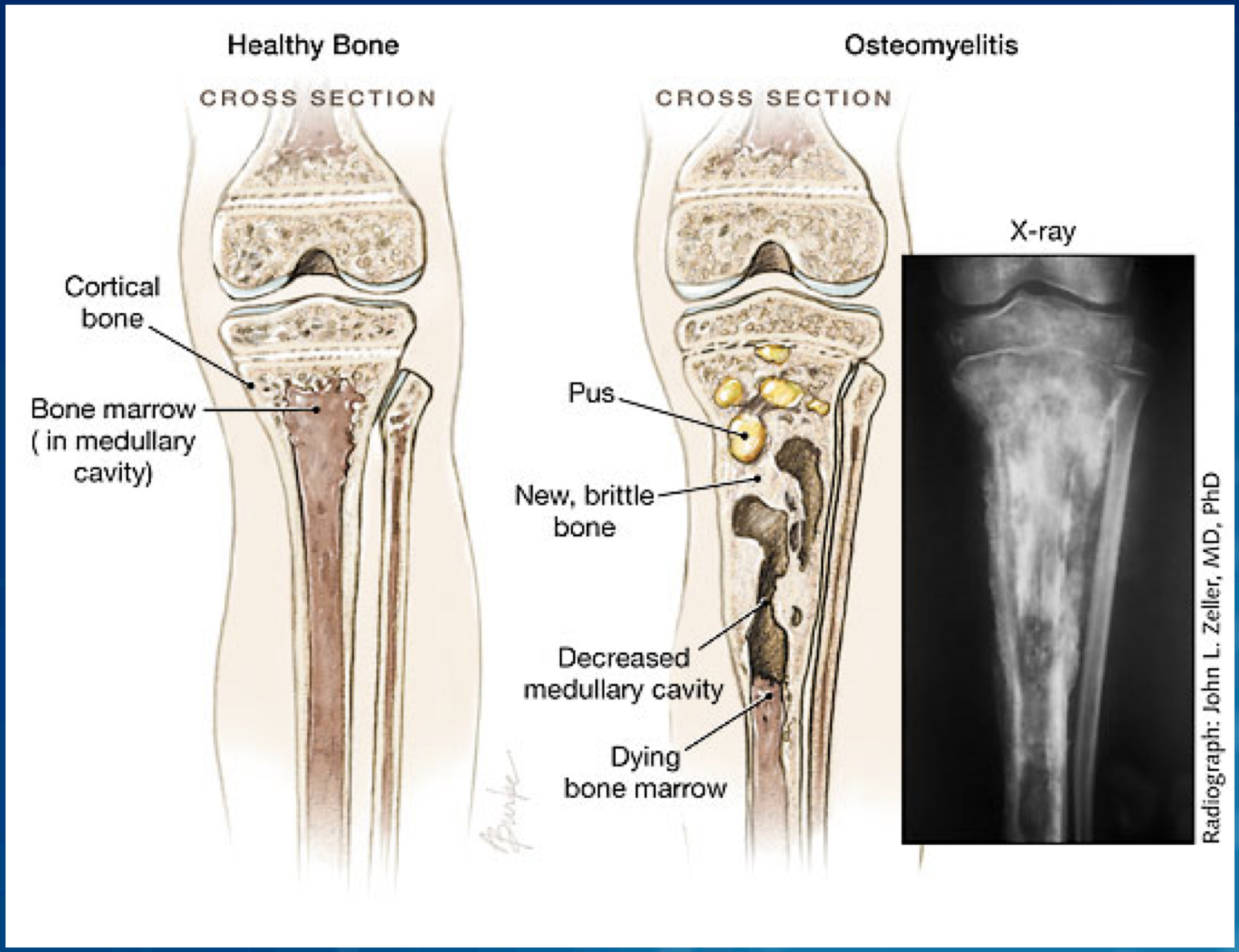
Healthy Bone
CROSS SECTION
Cortical bone
Bone marrow (in medullary cavity)
Osteomyelitis
CROSS SECTION
Pus
New, brittle bone
Decreased medullary cavity
Dying bone marrow
X-ray
Radiograph: John L. Zeller, MD, PhD

Take Homes

- When to think osteo:
  - Recent orthopedic surgery
  - H/o open fracture
  - At risk for bacteremia (PWID) and bone/joint pain
  - Sick child with focal pain
  - Immunocompromised patient
- What to do:
  - Image
  - Microbiology
  - Treat

Types of Osteomyelitis

- **Acute vs chronic**
- **Adult vs pediatric**
- **Adults:**
  - SSI
  - Trauma
  - Contiguous (ex. DM foot) ⬆⬆⬆⬆
  - Hematogenous
- **Peds:** hematogenous


GLOBAL HOSPITALS

Bugs of Osteomyelitis

- Peds:
  - *S aureus*, GBS, GAS, GNRs
- Adults:
  - DM foot – GPCs and GNRs
  - SSI – *S aureus*, CoNS, *P acnes*
  - Hematogenous – *S aureus*, viridans strep spp, candida
  - Sickle cell – add *Salmonella* spp

Signs and Symptoms of Osteomyelitis

- Vary with type of disease
- Can be gradual (more often with chronic osteo) or fairly acute
- Can be non-specific, especially with vertebral disease
- Wound drainage or sinuses may be present
- Systemic signs, such as fever and local inflammation are variable, but more common in children

Diagnosis of Osteomyelitis

- One of the following 4:
  - Suspicion of a bone infection
  - Fever >38 C/100.4F
  - Joint swelling or decreased mobility
  - Pain
- And 1 of these 4:
  - Positive blood culture
  - Purulent joint fluid
  - Positive culture from bone
  - Imaging c/w osteomyelitis

Labs

- Nothing is specific for the dx of osteomyelitis
  - ESR and CRP at baseline
  - WBC
- Microbiology is the gold standard
  - Blood cultures
  - Deep surgical specimens if at all possible
  - Aspirations and biopsies useful
  - Off antibiotics for ~2 weeks
  - Avoid superficial swabs, including sinuses

Imaging of Osteomyelitis

- Osteo often not seen on plain films for ~ 2 weeks after symptom onset
- If osteomyelitis seen on plain film, additional imaging is usually not needed
- If plain film is negative but still c/f osteo, MRI is the study of choice, but can overcall
- MRI can be difficult post-op due to hardware

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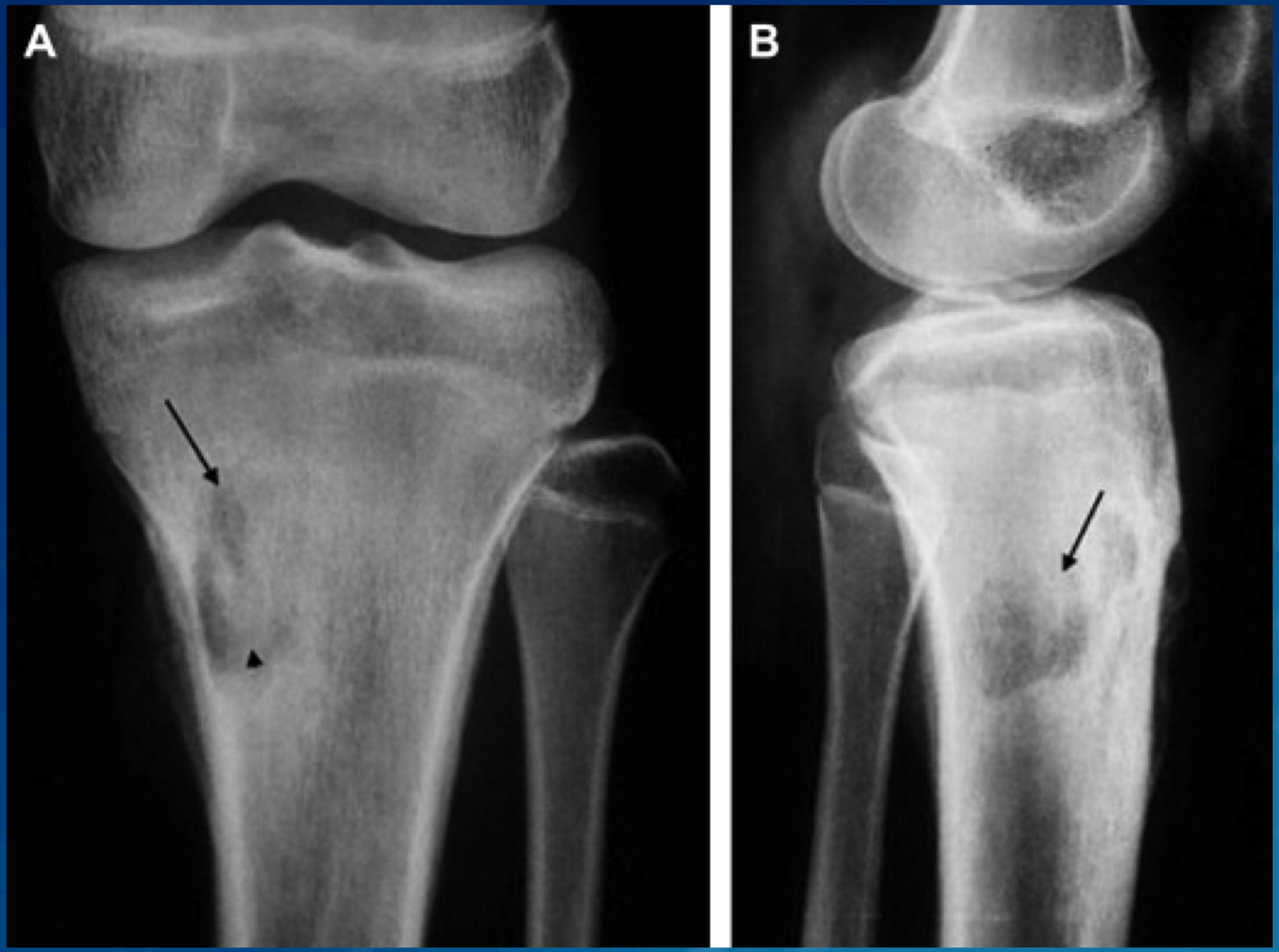

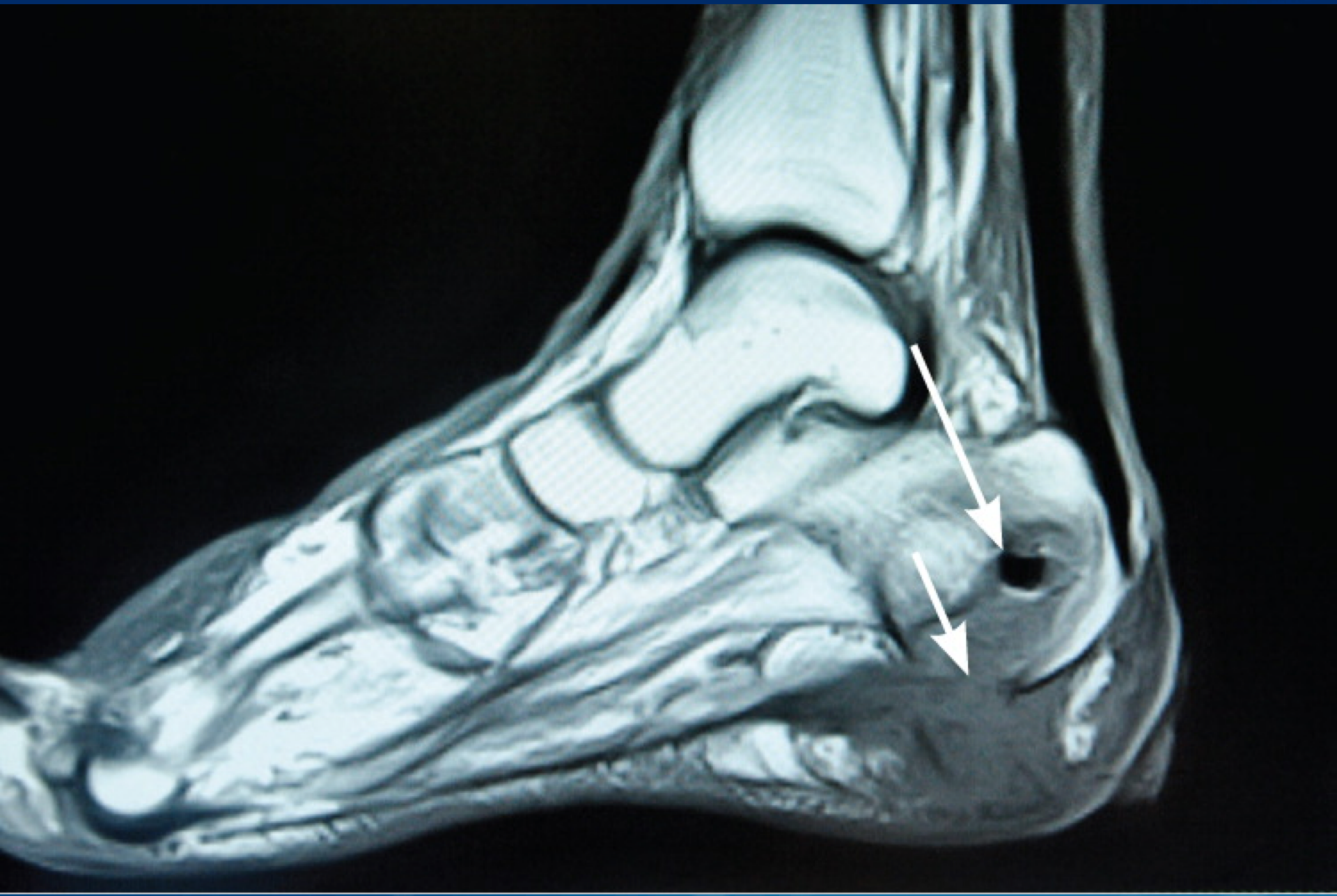

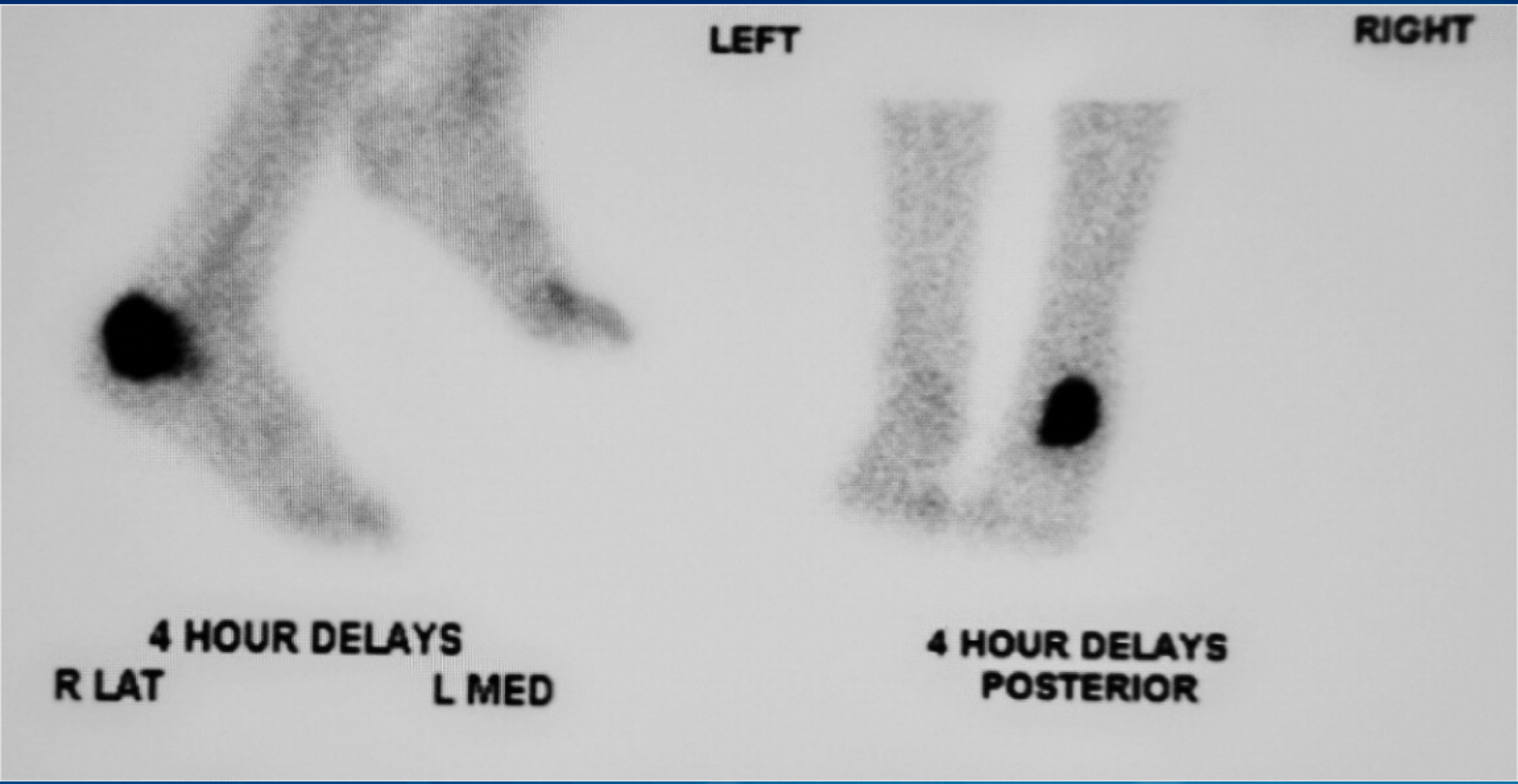

Differential Diagnoses

- Bone cancer (mets or osteosarcoma)
- Trauma
- Non-union
- Loosening of implants
- Soft tissue abscesses

Treatment: Acute Osteomyelitis

- Labs and imaging
- High dose IV antibiotics pending results
- Children can often transition to PO abx early (SCH model)
- Adults with source control, minimal involved bone (depth/extent), and good response to treatment can be transitioned to PO abx early
- Duration varies by practice: 2-6 weeks

Treatment: Chronic Osteomyelitis

- Varies wildly
  - Extent of disease
  - Bacteria involved
  - +/- Hardware
  - Surgical response
- Debridement is critical for both microbiology and impact of antimicrobial therapy
- Abx course: ~12 weeks