Case 2

Patient Profile

- 4 years old girl
- Chief complaint
 - Left knee painful swelling for 4 days
- Past history
 - nil

Image

• 2018-05-29 Bilateral knees x-ray





Clinical Course and Information

Additional information

- High fever for 1 week
- WBC: 14620
- ESR: 86/92 (Normal: 0-20)

Joint aspiration

- Turbid fluid with high level of white cell count
- Synovial fluid culture: Salmonella

Operation

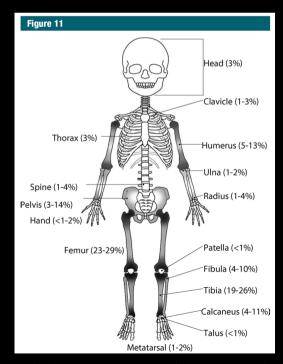
- Arthroscopic shaving, and bone window of femur and tibia debridement and irrigation

Diagnosis

- Acute septic knee with femoral and tibial osteomyelitis

Osteomyelitis

- Long bone metaphyses 70% (femur > tibia > humerus), short bones 6%, pelvis 5%, spine 2%
 - Metaphysis or equivalent > epiphysis, diaphysis
 - Multifocal in 10% overall but 22% in neonates



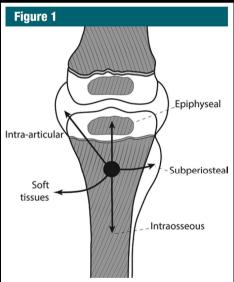


Figure 1: Pattern of spread of infection. From the initial metaphyseal focus, the infection can spread into the epiphysis, the joint space, the subperiosteal space, the soft tissues, and the shaft of the bone.

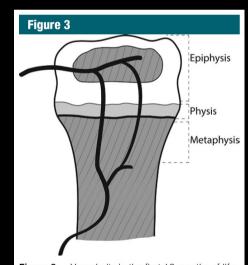


Figure 3: Vascularity in the first 18 months of life. There is free communication between the vessels of the epiphysis and the metaphysis. Transphyseal vessels can serve as a path of spread of infection from one region to another, usually from metaphysis to epiphysis.

Radiology. 2017 Jun;283(3):629-643. doi: 10.1148/radiol.2017151929.

Osteomyelitis

Acute

- Plain film: Focal osteopenia, periostitis, ill-defined or permeative bone destruction
- MR: Edematous changes in marrow and soft tissues ± intraosseous, subperiosteal, soft tissue, epidural abscesses

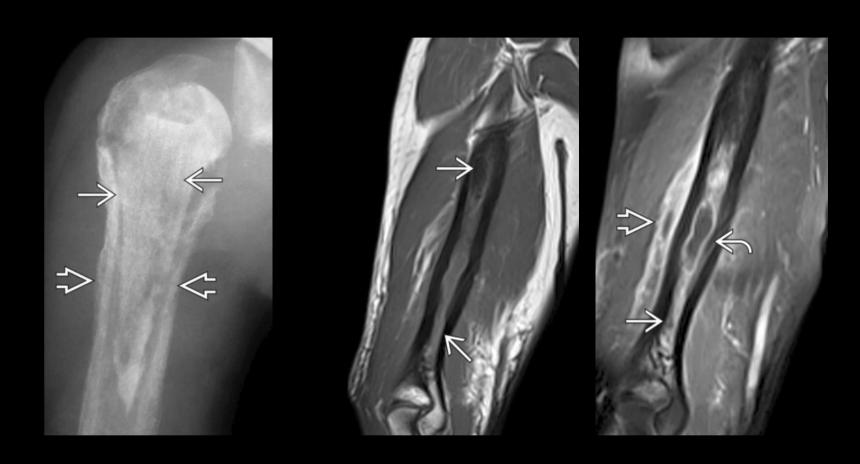


Permeative destruction of cortical and medullary bone Immature periosteal new bone formation

Osteomyelitis

• Chronic

- Brodie abscess
 - Radiographs: Lytic lesion with geographic nonsclerotic margins, metaphyseal location
 - MR: Well-defined intraosseous abscess with peripheral enhancement, typically metaphyseal
- Chronic active osteomyelitis
 - Radiographs: Thickened, irregular sclerotic bone
 - Periosteal bone formation, soft tissue swelling ± sequestrum
 - MR: Marrow and soft tissue edema, abscess, sinus tracts



Sequestrum of dead bone surrounded by an involucrum

Diffuse enhancement throughout the medullary canal, soft tissue inflammatory changes, with a small abscess Intraosseous abscess