OSTEOMYELITIS
SEPTIC ARTHRITIS

A.C.O.I. BOARD REVIEW 2014
OSTEOMYELITIS

**Definition:** Inflammation of the bone caused by a pathogenic organism.
ETIOLOGY

Hematogenous Spread

- Bacteremia of any etiology (i.e. pneumonia, abscess, surgery, trauma)

Contiguous Spread

- cutaneous ulcer
- infected joint or joint prosthesis
- abscess
ORGANISMS

- Staph aureus
- Streptococcus
- Polymicrobial - especially in diabetic foot ulcers
- Sickle Cell Disease - 50% salmonella
- Gram negative
- Tuberculosis
- HIV
  - Candida
  - Mycobacterium kansasii
  - Nocardia asteroides
- Cancer
- Immunocompromised host
  - histoplasmosis,
  - coccidiomycosis,
  - blastomycosis
CLINICAL MANIFESTATIONS

ACUTE
- fever
- point tenderness
- muscle spasm
- vague pain
- CHILDREN - acute onset fever, chills, lethargy, irritability

CHRONIC
- night sweats
- low grade fever
- weight loss
- draining sinus
- muscle spasm
- point tenderness
TBERCULOSIS

- Weight bearing joints are most commonly affected
- Pott’s Disease
  - TB of spine
  - Destroys disk
  - Vertebral collapse
  - Spinal cord compression
LABORATORY

ACUTE
- Elevated ESR
- Increased WBC
- Blood cultures - 50% are positive
- Bone culture/biopsy
- Other phase reactants
- Urine cultures

CHRONIC
- Elevated ESR
- Normal WBC
- Negative cultures
- Bone culture/biopsy
Plain X-ray

- will not be positive for at least 10 days
- lytic lesions may not be present for 6 weeks
BONE SCAN
SPINAL OSTEOMYELITIS
TREATMENT

**ACUTE** -
- IV antibiotics for at least 4 - 6 weeks

**CHRONIC**
- drainage
- debridement
- vascular assessment
- remove prosthesis
- amputation
SEPTIC ARTHRITIS

**MONOARTICULAR**
- Gonococcal 50%
- Non-gonococcal
  - S. aureus 35%
  - B-hemolytic strep. 10%
  - Gram negative 2-8%
  - Polymicrobial 2-10%
  - Fungal/atypical >1%

**POLYARTICULAR**
- Gonococcal-variable
- Non-gonococcal
  - Carries a much worse prognosis
  - Often associated with other rheumatic diseases or immune suppression
GONOCOCCAL ARTHRITIS

- Migratory polyarthralgias
- Tenosynovitis
- Bursitis
- Arthritis
- Fever
- Dermatitis
GONOCOCCAL ARTHRITIS

- Synovial fluid cultures usually negative
- Urethral/vaginal cultures often positive
- PCR (polymerase chain reaction test improves accuracy)

Treatment - based on local sensitivity
- Penicillin
- Penicillinase resistant penicillin
- ceftriaxone - DOC

Outcome - rapid response to treatment 24-48h
SEPTIC ARTHRITIS

- Knee 40-50%
- Hip 15 -20%
- Shoulder 10%
- Wrist 5-8%

- Ankle 6-8%
- Elbow 3-7%
- Hand/Foot 5%
- Polyarticular 10-20%
SEPTIC ARTHRITIS
SEPTIC ARTHRITIS

**Outcome**
- 5 - 15% mortality
- 25 - 60% joint damage
- 22 - 70% full recovery

**Polyarticular Mortality**
- overall 23%
- in RA 56%

**Good Prognosis**
- Knees 80% - good outcome
- early treatment (less than 1 week duration) - 66%

**Poor Prognosis**
- delayed treatment (over 2 weeks) - 22%
- polyarticular disease
RHEUMATIC FEVER

**Major:** Arthritis, Carditis, Chorea, Erythema marginatum, Nodules

**Minor:** Prior ARF, Arthralgias, Fever, ESR>120, CRP, Leukocytosis, Prolonged PR

**Plus:** Evidence of a recent Strep infection (Elevated ASO, Antistreptococcal Antibodies, Group A Strep on throat culture, Recent Scarlet Fever)

2 Major or 1 Major and 2 Minor plus evidence of recent Strep infection
LYME DISEASE

- Causative Organism – *Borelia Burgdorferi*
  - Spirochete
- 95% of U.S. Vector-borne diseases
- *I scapularis (dammini)* – Tick vector
  - Nymph – white footed mouse
  - Adult - Deer
LYME DISEASE

STAGE I - Early
- Erythema Migrans
- Flu-like Syndrome

STAGE II - Early Disseminated
- Erythema migrans
- Borrelia lymphocytoma
- Migratory arthralgia
- Peripheral neuropathy
- Carditis (fluctuating A-V block)

STAGE III - Late
- Acrodermatitis chronica atrophicans
- Intermittent/chronic oligoarthritis
- Chronic encephalitis
- Sensorimotor neuropathies
LYME DISEASE
LYME DISEASE

- Diagnosis is clinical
- Laboratory tests
  - Skin culture of Erythema Migrans
  - ELISA
  - Western blot
  - PCR most useful in arthritis
  - CNS antibody is confirmatory for CNS disease
  - Elevated ESR
  - Transient increase in SGOT
LYME DISEASE TREATMENT

- **Tick bite**
  - 200mg doxycycline

- **Early disease**
  - 21 day oral doxycycline 100mg
  - 21 day oral Amoxicillin 500mg tid
  - 14 day IV ceftriaxone

- **Neurologic (28 day)**
  - Ceftriaxone 2g IV daily
  - Cefotaxime 2g IV q8h

- **Arthritis (30-60 day)**
  - Doxycycline 100mg bid
  - Amoxicillin 500mg tid
  - Ceftriaxone 2g IV daily
  - Penicillin G 3.5 million units q4h

- **Carditis (21 day)**
  - Ceftriaxone
  - Penicillin G
  - Amoxicillin
  - Doxycycline
AIDS

- Arthralgia
- Infectious Arthritis
- Reiter’s Syndrome
- Psoriatic Arthritis
- Sjogren’s Syndrome
- Spondyloarthropathy (undiifferentiated)
- AIDS associated arthritis
- Avascular necrosis
- Myositis
Contact Information

Howard Feinberg, D.O., F.A.C.O.I., F.A.C.R.
2930 Carter Avenue
Ashland, KY 41101
(606) 329-9712

ghfeinberg@hotmail.com