

# **OSTEOMYELITIS SEPTIC ARTHRITIS**

**A.C.O.I. BOARD REVIEW 20178**

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**(No Disclosures)**

# OSTEOMYELITIS

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

# ETIOLOGY

## ■ Hematogenous Spread

- Bacteremia of any etiology (ie pneumonia, abscess, surgery, trauma)

## ■ Contiguous Spread

- cutaneous ulcer
- infected joint or joint prosthesis
- abscess

# ORGANISMS

- Staph aureus
- Coag. Neg. Staph.
- 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

# TUBERCULOSIS

- 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

# RADIOLOGY

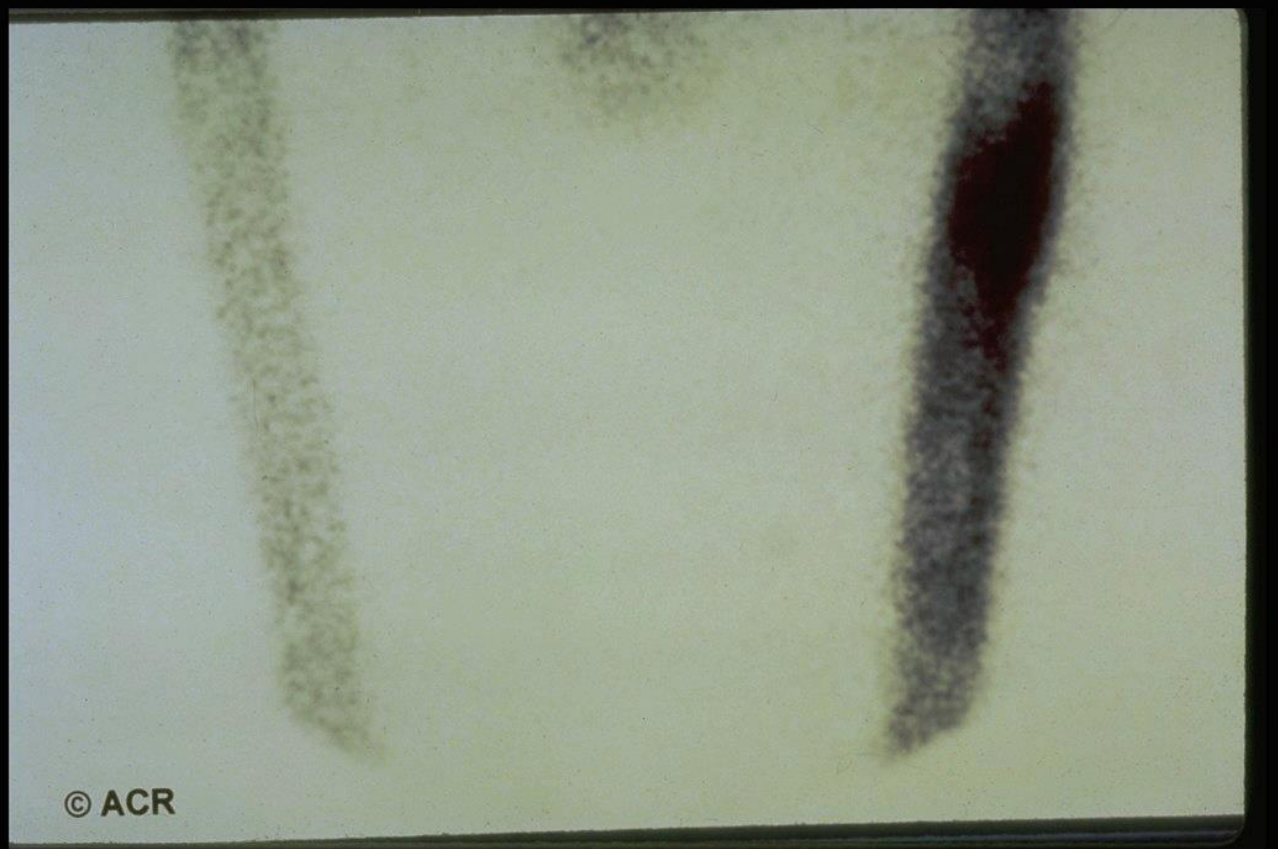
## ■ Plain X-ray

- will not be positive for at least 10 days
- lytic lesions may not be present for 6 weeks

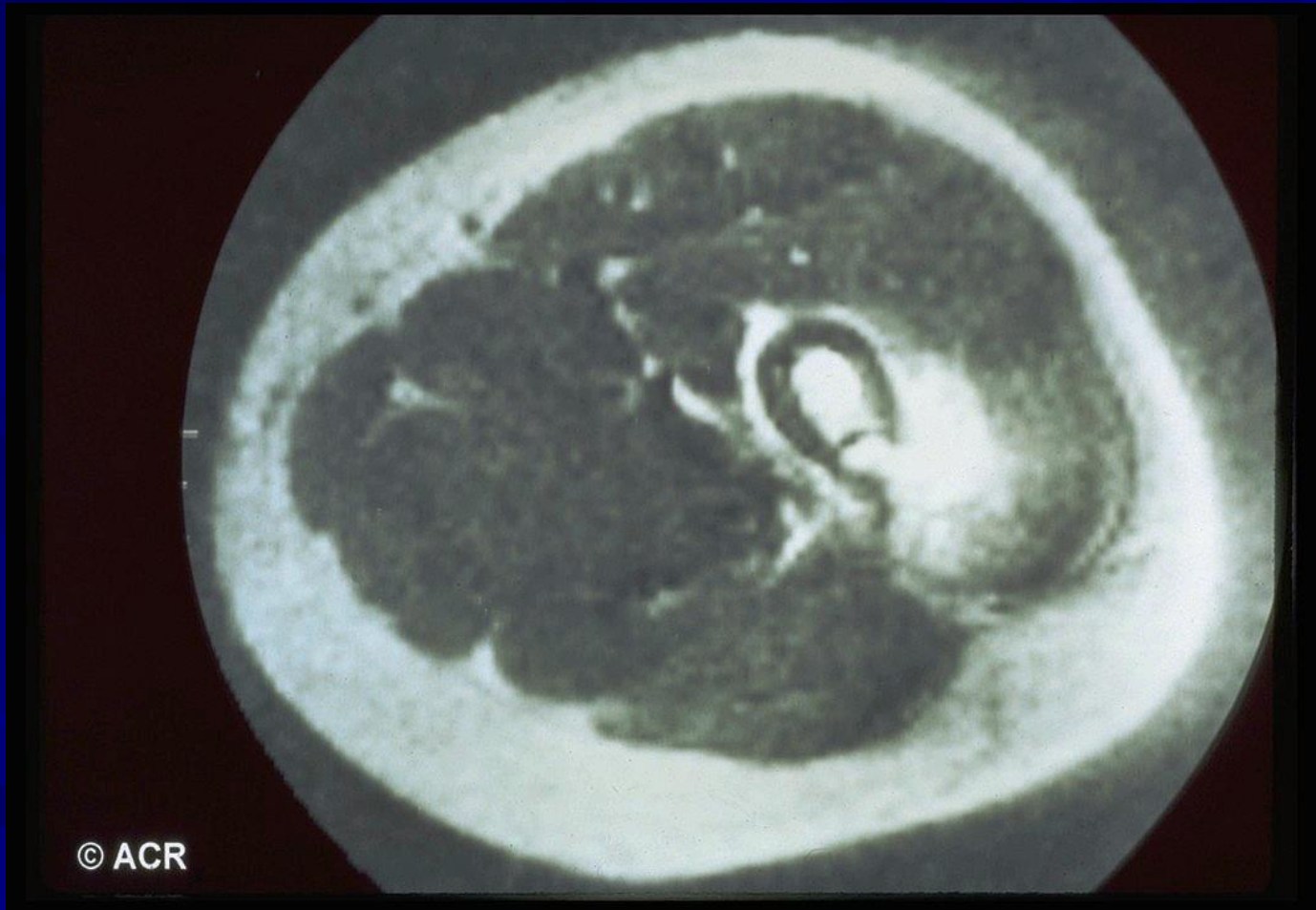




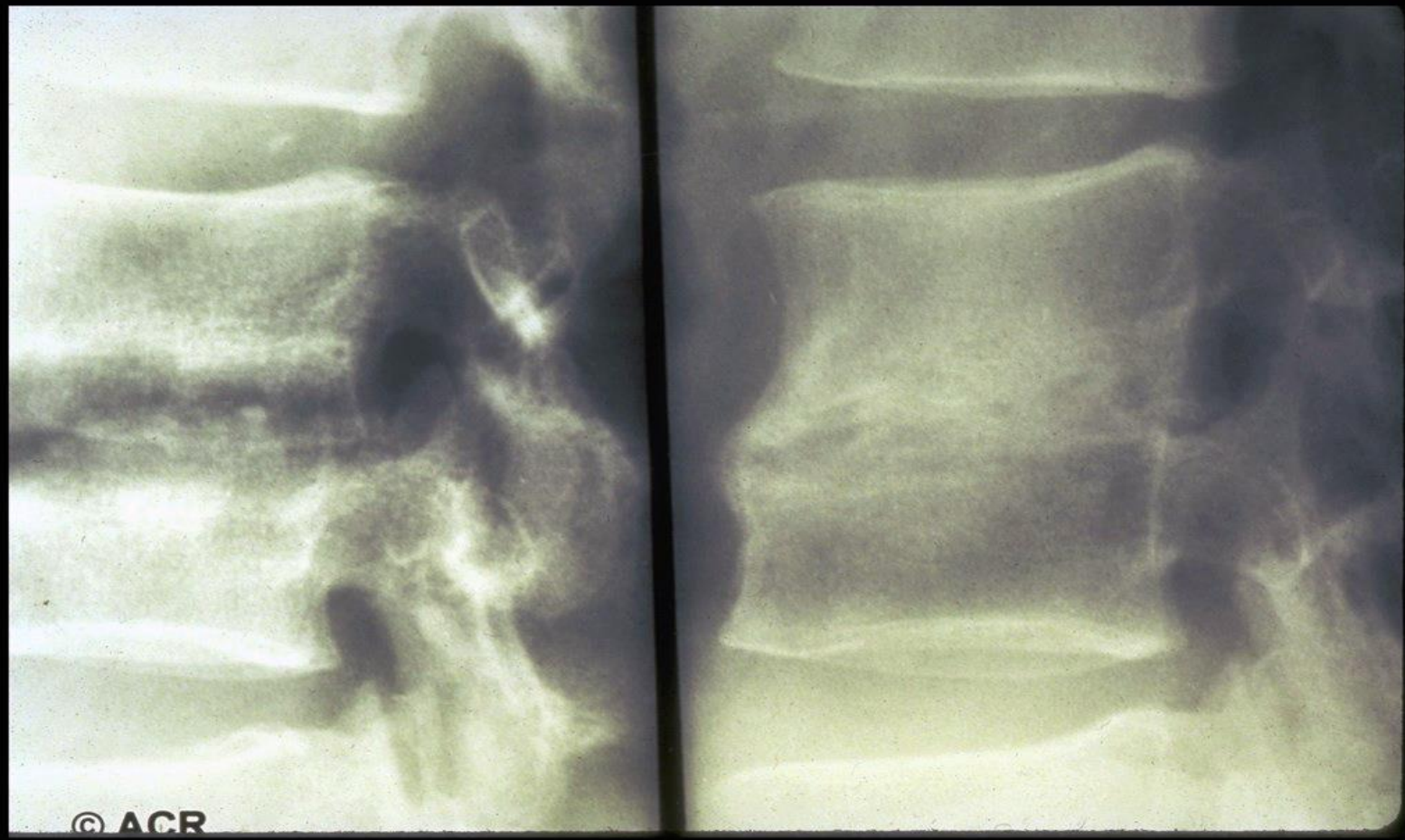
# BONE SCAN



# MRI



# SPINAL OSTEOMYELITIS



# TREATMENT

## ■ ACUTE -

IV antibiotics for  
at least 4 - 6  
weeks

- OVIVA Trial  
2017 oral is just  
as effective as IV  
after  
debridement.

## ■ 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

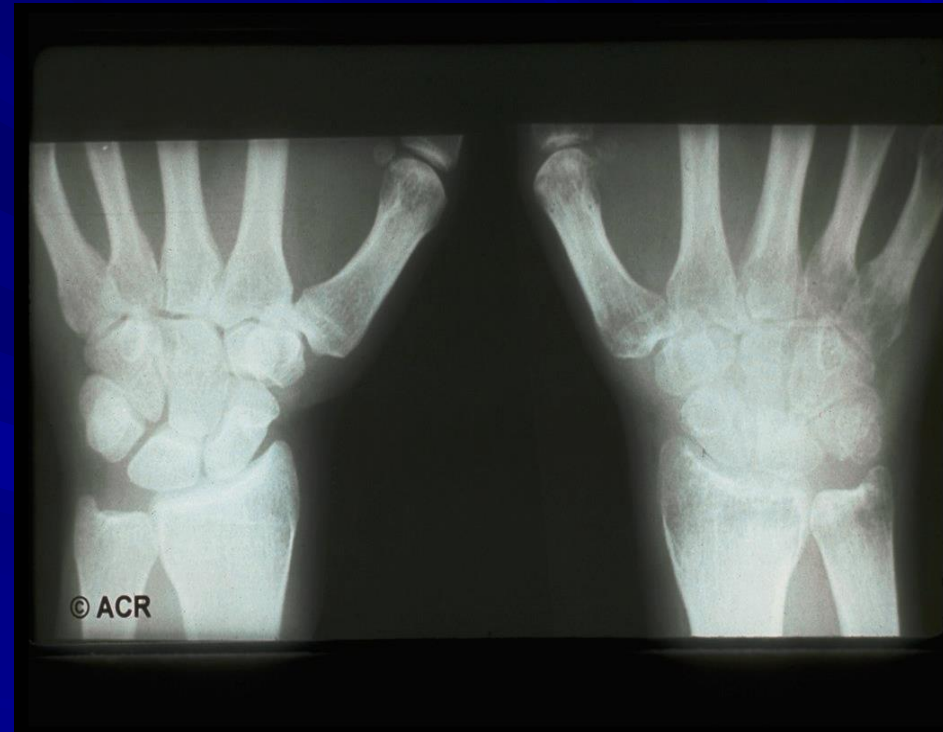
- Synovial fluid cultures usually negative
- Urethral/vaginal cultures often positive
- PCR (polymerase chain reaction test improves accuracy)
- Treatment - based on local sensitivity
  - Penicillin
  - Penicillinase resistant penicillin
  - ceftriaxone - **DOC**
- Outcome - rapid response to treatment 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

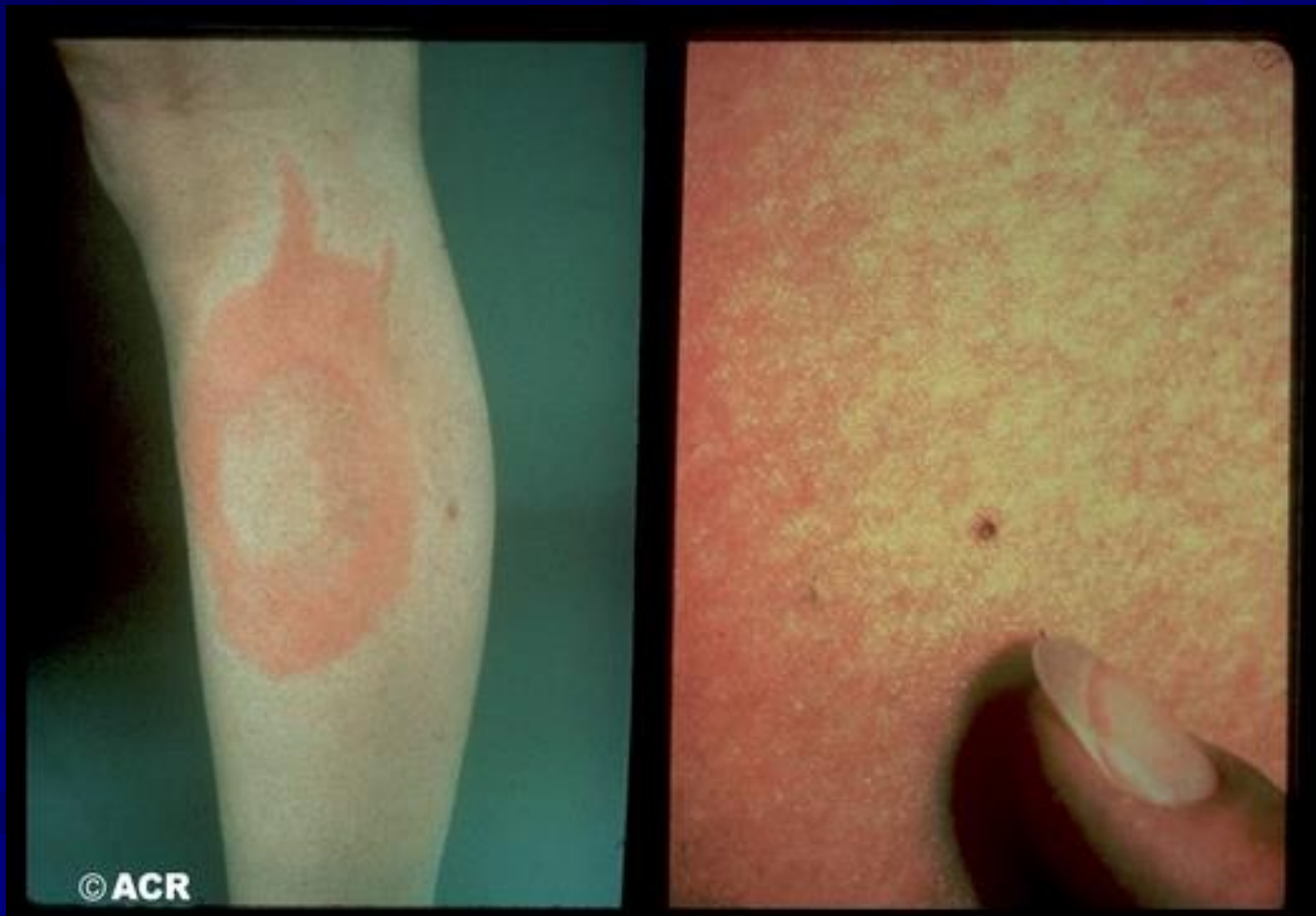
## ■ STAGE II - Early Disseminated

- 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 (undifferentiated)
- AIDS associated arthritis
- Avascular necrosis
- Myositis

# Contact Information

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