

OSTEOMYELITIS SEPTIC ARTHRITIS

A.C.O.I. BOARD REVIEW 2019

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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

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

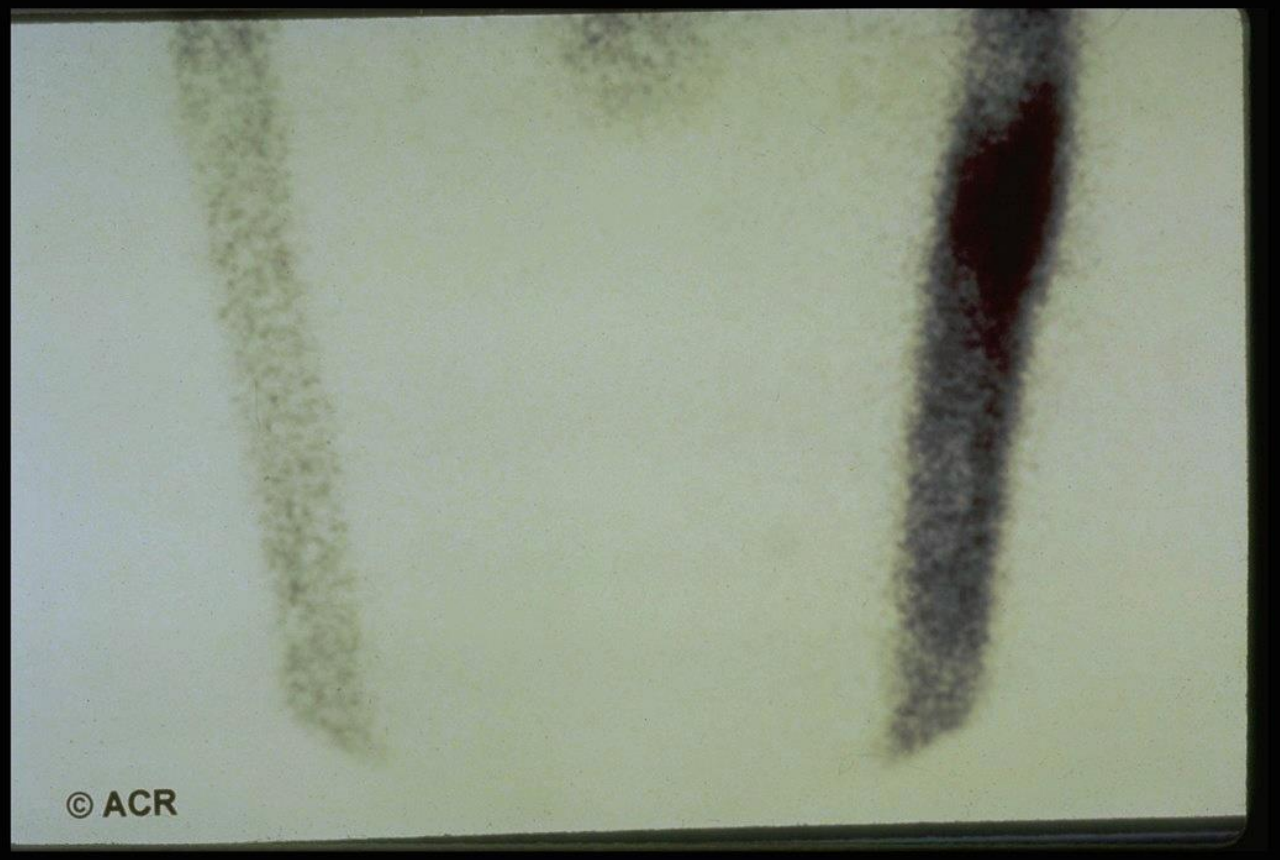
RADIOLOGY

■ Plain X-ray

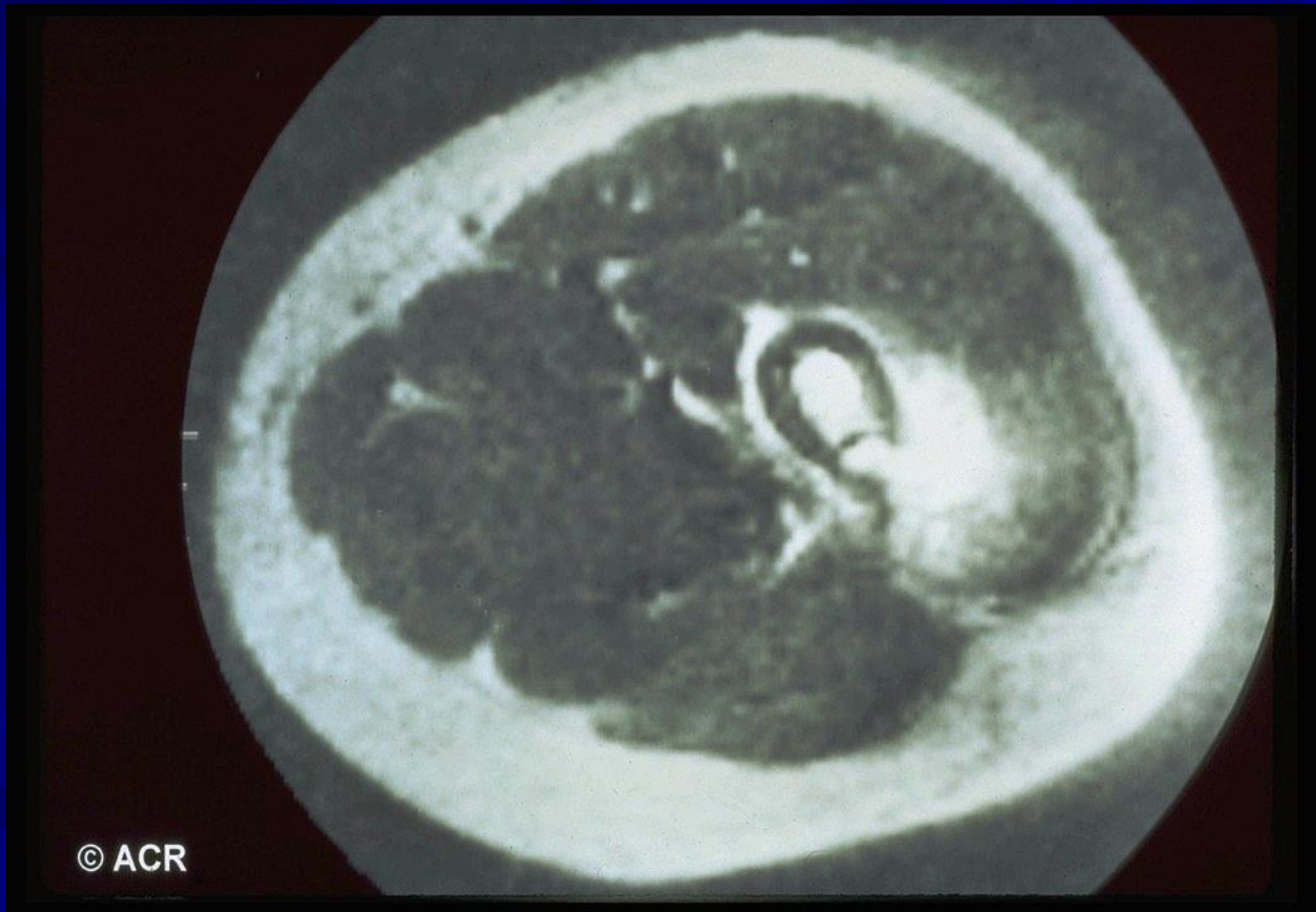
- will not be positive for at least 10 days
- lytic lesions may not be present for 6 weeks



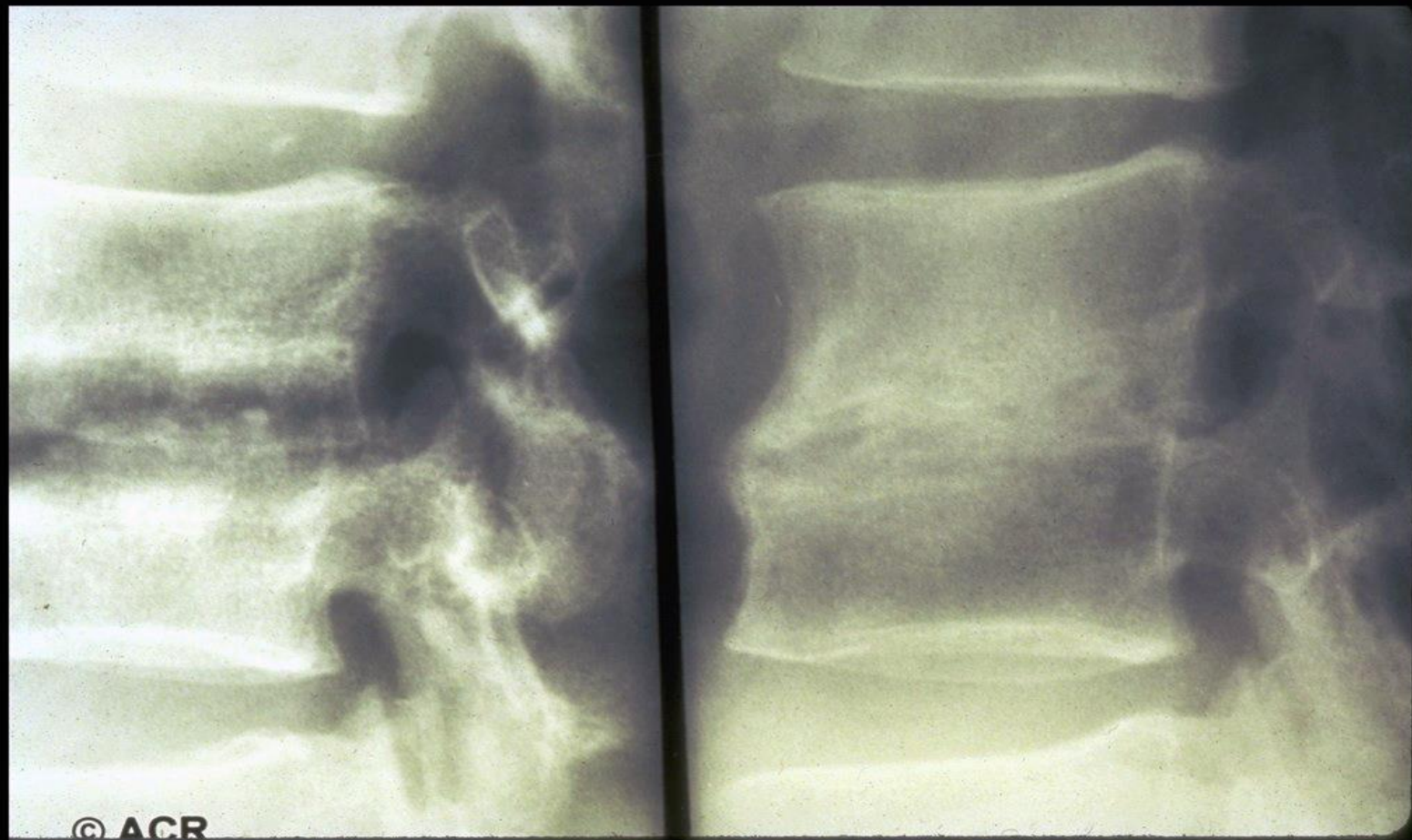
BONE SCAN



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

TUBERCULOSIS

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



SEPTIC ARTHRITIS

■ MONOARTICULAR

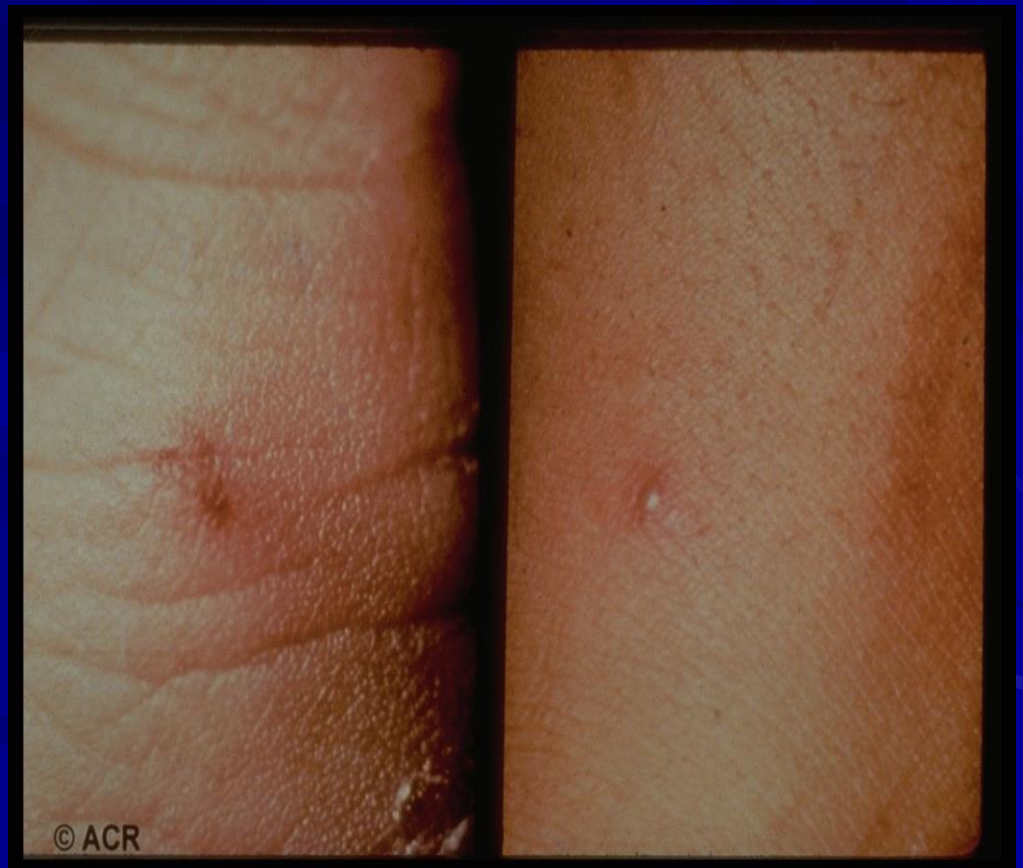
- Gonococcal 50%
- Non-gonococcal
 - *S. aureus* 35%
 - B-hemolytic strep. 10%
 - Gram negative 2-8%
 - polymicrobial 2-10%
 - Fungal/atypical >1%

■ 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



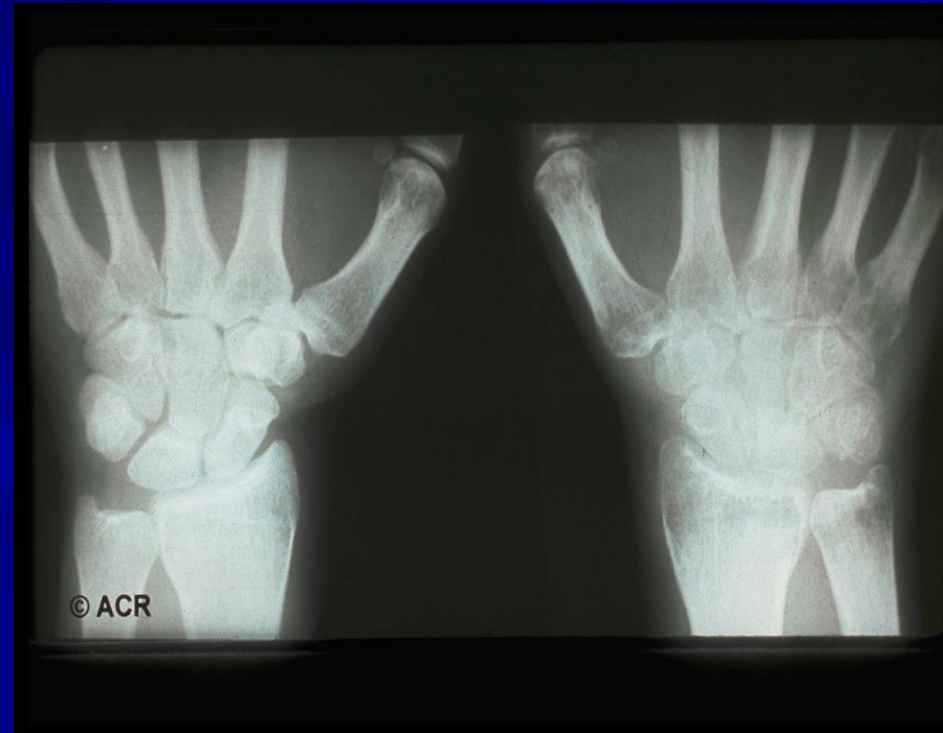
GONOCOCCAL ARTHRITIS

- 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

- **Revised Jones Criteria**
- **Evidence of a recent Strep infection**
(increasing or elevated ASO, Antistreptococcal Antibodies, Group A Strep on throat culture, Positive rapid group A strep test)
- **2 Major or 1 Major and 2 Minor plus evidence of recent Strep infection**

RHEUMATIC FEVER

Moderate to High Risk

- **Major:** Arthritis, Carditis, Chorea, Erythema marginatum, Nodules
- **Minor:** fever, sed rate >30, CRP >3.0, prolonged PR interval

Low Risk

- **Major:** Arthritis, Carditis, Chorea, Erythema marginatum, Nodules
- **Minor:** oligoarthralgia, fever, sed rate >60, CRP >3.0, prolonged PR interval

RHEUMATIC FEVER TREATMENT

- No carditis – 5 years
- Carditis with no residual heart disease– 10 years or age 25
- Carditis with residual heart disease – 10 years and cardiac prophylaxis to age 45-life

RHEUMATIC FEVER

SURGICAL TREATMENT

- Heart failure due to valve disease
- PAH
- Tricuspid regurgitation complicating mitral valve disease
- Progression beyond NYHA Class 2
- Progressive LV enlargement > 0.5 cm/year
- A fib
- Thromboembolism

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

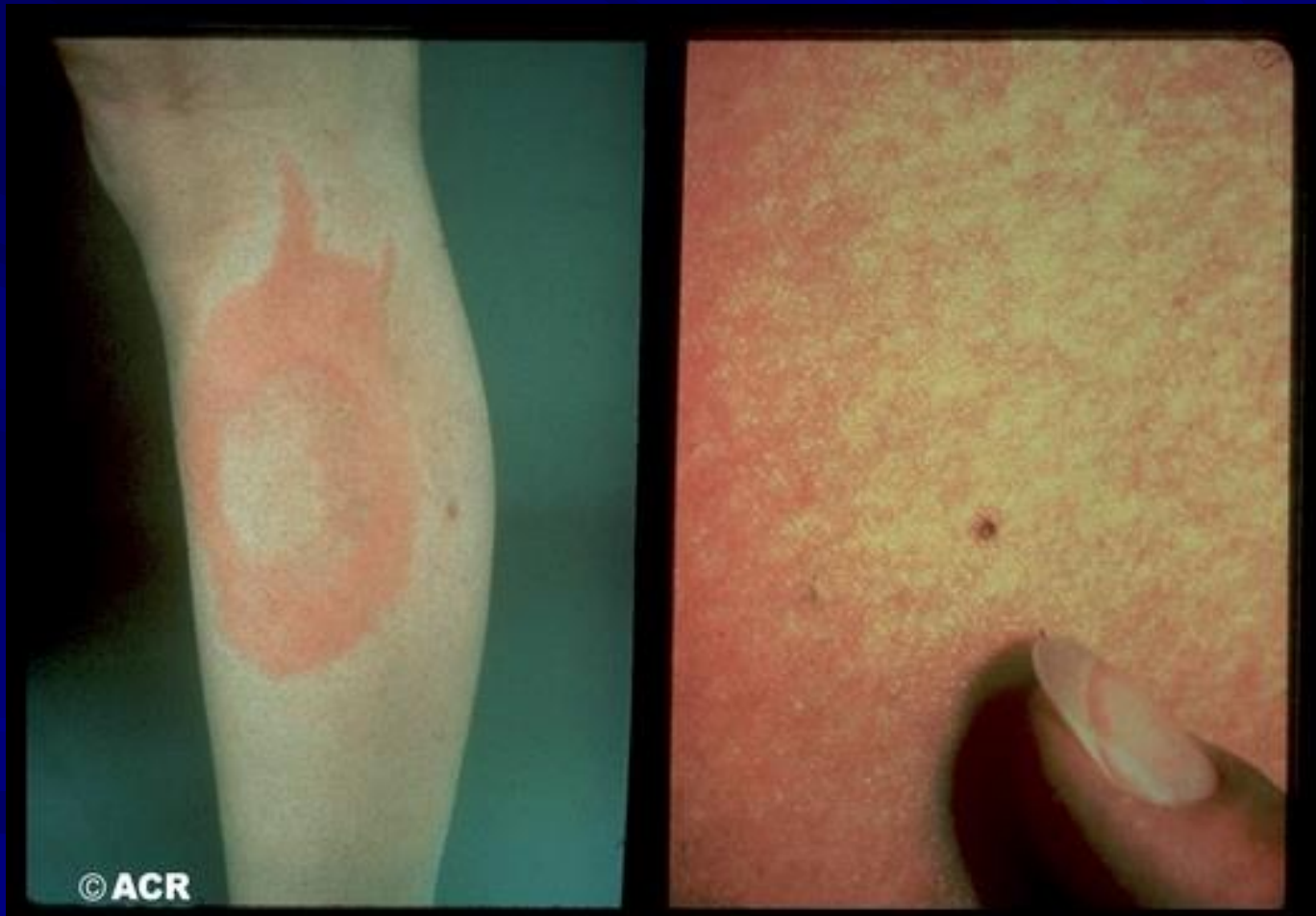
■ STAGE II - Early Disseminated

- 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

HIV

- 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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