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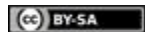
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Other inflammatory arthritides

Seetha Monrad M.D.

Fall 2009



- Spondyloarthropathies
 - Ankylosing spondylitis
 - Psoriatic arthritis
 - Reactive and enteropathic arthritis
- Infectious arthritis

Seronegative spondyloarthropathies

- *Seronegative*: Not associated with rheumatoid factor or other autoantibodies
- *Spondyloarthropathy*
 - Spine and sacroiliac joints
 - Variable peripheral involvement
 - Variable extraarticular manifestations
- Prototypic spondyloarthropathy:
Ankylosing spondylitis

Case

- A 29 year old man presents to clinic complaining of back pain for the past 2 years. He initially noticed it after lifting a heavy box, but the pain has persisted. It is especially bad in the morning; he states it takes him almost two hours to “get going”. He also notes discomfort in his buttocks and occasionally in his heels. He states that his grandfather had a “bad back” and was always extremely hunched over.
- On exam, he is unable to bend forward and touch his toes. Modified Schober’s maneuver reveals only 2 cm of lumbar expansion with forward flexion.

Ankylosing spondylitis

- Epidemiology

- Prevalence: 0.1-6%

- M:F 2:1?

- Average age of onset mid 20s

AS: Clinical presentation

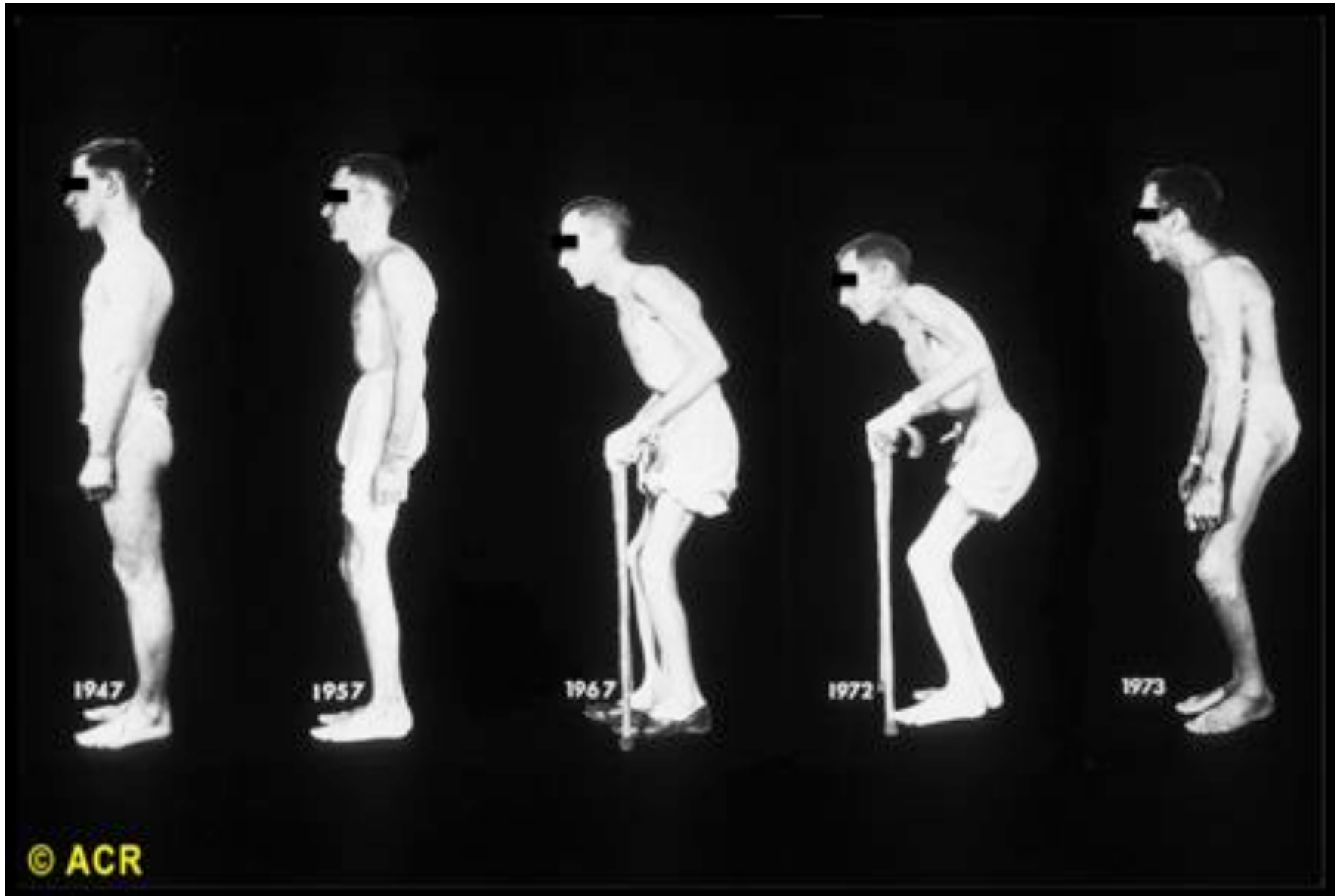
- **Inflammatory back pain**
 - Insidious, persistent (>3 months)
 - Nocturnal pain; worse with rest, better with exercise
 - Morning stiffness
- **Sacroiliitis**
 - Buttock pain
 - Lower anterior synovial portion of joint
- **Enthesitis**
 - Plantar fascia, Achilles tendon
 - Pelvis, tibial tubercles, sternal/chondrocostal junctions
- **Synovitis**
 - LE joints (hips), occasionally shoulders
 - Often oligoarticular, asymmetric
- **Systemic symptoms:** fatigue
- **Labs:** ESR, CRP



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AS: Radiography

- Sacroiliac
- Spine

Normal sacroiliac joints



Sacroiliitis (early)



Sacroiliitis (late)



Cervical spine



Thoracic spine



TABLE 9A-1. MODIFIED NEW YORK CRITERIA FOR ANKYLOSING SPONDYLITIS.

Criteria

1. Low back pain for at least 3 months' duration improved by exercise and not relieved by rest.
2. Limitation of lumbar spine motion in sagittal and frontal planes.
3. Chest expansion decreased relative to normal values for age and sex.
- 4a. Unilateral sacroiliitis grade 3–4.
- 4b. Bilateral sacroiliitis grade 2–4.

Definite ankylosing spondylitis if (4a OR 4b) AND any clinical criterion (1–3)

AS: Extraarticular manifestations

- Anterior uveitis
 - 1/3 of patients
 - Unilateral, alternating
 - Does not mirror AS flares
- Inflammatory bowel disease
 - 10-15% have overt disease
 - 60% have subclinical bowel inflammation
 - Does not mirror AS flares



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AS: Extraarticular manifestations

- Cardiac: Aortic dilatation/regurgitation (1%)
- Pulmonary
 - Upper lobe fibrosis (1%)
 - Mild restrictive physiology
- Neurologic
 - Spinal fracture:
 - Nerve root or cord
 - Minor trauma

Pathogenesis: HLA B27?

- Allele of MHC 1
- More than 30 subtypes
- Present in >90% of patients with AS (Caucasian males), 50-75% of other spondyloarthropathies
- Theories:
 - B27 causes improper handling of microbes -> inflammation
 - B27 is an autoantigen (on its own or after aberrant processing)
 - B27 binds peptides that trigger activation of autoreactive CD8 T cells
- Evidence: certain strains of B27 transgenic rats develop arthritis/gastroenteritis/rash IF exposed to GI microbes

Pathogenesis: HLA B27

- However....
 - 5-15% of general population is HLA B27+ (mostly Caucasian)
 - 2% of African Americans; but only ~50% of African American AS patients are B27+
 - Only a few B27 subtypes associated with AS
 - <5% of B27+ patients develop AS
 - 20% chance of AS development in B27+ relatives of AS patients
- So...
 - If patient has convincing inflammatory-type back pain, absence of HLA-B27 helpful to rule out AS....
 - IF patient is a Caucasian male
- Fundamentally: we don't routinely order

Psoriatic arthritis

- Up to 1/3 of patients with psoriasis develop an inflammatory arthritis
- Prevalence: 0.1-1%
- M:F 1:1
- Classified as a spondyloarthropathy because:
 - Seronegative
 - Spinal/sacroiliac involvement
 - Similar extrarticular features
 - Association with HLA-B27



Treatment

- Physical therapy
 - Postural education
 - Breathing exercises
- NSAIDs
- Glucocorticoids
- Sulfasalazine, Methotrexate
- Anti-TNF agents
- Surgery: hip replacement



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Psoriatic arthritis: hands



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Treatment

- Similar to ankylosing spondylitis
- Methotrexate, sulfasalazine more effective (peripheral arthritis)
 - ?liver toxicity
- Other biologics: alefacept, abatacept

Reactive arthritis

- Sterile arthritis developing after a non-articular infection
- Formerly known as Reiter's syndrome (1916): non-gonococcal urethritis, conjunctivitis (uveitis), arthritis

Reactive arthritis

- ~50% post *Chlamydia*, *Salmonella*, *Shigella*, *Yersinia*, *Campylobacter*
- Characteristically an asymmetric lower extremity oligoarthritis
- Enthesitis common (Achilles tendonitis, plantar fasciitis)
- Sacroiliitis in 50%, but rare progression to ankylosing spondylitis

Reactive arthritis: conjunctivitis



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Reactive arthritis: tendinitis, heels



Reactive arthritis: plantar periostitis, foot (radiograph)



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Reactive arthritis: Extraarticular manifestations

- Keratoderma blenorrhagicum
- Circinate balanitis
- Urethritis
- Oral ulcers
- Acute anterior uveitis



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Enteropathic spondyloarthritis

- Inflammatory bowel disease: Ulcerative colitis and Crohn's disease
- Develop arthritis in 10-20%
 - Peripheral:
 - Pauciarticular, asymmetric, favors lower extremities
 - Nonerosive
 - Often correlated with bowel disease
 - Colectomy in UC->arthritis remission
 - Axial: like AS
 - Activity does NOT parallel bowel disease

Enteropathic spondyloarthritis

- Extraarticular manifestations:
 - Skin: erythema nodosum, pyoderma gangrenosum
 - Uveitis, oral ulcers
- Treatment:
 - Minimize NSAID use
 - SSZ: common treatment for IBD
 - TNF blockers:
 - Infliximab, adalimumab treat bowel disease also
 - Etanercept: doesn't work for bowel

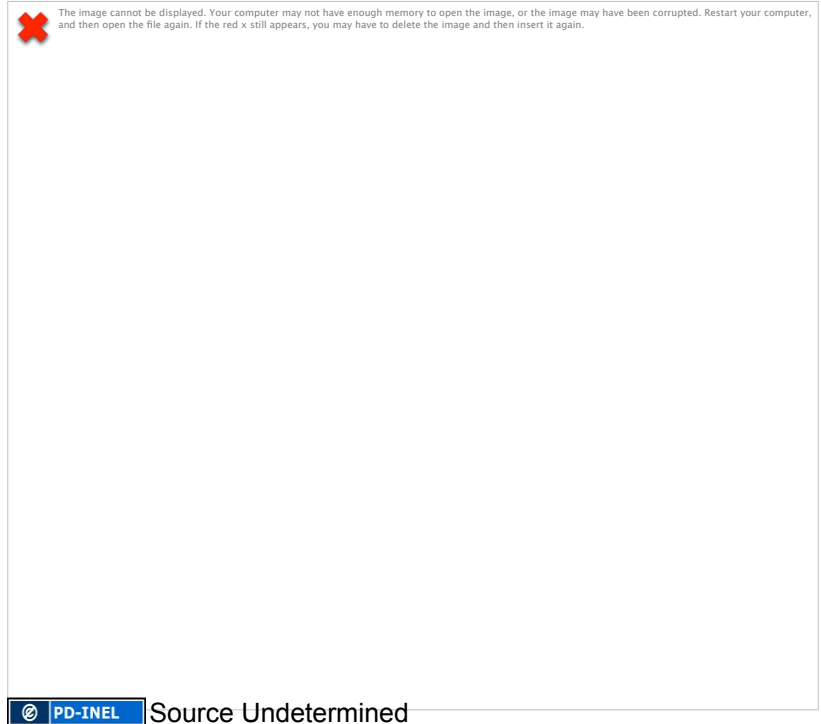
Case

- A 70-year-old man with diabetes who has been on hemodialysis for 6 years developed severe pain and swelling in the right knee several hours after playing golf. He also noted that during the dialysis run that morning he had had a chill but felt well
- Past history includes three attacks of gout in the left great toe and the right knee 2 years before starting dialysis

- He has difficulty getting onto the examination table because of knee pain. Temperature 101°F, pulse 100 bpm, BP 150/90. He is diaphoretic over the face and arms. The skin over the AV fistula is slightly erythematous, but the bruit is strong. There are two small abrasions over the left elbow. Examination of HEENT, chest, and abdomen are normal

Physical Findings

- The right knee is swollen, slightly reddened, warm, and tender to palpation over the medial and lateral joint margins. Both active and passive flexion and extension are limited by pain. There is no laxity, but the exam is limited by pain.



Step 1: Characterize This Illness

- Acute inflammatory monoarticular arthritis and fever within 24 hours of dialysis, vigorous physical activity, and perhaps trauma in a patient with a history of gout
- Signs of systemic illness: Fever, diaphoresis
- Initial laboratory tests: WBC 22,000 with 95% PMNs, Hgb 10 g%

Question 1: What Is Differential Dx?

- A. Knee trauma with hemarthrosis
- B. Crystalline arthritis
- C. Pre-patellar bursitis
- D. Septic arthritis

Incorrect Answers

C. Prepatellar bursitis produces pain, swelling, and erythema but does not limit extension of the knee



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Differential Dx

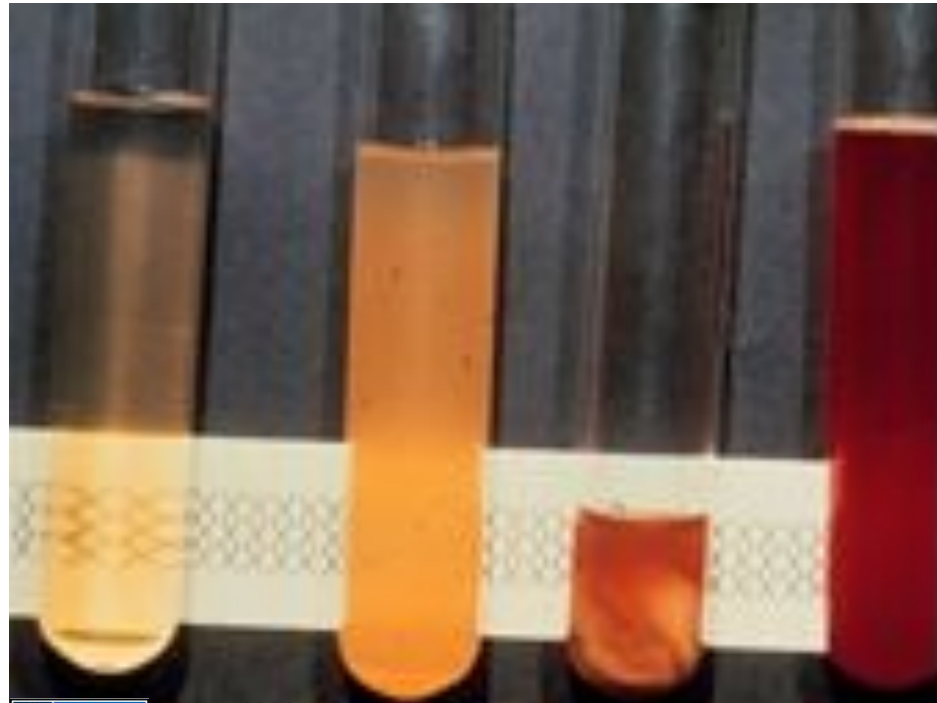
- The differential diagnosis includes A, B, and D
 - A. **Hemarthrosis** with mild trauma could occur in renal failure because of tissue fragility and platelet dysfunction
 - B. Patients with **crystalline arthritis** in renal failure may show uric acid, oxalate, apatite, or CPPD crystals
 - D. **Bone and joint infections** are common in dialysis patients because of vascular access and impaired immune defenses

Question 2: What Diagnostic Tests?

- A. Bone scan
- B. X-ray of knee
- C. Arthroscopy
- D. MRI of knee
- E. Arthrocentesis and synovial fluid analysis

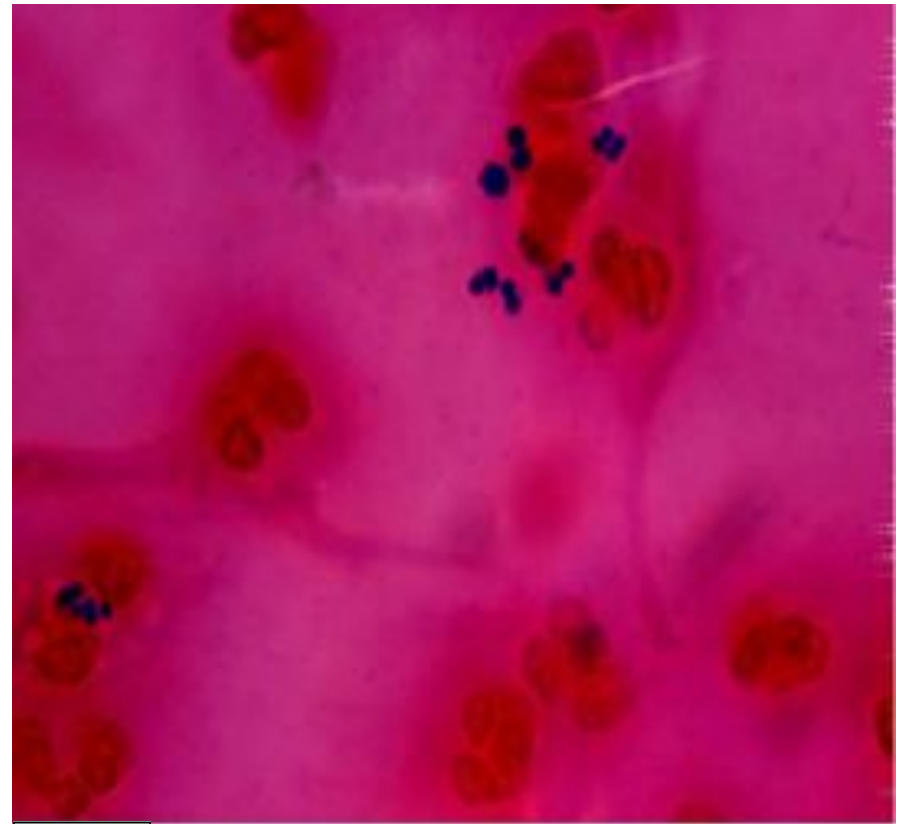
Question 2: Answer

- Key point: **TAP THE JOINT!** Diagnosis must be made immediately. **X-ray** of the knee should be done if the tap is bloody. Synovial fluid analysis will differentiate between infection and crystals



Synovial Fluid Findings

- Synovial fluid WBC
100,000 with 98%
PMNs
- No crystals seen on
polarizing microscopy
- SF culture and
sensitivity test request
sent to the
microbiology lab
- Blood cultures sent
- SF gram stain



Septic arthritis – non-gonococcal

- Risk factors
 - Increasing age
 - Diabetes
 - Alcoholism
 - RA
 - Prosthetic joint/recent joint surgery
 - Skin infection
 - Impaired immune system
 - Hemodialysis patients
 - IV drug users
- Pathogenesis
 - Bacteremic seeding of joint from distant source of infection
 - Much less common: direct inoculation of joint

Septic arthritis – non-gonococcal

- Causative organisms (non-gonococcal)
 - Gram positive cocci: 75-80%
 - Staph. aureus
 - Staph. epidermidis (prosthetic)
 - Gram negative bacilli: 15-20%
- Usually monoarticular
 - Polyarticular with preexisting arthritis
- Diagnosis: joint aspiration
 - High WBC (>50,000)
 - High PMNs
 - Gram Stain + 60-80%
 - Blood cultures + 50%
 - *can have coexistent crystalline arthritis

Treatment

- Antibiotics
 - Nafcillin/oxacillin
 - Vancomycin for MRSA
 - 3rd generation cephalosporin
- Drainage of the infected joints

Gonococcal arthritis

- Typically healthy, sexually active adults
- Women more susceptible
- Presents with migratory arthritis, tenosynovitis, ± skin lesions
- Diagnosis:
 - GS/Cx of synovial fluid typically negative
 - Need to culture extra-articular sites (GU tract, rectum, throat)
- Treatment: 3rd generation cephalosporin



Streptococcal associated arthritis

- Poststreptococcal reactive arthritis
- Rheumatic fever

Other infectious causes of arthritis

- Viral
 - Acute: ex. parvovirus B19
 - Chronic: ex. hepatitis B/C, HIV
- Spirochetal: Lyme disease
 - Acute: arthralgias/myalgias
 - Late: intermittent oligoarticular arthritis
- Mycobacterial
- Fungal

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Slide 16: J. Klippel. Primer on the Rheumatic Diseases. 13th Ed. Springer Science+Media Business, LLC. 2008

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