Septic Arthritis for the Hospitalist

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Definition: Septic arthritis is an emergency, caused by inoculation of an infectious organism into a joint, leading to cartilage destruction, irreversible loss of joint function, and complications such as sepsis or bacteremia.

Epidemiology:

- Most commonly acute mono-articular large joints (rare polyarticular small joints).
- Gender: male predominance (2:1).
- Prevalence: 2 to 6 cases per 100,000 people.
- Risk factors: recent joint surgery, rheumatoid arthritis, age > 80 years, hip or knee prosthesis, skin infection, immunosuppression, diabetes mellitus.[3]

Common Organisms	***Common Associations***
• *Staphylococcus aureus* (most common) • B-hemolytic streptococci • *Neisseria gonorrhoeae* • *Escherichia coli*	• IV drug use: *S. aureus, P. aeruginosa* • Dialysis: *S. aureus* • Sickle cell disease: *Salmonella spp* • Rheumatoid arthritis: gram-positive organisms • Unpasteurized dairy products: *Brucella spp* • Diabetes: *Group B Streptococcus*

Clinical Features:

- Sudden onset of generally monoarticular, or more rarely oligo- or polyarticular joint pain, erythema, swelling, and limited range of motion.
- Knee most commonly involved, followed by hip, shoulder, and ankle.
- Patient with injection drug use at risk for atypical locations such as sternoclavicular and sacroiliac joint.

Differential diagnosis: Gout, Pseudogout, Cellulitis, Fracture

Diagnostic Investigations:

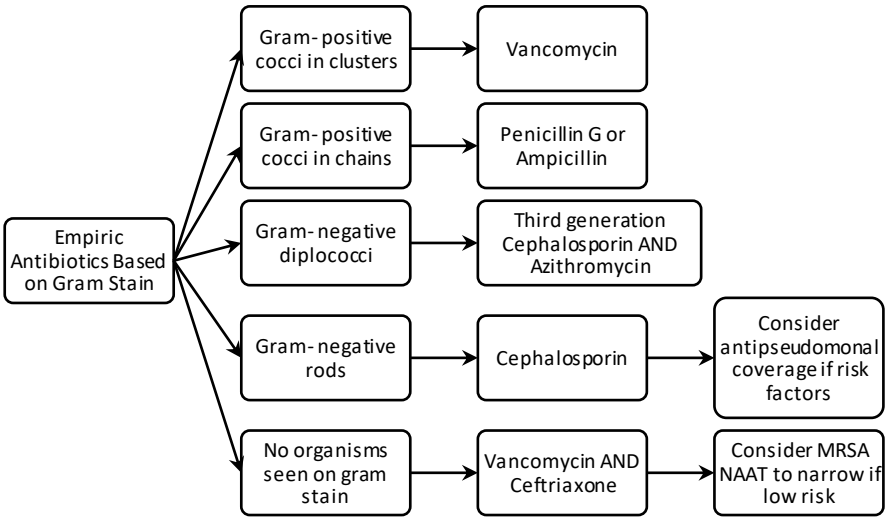
- Diagnostic arthrocentesis to evaluate synovial fluid (cell count and differential, gram stain, culture, and crystals analysis).
    - Crystals: can co-exist with septic arthritis.
    - Gram stain: only 50% sensitive.
    - Cultures are definitive but take 3-4 days to finalize.
    - High suspicion for septic arthritis:
        - For native joint: > 50,000 WBC with >90% PMNs, start empiric treatment (even if Gram stain is negative).[3]
        - For prosthetic joint: 1,700 to 10,000 WBC with PMN predominance.

- Send CBC, ESR, CRP, and two sets of blood cultures. These labs are nonspecific but guide differential. Of note, WBC can be normal.

Treatment:[6,7]

Non-prosthetic joint:
Early surgical consultation for management: joint wash-out vs. daily joint aspiration.

- Pathogen specific antibiotics: duration **2-4 weeks**.



Prosthetic joint:
Early surgical consultation: generally, requires wash-out +/- removal of prosthesis.

- Definitive treatment is two-stage revision.
- Start empiric antibiotic therapy: vancomycin + 3rd or 4th generation cephalosporin. Follow up culture data.

Pathogen-specific: initial IV antibiotics with duration of **6 weeks** (if prosthesis removed) or **longer** oral antibiotics if joint isn't removed (3 months total for hip infections and 6 months total for knee infections).

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