Septic Arthritis (ADULT)

CONSULT ID/ORTHO if prosthetic joint

EPIDEMIOLOGY AND RISK FACTORS

Risk factors: rheumatoid arthritis, gout, joint surgery, IV drug use, diabetes mellitus, advanced age, concurrent cellulitis

Non-gonococcal septic arthritis is mainly monoarticular (predominantly knee)

MOST COMMON BACTERIAL ORGANISMS

Gonococcal	• *Neisseria gonorrhea*
Native joint, non-gonococcal	• ***S. aureus* (MSSA or MRSA)** • Streptococci • Much less common: Gram-negative bacilli
Prosthetic joint	• ***S. aureus* (MSSA or MRSA)** • **Coagulase negative staphylococci (CoNS)** • *Cutibacterium* (formerly *Proprionbacterium*) *acnes* (prosthetic shoulder infections) • Streptococci • Can be polymicrobial

DIAGNOSTIC CONSIDERATIONS

- **Blood cultures x 2 before initiating antibiotics**
- **Arthrocentesis should be performed on all patients, preferably before initiating antibiotics unless patient is hemodynamically unstable**
  - **In cases involving prosthetic joint, please involve orthopedics prior to aspiration**
  - Synovial fluid PCR useful, however could reflect contamination
  - In addition to a specimen in a urine container for Gram stain, also send culture of 10 mL of joint fluid in BLOOD CULTURE bottle
- Obtain baseline joint X-ray (native joint only)
- Differential diagnosis include crystalline arthritis (gout or pseudogout)

EMPIRIC TREATMENT FOR SEPTIC ARTHRITIS[1]

CLASSIFICATION	ANTIBIOTIC THERAPY
Gonococcal (suspected)	**Ceftriaxone 1 g IV/IM q24h** PLUS **Azithromycin 1 g PO x 1 dose**
Non-gonococcal, native joint	**Cefazolin 2 g IV q8h** *If documented severe allergy to all β-lactams:* Vancomycin[3] 15 mg/kg IV q12h
Risk factors for MRSA[2]	Vancomycin[3] 15mg/kg IV q12h
IVDU or other risk factors for Gram (-) infection	Piperacillin-tazobactam 4.5 g IV q8h
Prosthetic joint	**Consult ID and ortho**

[1] Dosing of antibiotics assume normal renal function; adjustments may be required if renal dysfunction
[2] Risk factors for MRSA: Previous MRSA infection/colonization, homelessness, injection drug use
[3] See Vancomycin Therapeutic Drug Monitoring guideline; consult pharmacy for dosing adjustments

ADDITIONAL CONSIDERATIONS

- Prompt joint drainage in addition to antimicrobial therapy is essential
- De-escalate antibiotics as soon as possible, once synovial fluid culture results are available
- Duration: dependent on joint drainage and isolated organism(s)
    - Gonococcal: 7-14 days
    - Non-gonococcal: Consult infectious diseases. 2-4 weeks for native joint depending on organism and adequacy of source control.

REFERENCES

- Osmon DR, Berbari EF, Berendt AR, Lew D, Zimmerli W, Steckelberg JM, et al. Diagnosis and management of prosthetic joint infection: clinical practice guidelines by the Infectious Diseases Society of America. Clin Infect Dis. 2013;56(1):e1-e25.
- Ohl CA. Infective arthritis of native joints. Bennett JE, Dolin R, Blaser MJ, eds. *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases.* 9th ed, Philadelphia: Elsevier; 2020. Chap 103.
- Sendi P, Zimmerli W. Orthopedic implant-associated infections. Bennett JE, Dolin R, Blaser MJ, eds. *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases.* 9th ed, Philadelphia: Elsevier; 2020. Chap 105.

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