

HMC EM EVIDENCE-BASED CLINICAL ALGORITHM: EVALUATION FOR SEPTIC ARTHRITIS

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Evidence basis:

- Carpenter et al. Evidence-based diagnostics: Adult septic arthritis. Acad Emerg Med 2011; 18: 782.) - UpToDate (accessed 3 Sept 15)
- Burton JH. Acute disorders of joints and bursae. Tintinalli's Emergency Medicine, 7th edition (www.accessem.com)

This EBCA:

- has been endorsed by HMC EM and other consultants for education and assistance with clinical practice in HMC's EDs.
- is intended to complement any related multispecialty Clinical Practice Guideline prepared as per HMC policy.
- is not presented as the binding "standard of care" but is rather a reference tool to inform clinical judgment.

Algorithm aim & applicability:

This algorithm applies to adult (age >17) ED patients presenting to ED with joint swelling, in whom the diagnosis of septic arthritis is under consideration; the algorithm aim is to inform EM physicians' decision-making regarding workup and diagnostic testing for septic arthritis.

EM arthrocentesis: The following inform decisions regarding EM-performed arthrocentesis

Systemic factors:

- Patient tolerance for procedure
- Immunocompromise
- Recent antibiotics
- Anticoagulation/Bleeding diathesis

Joint factors:

- Overlying infection
- Hardware/prosthetics in place (needs early Ortho consultation pre-tap)
- Accessibility: EM will only tap joints for which the physicians have training & experience (non-knee taps may need pre-tap consult with Rheum/Ortho)

Effusion factors:

- Post-traumatic hemarthrosis
- High clinical certainty of non-septic dx

Is the joint appropriate for EM arthrocentesis?

Consider issues & relative contraindications (*see box, left*)

Yes

No

Time-sensitive call to Rheum/Ortho/ID for:
1) Collaborate on pre-tap labs, cultures, abx
2) Formulation of plan for urgent evaluation

Labs and imaging:

- 1) Situationally appropriate labs plus: CBC, LFTs, Cr, ESR, CRP, blood cultures
- 2) Consider *Brucella* serology, PPD/quantiferon and CXR for TB evaluation
- 3) Situationally appropriate imaging (*eg, X-ray for fx*)

EM arthrocentesis:

- *See box, right*
- Shake purple tube well after adding synovial fluid, to avoid spuriously low fluid WBC
- Keep ≥ 1 mL fluid (in capped syringe) for Rheum for crystals assessment, and send to lab: Lactate, WBC/diff, Gram stain & culture

EM arthrocentesis to r/o septic joint

Timing target: within 30' of MD eval
Consent: written and verbal
Imaging: US in nearly all cases
PSA: Local anesthesia at minimum
Technique: www.accessem.com

IV abx in presumed septic arthritis

Situational guidance:

Allergies, past/current medical (*eg, sickle*) & surg/hardware hx, sexual hx, previous septic arthritis infxn

Antibiotics (all IV):

1st-line
Cloxacillin 2g q4-6h and Ceftriaxone 2 g q24h

Alternatives (consult ID):

Ciprofloxacin 400 mg or Vancomycin 15 mg/kg

While awaiting synovial fluid analysis, or (for dry tap) while awaiting consultation recommendations, situationally execute the following:

- 1) Imaging (in nearly all cases, X-ray if not executed pre-tap)
- 2) Abx (*eg, if identify purulent aspirate – see box, left*)
- 3) Labs (*eg, hematology if unexpected bloody aspirate*)

Synovial fluid WBC $\geq 50k$ Synovial fluid WBC $< 50k$

- Disposition: Admission (ID consult)
- Ortho consult – joint irrigation (NPO)
- Antibiotics (*see box, left*) within 30' after tap, pending synovial fluid cx results, *unless* specialty consultation dictates otherwise (*eg, crystals seen, and no overarching signs of sepsis*)

- Disposition: Situational, determined in consultation
- Antibiotics: In absence of strong clinical suspicion, abx may be withheld pending observation (inpatient or outpatient)
- Septic arthritis cannot be definitively ruled out by lab tests
 - Synovial fluid WBC 50k cutoff misses 1/3rd of cases
 - ESR 30 cutoff is highly sensitive (>95%) but nonspecific