

EM CASE OF THE WEEK

BROWARD HEALTH MEDICAL CENTER: DEPARTMENT OF EMERGENCY MEDICINE



When there is inflammation or an abscess over a joint, it is important to rule out a septic joint first because it can severely damage the joint.

EM CASE OF THE WEEK

EM Case of the Week is a weekly “pop quiz” for ED staff. The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients.

We intend on providing better patient care through better education for our nurses and staff.



Infectious Arthritis

A 22 year old male comes to the ED with a “thumb injury”. Patient states that he accidentally closed a drawer on his thumb about a week ago and his thumb swelled up as a result. A few days later it got worse and eventually pus started draining. Patient denies any fever, chills, nausea, vomiting, diarrhea, thumb weakness, or loss of sensation in his thumb. Patient denies any IV drug use. He has no history of diabetes or immunosuppression. Vitals reveal T 97.7, P 69 bpm, BP 124/75, RR 16. Physical exam shows an open wound on the left thumb over the IP joint with +TTP, erythema, warmth, edema and dried purulent drainage. Range of motion of the IP joint is decreased. The rest of the physical exam is unremarkable. What is the next best step in this patient’s management?

- A. Prescribe oral antibiotics and discharge home
- B. IV antibiotics and immediate hand surgeon consult
- C. Incision and drainage, antibiotics, and discharge
- D. IV antibiotics and admit to the floor for observation



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Septic arthritis of the knee
 Courtesy of natural-health-news.com/

Take Home Points

- Bacterial infections are the most common cause of septic arthritis, although fungi can also cause it
- In addition to antibiotics, treatment involves needle aspiration or surgical drainage, depending on severity
- Vancomycin or clindamycin are used if Gram stain shows G+ cocci. Ceftazidime or ceftriaxone are used when there is G- bacilli

Infectious Arthritis

The correct answer is B. Given the location of the abscess/wound (at the IP joint), **the patient is at high risk for septic arthritis** and therefore needs immediate consultation with hand surgery for drainage. If not drained in a timely manner, the **joint can become infected and severely damaged**, making the joint dysfunctional. The patient is also be at a risk for **sepsis**.

Discussion:

Septic arthritis, or infectious arthritis, is a direct invasion of the joint space by a pathogen. Bacteria are the more common pathogens, but fungi can also be responsible. Bacterial invasion can be destructive to the joint. **Staphylococcus aureus is the most common cause overall.** However, in sexually active young individuals, Neisseria gonorrhoea is the most common cause. Streptococcal species are another big cause of septic joints. Predisposing factors include age > 80, diabetes mellitus, prosthetic joints, joint trauma or surgery, IV drug abuse, and rheumatoid arthritis.

Differential diagnosis:

When evaluating a patient with suspected septic arthritis, other conditions must also be ruled out, depending on the location and the age of the patient. Other diagnoses to consider include osteomyelitis, rheumatoid arthritis, gout, pseudogout, reactive arthritis, and tenosynovitis.

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<http://www.BrowardER.com>

and click on the "Conference" link. All are welcome to attend !

Evaluation:

Physical exam should include a thorough inspection of the affected joint for signs of swelling, erythema, warmth, and tenderness, which are all signs of infection. Range of motion should also be assessed because decreased active and passive range of motion is frequently found in septic arthritis patients.

Lab studies, specifically CBC, are helpful in diagnosis. Although it can be normal, WBC count is usually elevated in patients with septic arthritis. Blood cultures can be obtained in elderly patients or when sepsis is suspected. If gonococcal infection is suspected, one should obtain cultures from the cervix, rectum, and pharynx.

Joint aspiration is an important part of the workup for septic arthritis. Normal joint fluid is straw colored and clear. Infected joint fluid is yellow and less viscous than normal fluid. Fluid analysis shows increased WBC count, usually > 50,000, with > 75% PMNs. Culture of the joint fluid is the only definitive method for diagnosing septic arthritis.

Although radiographic studies are limited in diagnosing septic arthritis, they can be useful for ruling out other conditions on the differential. Plain radiographs can be helpful for diagnosing osteomyelitis. They can also show deposition of crystals in the joint. MRI is performed if there is suspicion for osteomyelitis.

Treatment:

Management of septic arthritis consists of timely **joint drainage** and administration of the appropriate antibiotic therapy. Drainage can be done **by needle aspiration or surgical drainage**, depending on the severity of the infection. If there are no signs of soft tissue infection and the patient is stable, needle aspiration can be performed. Two to three aspirations per day may be necessary in the first few days. If frequent aspirations are necessary, surgical drainage is preferred. The criteria for surgical drainage include adjacent soft tissue infection, failure to clear infections despite adequate needle aspiration and antibiotic therapy, and infection of joints such as the hip that are difficult to aspirate.

Antibiotic therapy must be empirical initially and also based on the Gram stain of the aspirated fluid. Vancomycin should be administered IV initially or if Gram stain shows Gram positive cocci. Clindamycin is an alternative if there is an allergy to vancomycin. If Gram stain of synovial fluid shows Gram negative bacilli, ceftriaxone or ceftazidime should be administered. Ceftazidime has the advantage of covering Pseudomonas and is a better choice in diabetics or when Pseudomonas infection is suspected. Antibiotic therapy should be continued for a total of 3-4 weeks. Patients are initially treated with IV antibiotics for 1 week followed by 14-21 days of oral antibiotics. A longer course of treatment may be warranted for patients with bacteremia or patients with a Pseudomonas infection.

**ABOUT THE AUTHOR:**

This week's case was written by Joseph Bishara. Joseph is a 4th year medical student from NSU-COM. He did his emergency medicine rotation at BNMC in October 2015. Joseph plans on pursuing a career in Internal Medicine after graduation.