

EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE



Care Warriors

Author: Frishta Abawi, MS IV | Editor: Ajith Susai D.O.

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An Unusual Case of Septic Arthritis

A 34-year-old female with a past medical history of tricuspid valve endocarditis, osteomyelitis of the right sternoclavicular joint, and IV drug abuse presents to the ED with a right sided anterior chest wall subclavicular abscess that has been draining pus for the past 3 days. She was admitted to North Broward on July 1st for incision and drainage of the abscess, but left against medical advice on July 6th. She denies any fever, chills, nausea, vomiting, or chest pain. The patient has a temperature of 100.1F and is tachycardic in the ED. On physical exam, the patient has a deep, right sided 6cm by 3cm abscess with erythema, swelling, and purulent drainage. Remainder of the cardiac exam is within normal limits. Which of the following is the most appropriate initial step for this patient's condition?

- A. Cefazolin 2gm IV every 8 hours
- B. EKG, troponins, echocardiography
- C. Blood cultures, chest x-ray, and chest CT
- D. Cardiology Consult
- E. Irrigate the wound with normal saline, pack the wound with gauze, and discharge home



Patient's initial presentation: right sided chest abscess over SCJ (Figure 1)

The sternoclavicular joint makes up a small percentage of joint infections, making it a very rare diagnosis.

Careful inspection of the abscess upon patient presentation should rule out necrotizing infection of the skin and underlying muscles. A CT scan will reveal air in the tissue and muscles. Emergency surgical debridement may be indicated.

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.

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Department of Emergency Medicine
1625 SE 3rd Avenue
Fort Lauderdale, FL 33316

The correct answer is C.

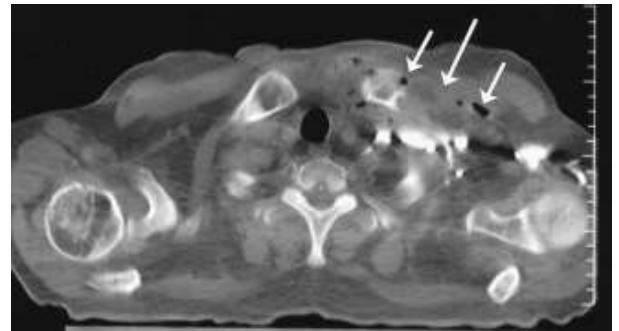
Initial lab testing must be performed before beginning treatment with antibiotics. Blood cultures are positive in 50% of cases. In addition, radiographs of the infected joint will reveal if there is an underlying osteomyelitis. CT scan will show clavicular erosion and if the abscess is involved in the surrounding tissue. Incision and drainage is usually performed to obtain tissue samples for culture. Surgical debridement should also be performed. If the abscess is deep, or bone destruction exists, resection of the SCJ is recommended (Burkhart, et. al. 2003).

Discussion

Acromioclavicular and sternoclavicular septic arthritis is very rare, making up about only 1% of all infection arthritis cases. Risk factors include AIDS, Diabetes, IV drug abuse, and malignancy. Untreated septic arthritis can lead to sepsis, chronic osteomyelitis, and possibly death (Corey, et. al. 2015). Most cases of bacterial arthritis occur via hematogenous spread to the joint. Because the joint capsule is very superficial, infection can quickly spread beyond the joint, which may lead to fistula formation, cutaneous abscess, or mediastinitis (Burkhart, et. al. 2003). In specific cases, bacterial arthritis can be a sign of infective endocarditis, especially in patients who are active IV drug users. The suspicion is higher if the causative bacteria is *Staphylococcus aureus*, enterococci, or streptococci (2017 UptoDate).

Diagnosis of sepsis involving the clavicular joint is made by aspiration or CT/MRI. MRI is useful in assessing for pus formation around the muscles or for detecting osteomyelitis. *Staph. Aureus* is responsible for the arthritis in over 50% of cases. Septic arthritis of either the acromioclavicular or sternoclavicular joint has been associated with abscess formation (Nusselt, et. al. 2011).

Patients may experience increased edema, pain, and a fever. SCJ infections usually require surgical intervention (Corey, et. al. 2015).



CT showing left SCJ infection with bone destruction and air in surrounding soft tissue

<https://doi.org/10.1067/mtc.2003.172> (Figure 2)

Treatment

An early diagnosis of SCJ septic arthritis allows for ideal treatment and avoids recurring infection. If the infection is identified at an early stage, it can be treated by simple incision, drainage and debridement, followed by antibiotic therapy. However, studies have shown that this procedure led to recurrence of the infection, and that surgical resection of the SCJ resulted in less complications (Nusselt, et. al. 2011).

Septic arthritis due to methicillin-resistant *S. aureus* should be treated with Vancomycin. Methicillin-susceptible *S. aureus* should be treated with Cefazolin (2g IV every 8 hours), nafcillin, or oxacillin (2g IV every 4 hours). Gram negative rods can be treated with a 3rd generation cephalosporin (2017 UptoDate).

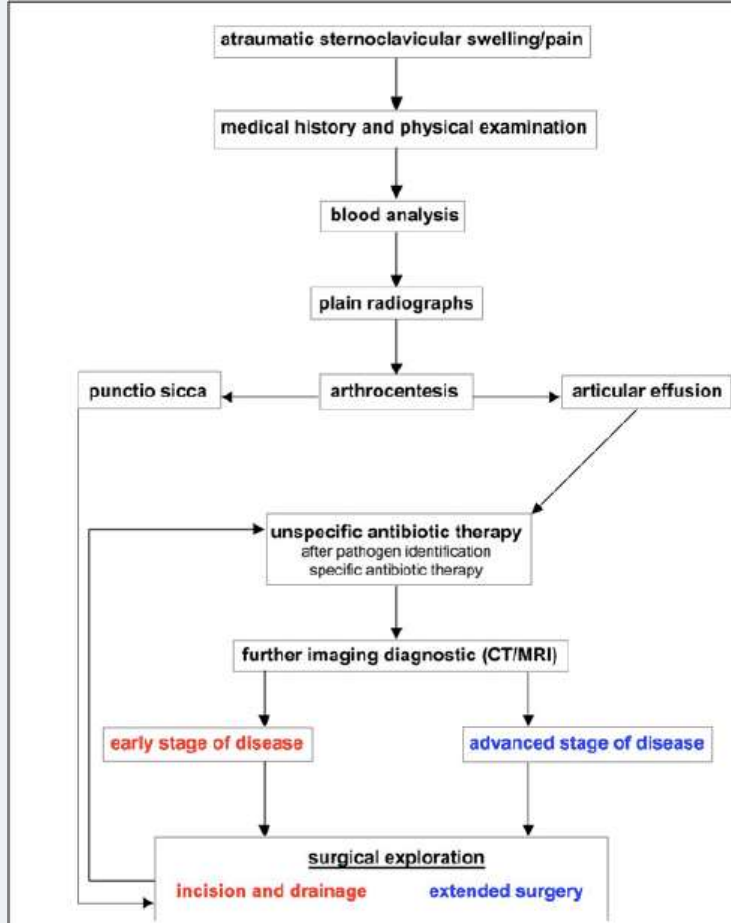
If CT or MRI showed osseous destruction or signs of osteomyelitis, a partial resection of the SCJ or surrounding soft tissue is necessary. However, surgery for a septic SCJ joint is very challenging because of its anatomic location near major vessels, and the thin skin overlying the area (Nusselt, et. al. 2011).

For the best treatment, and to prevent long term hospitalization of patients, an early diagnosis is crucial, along with surgical debridement and organism specific treatment.

For a list of educational lectures, grand rounds, workshops, and didactics please visit BrowardER.com and click on the "Conference" link.

All are welcome to attend!

Flowchart for Diagnosis and Treatment of Septic Arthritis of the SCJ



Diagnosis and Treatment of Septic Arthritis, <http://doi.org/10.1007/s00402-010-1178-0>(Figure 3)

The management of septic arthritis is related to the severity of the infection and the bacterial source. This flow chart can direct providers to the preferred medical intervention, based on whether the infection is in the early or advanced stages.

Take Home Points

- When clinically evaluating a soft tissue infection or abscess, search for pus or necrosis to rule out a necrotizing soft tissue infection.
- Serious skin and soft tissue infections and abscesses that have led to septic arthritis are capable of causing sepsis syndrome, in which case immediate antibiotic administration and resuscitation should be performed.
- CT Scan is considered the gold standard for abscess diagnosis, and can show reaction around the targeted joint
- Abscesses require drainage, and complicated abscesses (larger than 5cm, surrounding cellulitis, immunocompromised host) require antibiotics. Vancomycin for IV therapy is recommended.
- Septic arthritis only affects the SCJ in 1% of cases and is often misdiagnosed, leading to delay in diagnosis. This is a major issue in arthritis cases in the ER.



ABOUT THE AUTHOR

This month's case was written by Frishta Abawi. Frishta is a 4th year medical student from NSU-COM. She did her emergency medicine rotation at Broward Health North Medical Center in July 2018. Frishta plans on pursuing a career in Obstetrics and Gynecology after graduation.

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- UpToDate: Septic Arthritis in adults; Pathogenesis, Prognosis and Treatment⁵