



# STERNOCLAVICULAR JOINT SEPTIC ARTHRITIS WITH CLAVICULAR OSTEOMYELITIS IN A PATIENT WITH INFECTIVE ENDOCARDITIS

Raja Saravanan MD, Andikan Udoh MD, Michelle Arsenault MD, Amir Ausef MD  
Baton Rouge General Internal Medicine Residency Program



## Introduction

Septic arthritis and osteomyelitis usually occur secondary to hematogenous seeding of bacteria in the venous sinusoids of the bones. Patients can have indolent symptoms like pain without any fever.[1] The involvement of the sternoclavicular joint is infrequent, comprising 1% of infectious arthritis cases. [2] The incidence of synchronous septic arthritis and infective endocarditis has been less than 4% in a recent systematic review. [3] Staphylococcus aureus is the most common isolated organism.

## Case Presentation

A 45-year-old male presented to the hospital with a 1-week history of fever, chills, and generalized weakness. A review of the systems was otherwise unremarkable. He has a history of untreated hepatitis C infection. He was an active intravenous drug user. On presentation, he was hypotensive, tachycardic, afebrile, and saturating well on room air. Physical examination revealed multiple needle marks in bilateral cubital fossae and a 3/6 holosystolic murmur in the tricuspid area. No Osler's nodes, Janeway lesions, or splinter hemorrhages were seen.

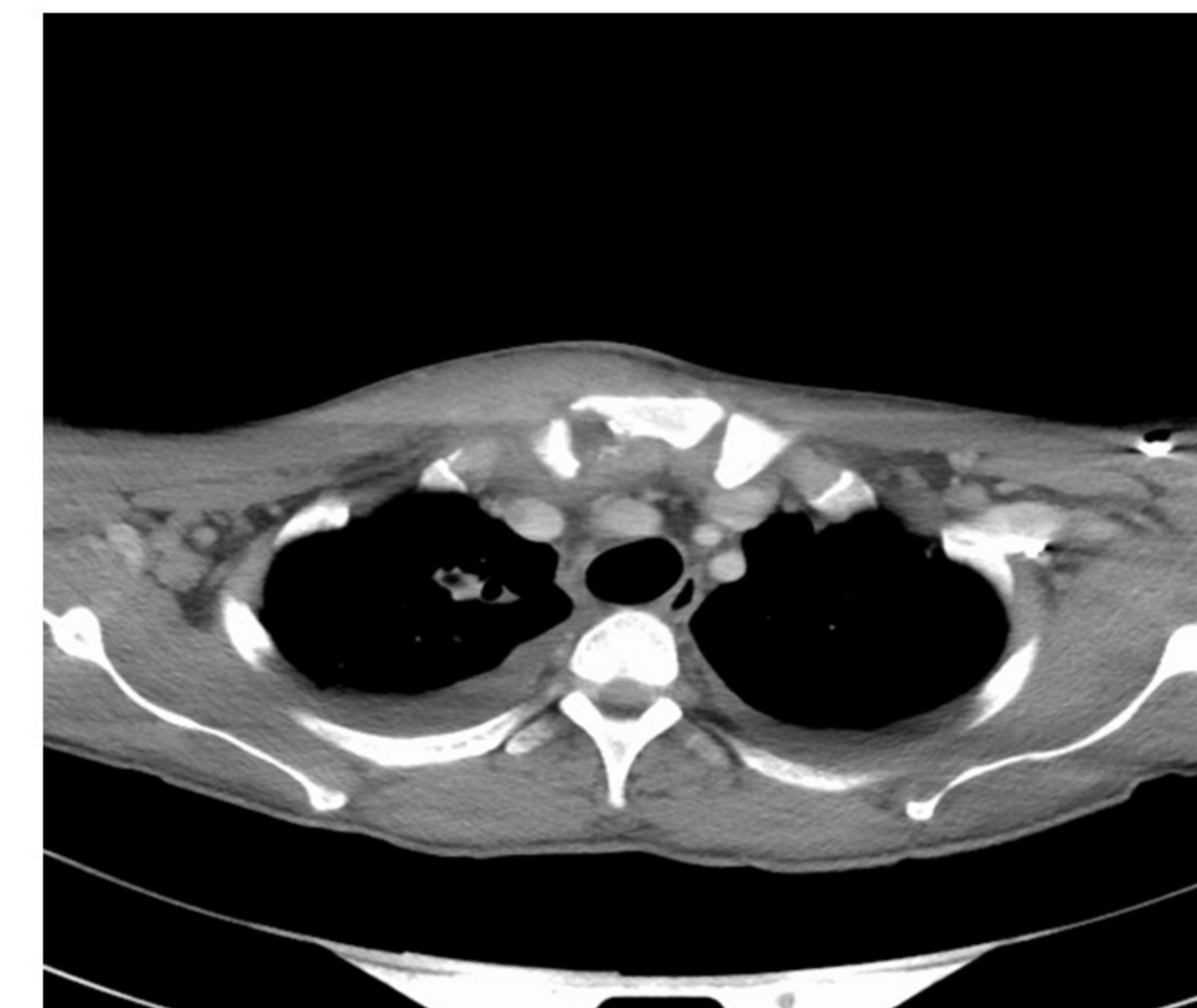
Initial labs revealed elevated creatinine, alkaline phosphatase, total bilirubin, and neutrophilic leukocytosis. Chest x-ray showed bilateral pulmonary opacities.

## Clinical Course

CT chest revealed bilateral multifocal lesions suspicious for pulmonary septic emboli. With high clinical suspicion for IE, three sets of blood cultures were obtained, and he was initiated on vancomycin and ceftriaxone. A Trans-thoracic echocardiogram revealed an ill-defined lesion on the tricuspid valve with moderate to severe tricuspid regurgitation. A trans-Esophageal echocardiogram confirmed a 1.7 X 0.65 cm vegetation on the tricuspid leaflet. Blood cultures grew methicillin-sensitive Staphylococcus aureus. A definitive diagnosis of IE was confirmed using Modified Duke's criteria. Antibiotics were de-escalated to cefazolin. Repeat blood cultures at 48 hours were negative.

On day 7 of admission, a new prominent non-erythematous and slightly tender swelling at the right sternoclavicular joint was noted. A repeat CT scan of the chest showed septic arthritis of the right sternoclavicular joint, clavicular osteomyelitis, and surrounding edema. He underwent an arthrotomy of the right sternoclavicular joint with dissection and debridement of the medial clavicle and adjoining manubrium. Tissue cultures grew Staphylococcus aureus. A peripherally inserted central venous catheter was placed with plans to complete the 6-week IV cefazolin course from the debridement day. A wound vac was placed with regular wound care given.

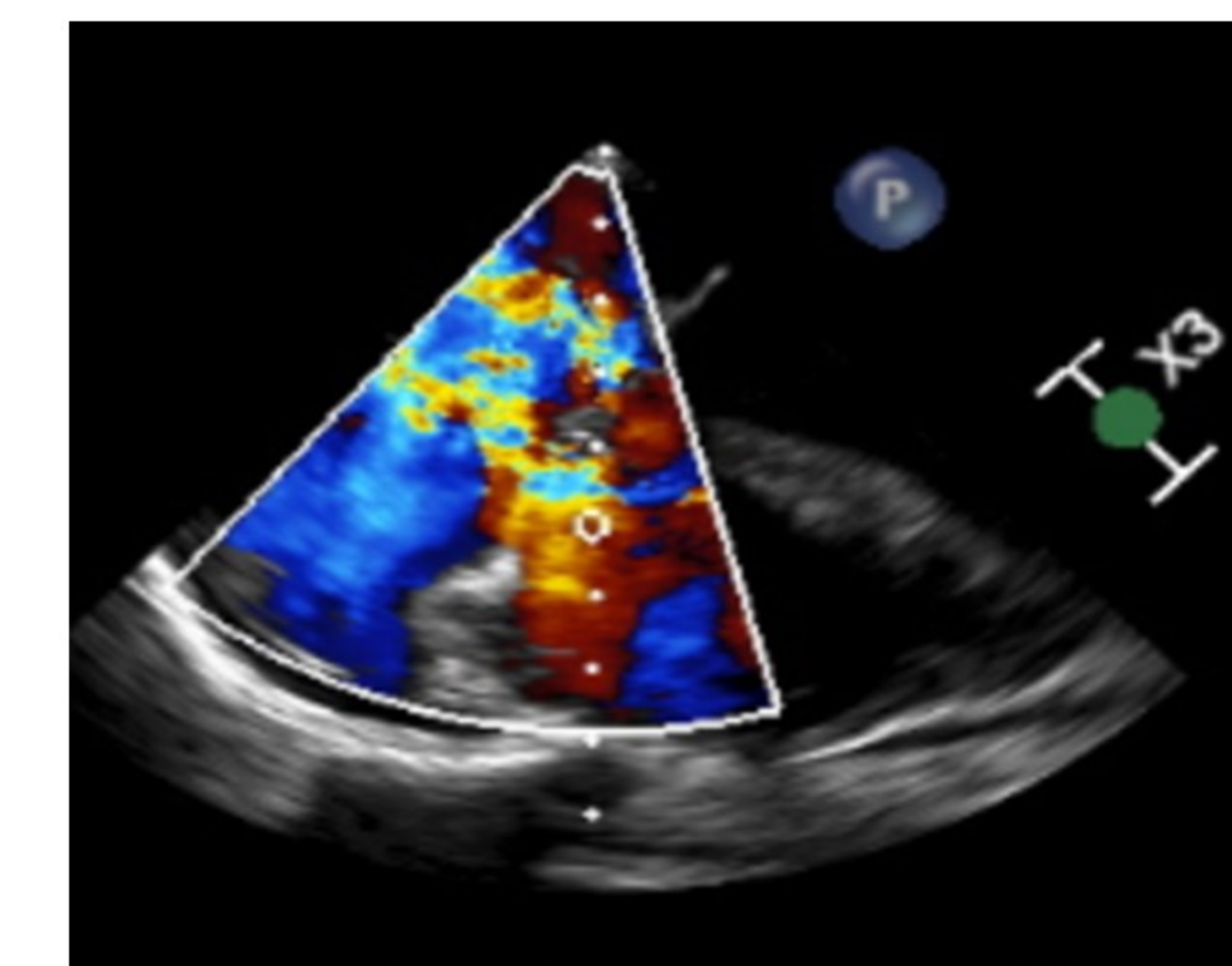
## Images



COMPARISON OF THE RIGHT STERNOCLAVICULAR JOINTS ON CT CHEST ON DAY 1 (on the left) and DAY 7 (on the right)



STERNOCLAVICULAR JOINT FLUID COLLECTION WITH INVOLVEMENT OF THE ADJOINING CLAVICLE AND MANUBRIUM



TRANS-ESOPHAGEAL ECHOCARDIOGRAM SHOWING TRICUSPID VEGETATION (on the left) AND SEVERE TRICUSPID REGURGITATION (on the right)

## Discussion

- Musculoskeletal manifestations of IE include polyarthralgia, aseptic synovitis, septic monoarthritis or polyarthritis, osteomyelitis, or myalgia.
- Common risk factors associated with Sternoclavicular joint infections include IV drug use, trauma, indwelling vascular catheter, and distant site infection.
- Staphylococcus aureus is the most common causative organism in almost half of the cases, with relatively rare isolation of Pseudomonas aeruginosa, Brucella melitensis, Mycobacterium tuberculosis, and E. coli
- Surgical intervention by incision and debridement with directed antibiotic therapy is the mainstay of treatment in sternoclavicular joint infections. Several case reports have demonstrated good functional results following surgical intervention with soft tissue reconstruction. [4]
- Negative pressure wound therapy is an effective strategy in patients with risk factors for poor wound healing. [5]
- Serious complications include osteomyelitis, mediastinitis, and chest wall abscess, which could be prevented with timely intervention. Also, the infection could spread posteriorly to involve the greater vessels of the neck.

## Conclusion

- Septic joints, especially those not very symptomatic, can be easily overlooked, as described above. In a high bacterial load condition like IE, we recommend a daily thorough physical examination to identify subtle changes. Prompt identification and management could potentially avoid the life-threatening complications mentioned above.
- Treatment often includes surgical drainage followed by a prolonged course of IV antibiotic therapy and wound care in selected cases. Long-term complications postoperatively could affect the stability and mobility of the shoulder joint.
- Management involves a coordinated approach from a multidisciplinary team, including a cardiologist, an infectious disease specialist, and a Cardiothoracic surgeon.

## References

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