

## An atypical sternoclavicular septic arthritis that was treated conservatively

R.D.K. YEAK<sup>1</sup>, P. HUSSIN<sup>1</sup>, Y. Y. YAP<sup>2</sup>, N.M. NIZLAN<sup>1</sup>

**SUMMARY: An atypical sternoclavicular septic arthritis that was treated conservatively.**

R.D.K. YEAK, P. HUSSIN, Y.Y. YAP, N.M. NIZLAN

*Sternoclavicular joint infection is rare. While it is usually treated surgically, we wish to report a case of non-operative treatment of such infection caused by an atypical organism. A 51-year-old woman, known case of diabetes mellitus, hypertension, dyslipidaemia and hyperthyroidism presented with pain over the left upper chest for two weeks associated with redness and fever for one week. The patient was diagnosed to have left sternoclavicular joint septic arthritis with medial end left clavicular osteomyelitis, left sternocleidomastoid, left anterior chest wall abscesses and left lower lobe posterior basal segment cavitating lung lesion with a single nodule in the lingular segment. The blood culture and sen-*

*sitivity grew extended spectrum beta lactamase (ESBL) Klebsiella pneumonia and the patient was treated with two weeks of meropenem. Computed Tomography was then repeated 2 months later and features were suggestive resolving of left sternoclavicular joint septic arthritis with medial end left clavicular osteomyelitis. The patient is still under surveillance and is currently symptom free 1 year later. We present a case to our knowledge is the first case of rare gram negative rod organism, ESBL Klebsiella pneumoniae infection which caused the left sternoclavicular septic arthritis with medial end left clavicular osteomyelitis, left sternocleidomastoid and left anterior chest wall abscesses. The patient is most likely immunocompromised from being a diabetic with hyperthyroidism. First line treatment can be with antibiotics and when that fails, patient can be treated surgically. Two weeks of antibiotics therapy is possible in selected patients with monitoring of the infective markers.*

KEY WORDS: Sternoclavicular joint - Septic arthritis - Conservative - Atypical - Osteomyelitis - Treatment.

### Introduction

Sternoclavicular joint infection is rare. While it is usually treated surgically, we wish to report a case of non-operative treatment of such infection caused by an atypical organism.

### Case report

A 51-year-old woman, known case of diabetes mellitus, hypertension, dyslipidaemia and hyperthyroidism presented with pain over the left upper chest

for two weeks associated with redness and fever for one week. She had pain on moving the left shoulder and the pain score was 7 on the visual analog score. Physical examination revealed diffuse swelling over the sternoclavicular junction measuring 3 cm by 2 cm which was erythematous and tender on palpation. It was not fluctuant and no punctum was seen. Urgent ultrasound was then performed which showed the presence of heterogenous echogenic debris starting from supraclavicular region extending inferiorly to the right upper thorax, measuring 6.1 cm x 2.0 cm x 5.7 cm at the level of THE second intercostal space. The ultrasound findings demonstrated the presence of right upper chest wall abscess. Computed tomography was then done which correlates with the ultrasound finding. The patient was diagnosed to have left sternoclavicular joint septic arthritis with medial end left clavicular osteomyeli-

<sup>1</sup> Department of Orthopaedic Surgery, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor, Malaysia

<sup>2</sup> Department of Haematology, Ampang Hospital, Ampang, Malaysia

Corresponding author: R. Yeak Dieu Kiat, e-mail: rayyeak@yahoo.com

tis, left sternocleidomastoid and left anterior chest wall abscesses, and left lower lobe posterior basal segment cavitating lung lesion with a single nodule in the lingular segment. Multidisciplinary treatment was done involving the cardiothoracic, surgical, respiratory and the orthopaedics team. The patient was started on intravenous cloxacillin in which she completed five days. On admission, blood investigations showed a total white of total white cell  $20.9 \times 10^9/L$ , C-reactive protein of 173 mg/L and erythrocyte sedimentation rate of 92 mm/hr. When the blood culture and sensitivity grew extended spectrum beta lactamase (ESBL) *Klebsiella pneumoniae*, patient was then switched to intravenous meropenem and she completed two weeks of meropenem. The infective markers improved with total white cell of  $10.6 \times 10^9/L$ , C-reactive protein of 3.27 mg/L and erythrocyte sedimentation rate of 86 mm/hr after two weeks of antibiotics therapy. Computed Tomography of the thorax was then repeated 2 months later and features were suggestive resolving of left sternoclavicular joint septic arthritis with medial end left clavicular osteomyelitis. The patient is still under surveillance and is currently symptom free 1 year later (Figures 1-6).

## Discussion

Sternoclavicular joint septic arthritis is uncommon and only constitutes 1% of all infectious arthri-

tis cases in the general population (1). There are different studies which advocate different treatment for this condition which ranges from different duration of antibiotics to surgery if failure of pharmacologic treatment occurs or a combination of both surgery and antibiotics. Sternoclavicular joint septic arthritis commonly occurs in the immunocompromised population. The predisposing factor in this case is diabetes mellitus and hyperthyroidism contributing to the poor immune system of the patient. The patient had an insidious onset as she already demonstrated osteomyelitis changes when seen at the hospital. Restrepo et al. demonstrated that changes in osteomyelitis, including demineralization, destruction, and sequestrum of bone, is usually evident on radiography within 10-12 days of this complication (2). *Staphylococcus aureus* is the most common cause of sternoclavicular joint septic arthritis (1, 3). However, in our case, the organism responsible for this case was ESBL *Klebsiella pneumoniae* which was uncommon. There had never been reports of *Klebsiella pneumoniae* infection of the sternoclavicular joint but there had been increasing prevalence of the infection in immunocompromised patients. *Escherichia coli* and *Klebsiella pneumoniae* are leading causes of serious infections in neonates, neutropenic cancer patients, and other patients with underlying diseases (4).

We speculate that the infection originated as a lung infection with resultant localized abscess formation and contiguous spread to the sternoclavicu-

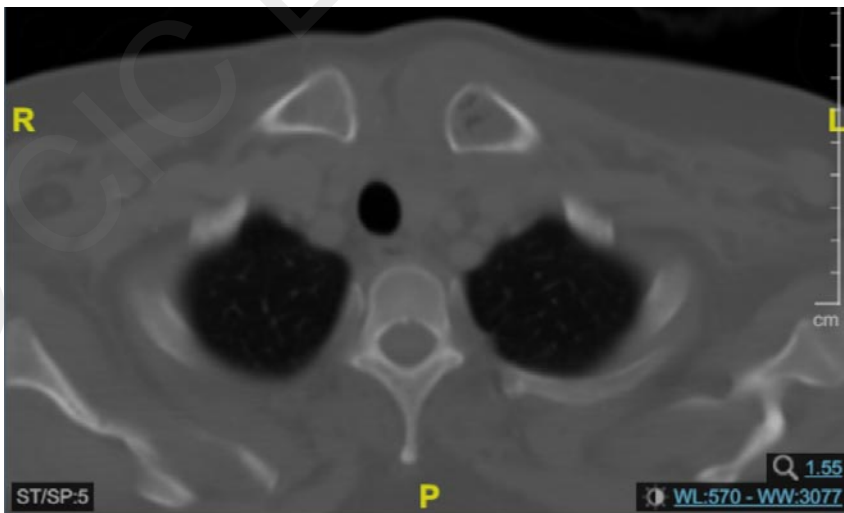


Figure 1 - Computed tomography (axial view and bone setting) showing that there is heterogenous fluid collection in the adjacent left chest wall from first to second anterior ribs with minimal intrathoracic extension and medial end of clavicle osteomyelitis.

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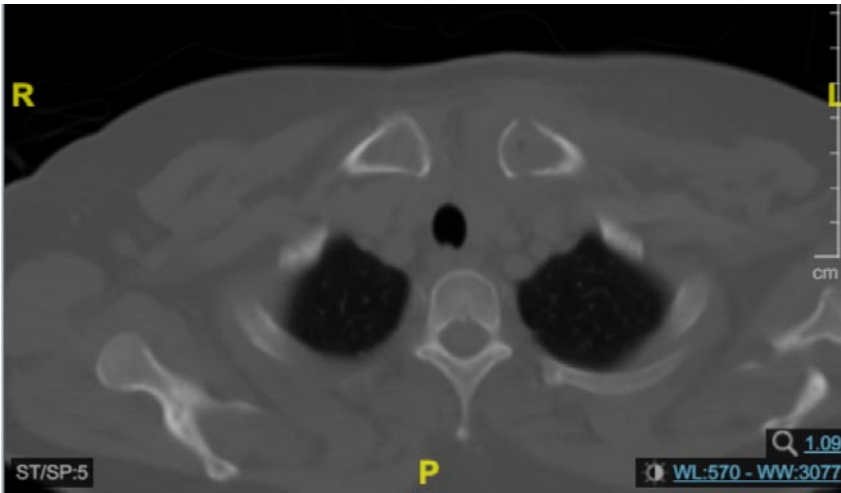


Figure 2 - Computed tomography (axial view and bone setting) showing that there is resolving fluid collection and medial end of clavicle osteomyelitis 2 months later.

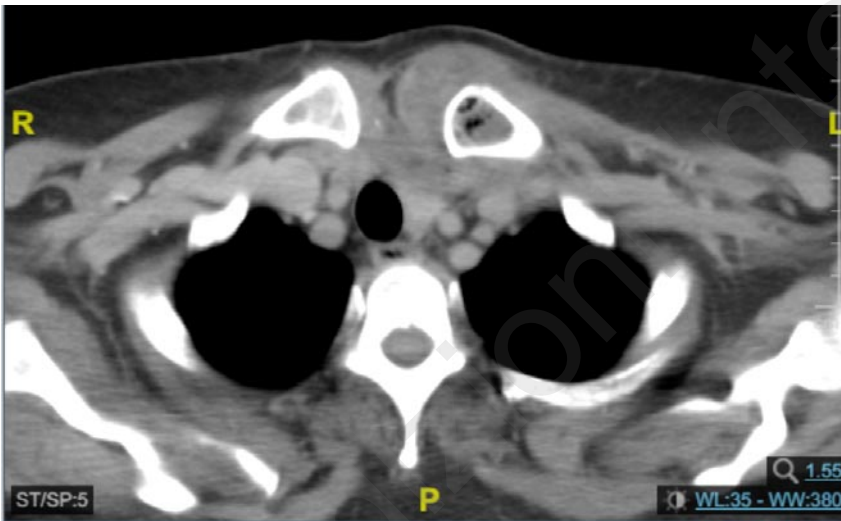


Figure 3 - Computed tomography (axial view and soft tissue setting) showing that there is heterogenous fluid collection in the adjacent left chest wall from first to second anterior ribs with minimal intrathoracic extension and medial end of clavicle osteomyelitis.



Figure 4 - Computed tomography (axial view and soft tissue setting) showing that there is resolving fluid collection and medial end of clavicle osteomyelitis 2 months later.

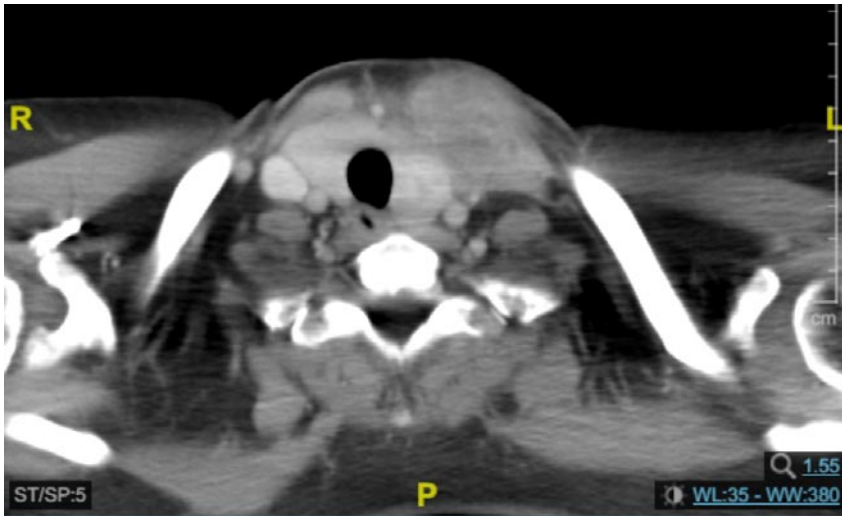


Figure 5 - Computed tomography (axial view and soft tissue setting) showing that there is heterogenous fluid collection starting from supraclavicular region extending to the sternocleidomastoid muscle.



Figure 6 - Computed tomography (axial view and soft tissue setting) showing that there is resolving heterogenous fluid collection from supraclavicular region extending to the sternocleidomastoid muscle.

lar joint. Alternatively, spread of the infection may have been hematogenous, originating from the lung infection. Chia et al. reported that patients with septic sternoclavicular arthritis need first line empirical parenteral antibiotics that cover *Staphylococcus aureus* (5). Due to the high prevalence of *Staphylococcus aureus*, the patient was treated empirically with 5 days of cloxacillin which was escalated to meropenem for two weeks once the organism was cultured from the blood culture and sensitivity. The patient recovered well despite having symptoms of adhesive capsulitis and is currently symptom free of septic arthritis.

## Conclusion

We present a case to our knowledge is the first case of rare gram negative rod organism, ESBL *Klebsiella pneumoniae* infection which caused the left sternoclavicular septic arthritis with medial end left clavicular osteomyelitis, left sternocleidomastoid and left anterior chest wall abscesses. The patient is most likely immunocompromised from being a diabetic with hyperthyroidism. Despite that, we have still managed to successfully treat her conservatively. First line treatment can be with antibiotics and when that fails, patient can be treated surgically.

Two weeks of antibiotics therapy is possible in selected patients with monitoring of the infective markers. Physicians should also be alert of sternoclavicular joint arthritis in patients presenting with chest pain albeit the uncommon presentation.

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*Consent*

Consent has been obtained from the patient for the publication of this case report and any accompanying images.

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