International Journal of Research in Orthopaedics
Amirthalingam S et al. Int J Res Orthop. 2023 Mar;9(2):450-453
http://www.ijoro.org

DOI: https://dx.doi.org/10.18203/issn.2455-4510.IntJResOrthop20230481

Case Report

Non traumatic pathological sternoclavicular joint dislocation an unexplored complication of clavicle osteomyelitis-a case report

Sivabalaganesh Amirthalingam*, Sundar Suriyakumar, Giriraj Harshavardhan, Karthikeyan Manickam

M.S Orthopaedics, Sri Ramachandra Institute of Higher Education and Research, Porur, Chennai, Tamil Nadu, India

Received: 10 January 2023
Accepted: 07 February 2023

***Correspondence:**
Dr. Sivabalaganesh Amirthalingam,
E-mail: sivabalaganeshamirthalingam@gmail.com

ABSTRACT

Non-traumatic pathological sternoclavicular joint dislocation due to medial end of clavicle osteomyelitis is extremely rare. This kind of rare complication should be anticipated while encountering these kinds of cases. A sixty-three-year-old male came with pain and swelling over the left neck and was diagnosed to have left clavicle osteomyelitis. The unexplored complication of sternoclavicular joint dislocation and successful management of such complications has been discussed in this case report. To best of our knowledge this is the first case report of a non-traumatic pathological sternoclavicular joint dislocation due to clavicle osteomyelitis. This case report will supplement the inadequate literature in management of such cases.

Keywords: Non traumatic dislocation of sternoclavicular joint, Subluxation of sternocalavicular joint, sternoclavicular joint dislocation and subluxation, Infection of sternoclavicular joint, Clavicle osteomyelitis, Clavicle excision

INTRODUCTION

Sterno clavicular joint dislocation are very rare and constitutes of only 3% of dislocation in the shoulder region.[1] The most common cause of sternoclavicular joint dislocation is high velocity motor vehicle trauma.[2] To best of our knowledge non traumatic sternoclavicluar joint dislocation as a complication of clavicle osteomyelitis is not yet reported in literature. We report a case of medial end clavicle osteomyelitis with a rare complication of non-traumatic pathological sternoclavicular joint dislocation.

CASE REPORT

A sixty-three-year-old male came with pain and swelling over the left neck and difficulty in swallowing with low-grade intermittent fever and cough with expectoration for 15 days. He was taken to a nearby hospital where a biopsy was taken and he was diagnosed to have left clavicle osteomyelitis. He was referred to our hospital for further management.

On arrival he had a discharging sinus over the medial end left clavicle measuring approximately 3×1 cm in size (Figure 1 A). The clavicle was tender and warm. The discharge was seropurulent in consistency.

Radiographs were taken at the time of presentation and it showed bilateral lung fields with patch opacity-pneumonia and osteolysis of the medial end of clavicle (Figure 1 B).

Ultra sound neck showed ill-defined heteroechoic collections with free floating debris and multiple air foci in the suprasternal and left supraclavicular space with cutaneous opening.

CT thorax showed collection of 44 cc around the left clavicle at the stereo clavicular joint with erosion of the medial aspect of left clavicle, Sternoclavicular joints and left maubrium sternum with inflammatory changes in coronal cut (Figure 1 C) and axial cuts (Figure 1 D). Features of active end-bronchial spread of infection with mild pleura effusion.

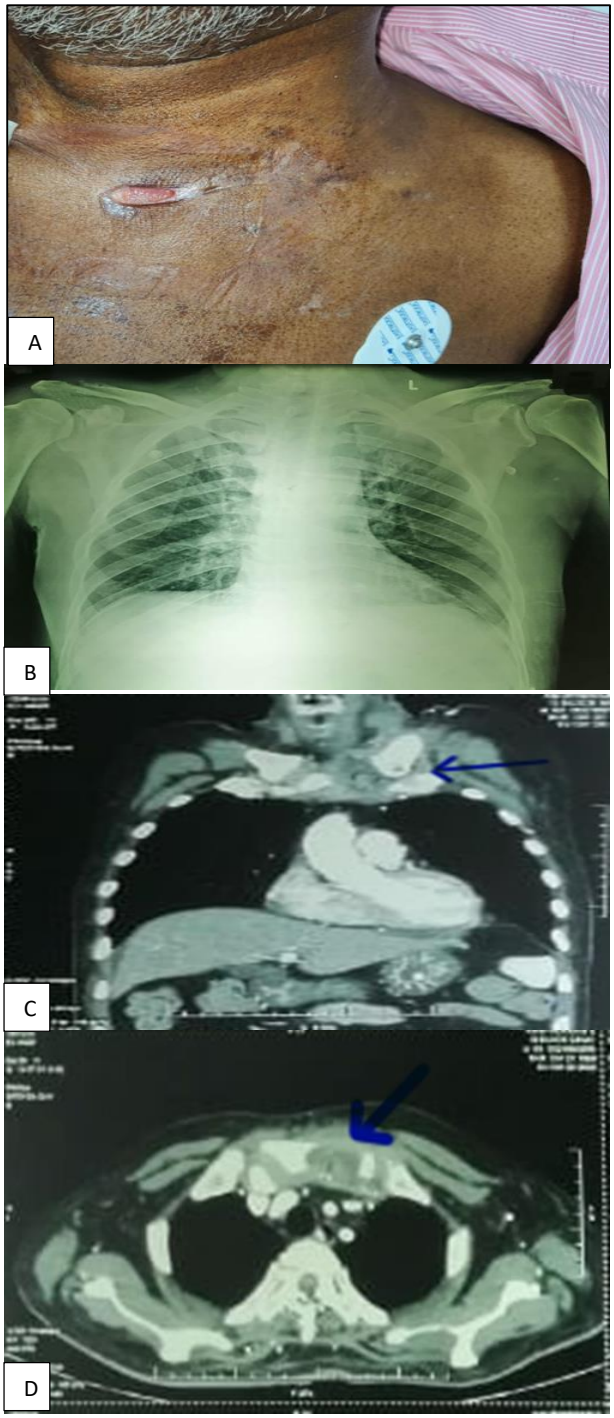

Figure 1 (A-D): Discharging sinus at the time of presentation over medial end of clavicle, presenting radiograph, coronal CT cuts showing erosion of clavicle with pus collection and axial cuts showing clavicle osteomyelitis and bone destruction.

The lab values and culture and sensitivity reports at the time of presentation showed evidence of infection and shown in Table 1 and 2.

Having differential diagnosis of septic arthritis of sternoclavicular joint, neck abscess, deep neck space infection, acute clavicle osteomyelitis in mind.

Table 1: Lab values at the time of presentation.

Variables	Values
Hemoglobin	6.6
Total counts	34250
Polymorphs (%)	94
Lymphocytes (%)	2

Table 2: Microbiological investigations.

Pus culture (From clavicle sinus)	***Escherichia coli***	**Sensitive to amikacin, cefixime, cefaperzone and sulbactum, piptaz and tobramycin**
Sputum culture	*Klebsiella pneumoniae*	Pan resistant

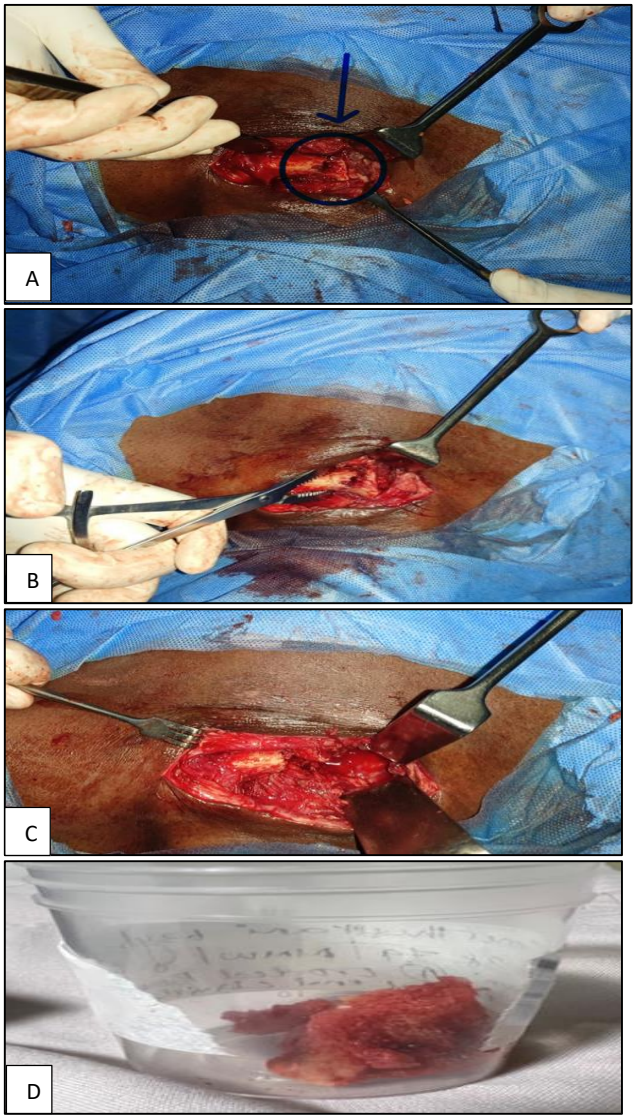

Figure 2 (A-D): Intraoperative image showing clavicle erosion, intraoperative image showing dislocated sternoclavicular joint and intraoperative of paprika sign seen after excision of clavicle. Excised medial end of clavicle.

After obtaining informed consent, the patient was taken for emergency wound debridement and abscess drainage. In supine position under anaesthesia an oblique incision was made over the sinus and extended laterally. The medial end of the clavicle was found to be eroded and dislocated from the sternum (Figure 2 A and B). We decided to respect the medial end of clavicle. Multiple drill hole are made 4 cm from the medial end of clavicle and holes were connected and osteotomy was performed and sent for histo-pathological examination. The medial end of clavicle was nibbled till fresh bleed (Paprika sign) was observed (Figure 2 C) and the excised clavicle is shown in (Figure 2 D). The wound edges were freshened and closed securing a drain.

Post procedure his vitals were stable and patient was started on intravenous antibiotics. The drain tube was kept for one week. The wound healed well (Figure 3a) and the patient's general condition was improved. He was able to do pain free overhead abduction at 6 weeks follow up (Figure 3 B) and radiographs taken at 6 weeks showed no residual infection (Figure 3 C).

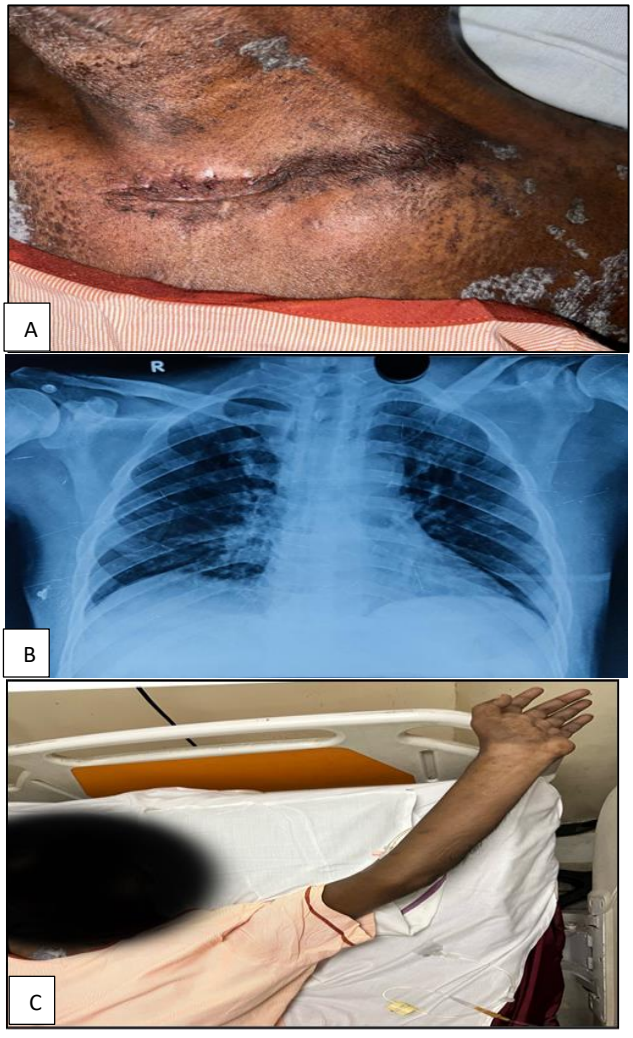

Figure 3 (A-C): Healed surgical wound at six weeks post op, radiographs taken at six weeks follow up and pain free abduction at six weeks follow up.

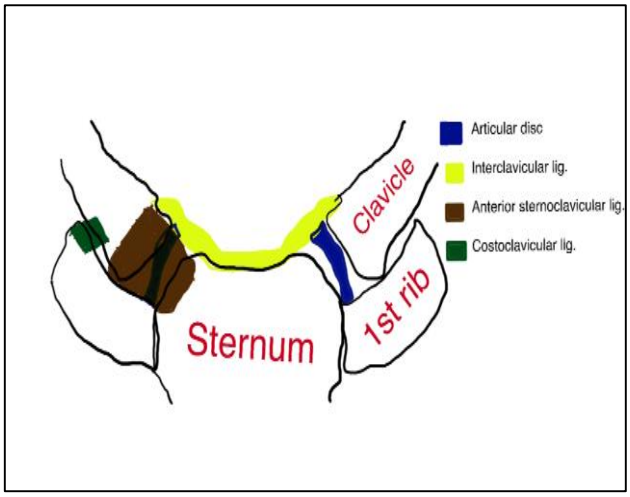

Figure 4: Ligaments of sternoclavicular joint.

DISCUSSION

The stereo clavicular joint is a part of the shoulder girdle which is often times neglected. It is one of the joint which connects the appendicular skeleton to the axial Skeleton.[3] It is a saddle type of synovial joint and the main stability is provided by the ligamentous structures surrounding the joint.[4] These ligaments are one of the strongest ligaments in the body posterior capsular ligament, Anterior sternoclavicular ligament, Costoclavicular ligament and interclavicular ligament.[4] The inter articular disc lies between the medial end of the clavicle and sternum it attaches with the first rib and give stability to the joint (Figure 4). Even though the joint is surrounded by so many ligamentous attachments there are some movements that occur which occur in this joint which is usually not noticed. Even though the movements in this joint is limited these movements are necessary for a normal shoulder to function. This joint provides 35 degrees in abduction and may travel 70 degrees anteriorly and posteriorly by gliding mechanism with the help of the articular disc. Some amount of rotational motion is also present in this joint.

Sterno clavicular joint dislocation are very rare and constitutes of only 3% of dislocation in the shoulder region.[1] The most common cause of sternoclavicular joint dislocation is high velocity motor vehicle trauma or a direct trauma to the joint. This joint injury is uncommon because it more centrally placed and the appendicular Skelton often takes the force due to collision. Non traumatic dislocation of a stereo clavicular joint is very rare and those cases which are reported in literature are due to ligamentous laxity disorders.[5]

Osteomyelitis is the infection of the bone marrow and it is more commonly seen in the long bones of the lower limb.[6] Infection of the clavicle is usually occur due to surgical procedures in the neck and chest region.[7]

Due to rarity and limited number of such case presentation being reported in literature the treatment options are not

standardised. Clavicle osteomyelitis and sternoclavicular joint infection has been successfully treated both surgically and conservatively.[8,9] Several writers have reported on medial clavicle excision, although few instances have been documented, and long-term follow-up data is sparse.[10] However, we decided to treat this condition surgically. The unexpected intraoperative finding of anteriorly dislocated sternoclavicular joint was challenging as the anatomical complexity of important structures like the trachea oesophagus and other neurovascular structures lying directly behind the joint.

Majority of the radiological investigation could not pick up the dislocation so the special views like serendipity view or Heinig view has better sensitivity in detecting sternoclavicular joint dislocations.[1,11]

We successfully treated medial end clavicle osteomyelitis with sternoclavicular joint dislocation by performing a medial end clavicle osteotomy and excision. There is no residual source infection and the patient is pain free till date.

CONCLUSION

To best of our knowledge this is the first case to be reported in literature of a non-traumatic anterior sternoclavicular joint dislocation due to clavicle osteomyelitis. This kind of rare complications is also a possibility and should be kept in mind. This case report will supplement the inadequate literature in management of such cases.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Morell DJ, Thyagarajan DS. Sternoclavicular joint dislocation and its management: A review of the literature. World J Orthop. 2016;7(4):244-50.
2. Kiel J, Ponnarasu S, Kaiser K. Sternoclavicular Joint Injury. In: StatPearls. Treasure Island (FL): StatPearls Publishing. 2022.
3. Edwin J, Ahmed S, Verma S, Tytherleigh-Strong G, Karuppaiah K, Sinha J. Swellings of the sternoclavicular joint: review of traumatic and non-traumatic pathologies. EFORT Open Rev. 2018;3(8):471-84.
4. Epperson TN, Varacallo M. Anatomy, Shoulder and Upper Limb, Sternoclavicular Joint. In: StatPearls. Treasure Island (FL): StatPearls Publishing. 2022.
5. Garcia JA, Arguello AM, Momaya AM, Ponce BA. Sternoclavicular Joint Instability: Symptoms, Diagnosis and Management. Orthop Res Rev. 2020;12:75-87.
6. Elisavet-Anna C, Charalampos A, Konstantinos B, Emmanuel R. A Rare Case of Clavicle Osteomyelitis in a Child and Literature Review. Case Rep Pediatr. 2016;8252318:5.
7. Alessi DM, Sercarz JA, Calcaterra TC. Osteomyelitis of the Clavicle. Arch Otolaryngol Head Neck Surg. 1988;114(9):1000-2.
8. Kwon HY, Cha B, Im JH, Baek JH, Lee J-S. Medical management of septic arthritis of sternoclavicular joint: A case report. Medicine. 2012;99(44):e22938.
9. Muesse JL, Blackmon SH, Ellsworth WA, Kim MP. Treatment of Sternoclavicular Joint Osteomyelitis with Debridement and Delayed Resection with Muscle Flap Coverage Improves Outcomes. Surg Res Pract. 2014;747315:6.
10. Acus RW 3rd, Bell RH, Fisher DL. Proximal clavicle excision: an analysis of results. J Shoulder Elbow Surg. 1995;4(3):182-7.
11. Goh YP, Kamali MA, Hoy G, Tate J, Rotstein A. Dynamic assessment of sternoclavicular joint instability using four-dimensional computed tomography. J Med Imaging Radiat Oncol. 2019;63:216-21.

Cite this article as: Amirthalingam S, Suriyakumar S, Harshavardhan G, Manickam K. Non traumatic pathological sternoclavicular joint dislocation an unexplored complication of clavicle osteomyelitis-a case report. Int J Res Orthop 2023;9:450-3.