Case Report

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Surgery Section

Anterior Chest Wall Pyomyositis with Extensive Spread: A Case Report

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ABSTRACT

Pyomyositis is an acute bacterial infection of skeletal muscle, most commonly caused by *Staphylococcus aureus*, including Methicillin-Resistant Strains *Aureus* (MRSA). Though traditionally seen in tropical regions, cases in temperate climates are rising, especially in immunocompromised individuals. We report a case of a 75-year-old male who developed anterior chest wall swelling and pain after minor trauma. He had underlying hyperglycaemia and acute kidney injury. Imaging revealed a large collection from the right upper abdominal wall extending into the chest, neck, and mediastinum, with contralateral spread. Empirical antibiotics was started, and emergency incision and drainage yielded ~1000 mL of purulent substance. Despite therapeutic intervention, the patient's condition progressively deteriorated, ultimately resulting in death. Subsequent culture findings confirmed MRSA infection. This case is notable for the unusual anatomical spread, emphasising early recognition and intervention in at-risk individuals.

Keywords: Abscess, Methicillin-resistant staphylococcus aureus, *Staphylococcus aureus*

CASE REPORT

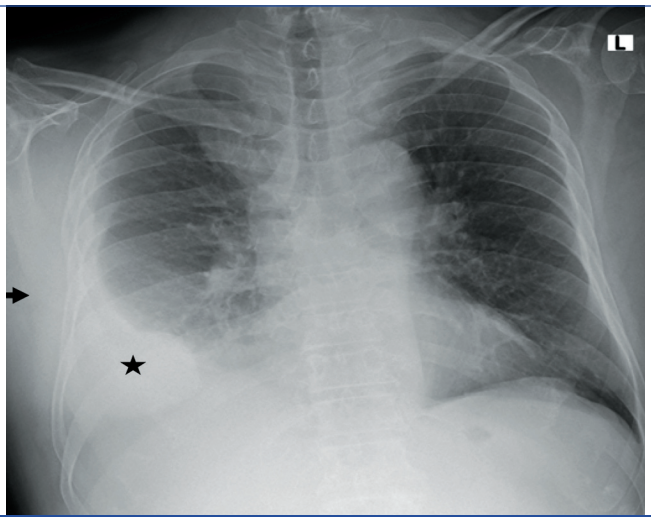
A 75-year-old male presented to the general surgery outpatient department with anterior chest wall swelling and pain for 10 days. He had sustained trauma two weeks earlier when a motorcycle fell on his chest at low velocity. On examination, swelling was noted in the right chest wall with tenderness, and warmth was present. However, there was no fever. Due to the acute presentation, malignancy was ruled out. Investigations revealed leucocytosis, elevated creatinine, hyponatraemia and hyperglycaemia [Table/Fig-1]. Chest X-ray was performed which showed right pleural effusion (asterisk) and increased soft-tissue opacity in the right lateral chest wall (arrow) [Table/Fig-2]. Ultrasound of the chest suggested an ill-defined echogenic collection (asterisks) involving the intramuscular and intermuscular planes of the right chest wall with punctate hyperechoic foci representing air pockets within (arrow) [Table/Fig-3a,b]. Due to elevated creatinine, a non-contrast Computed Tomography (CT) [Table/Fig-4a,b,5] was performed, which revealed a collection with air pockets extending from the right upper abdominal wall to the right chest and neck, extending from the umbilicus to the left anterior axillary line and right sternocleidomastoid. This was communicating with the contralateral neck space via the midline. This was further extending to the superior mediastinum and left chest wall. Empirical antibiotics were initiated. There was also minimal pleural effusion, which was managed conservatively. Emergency incision and drainage were performed, and the above findings were confirmed. There was extensive purulent material measuring approximately 1000 mL. Drains were placed, and samples were sent for culture, which later confirmed MRSA. Despite aggressive management, the patient succumbed after three days.

DISCUSSION

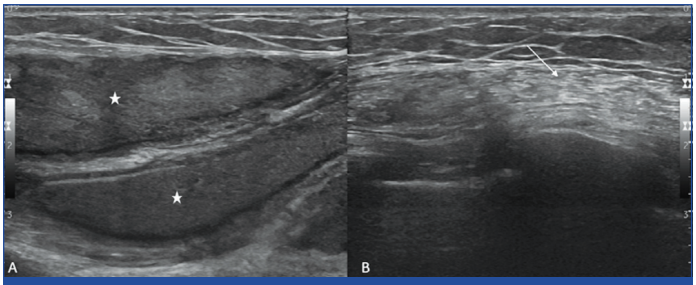
Pyomyositis, or suppurative myositis, is a bacterial infection of skeletal muscle leading to abscess formation. Traditionally seen in tropical climates, its incidence is increasing in temperate zones, particularly among immunocompromised individuals [1]. In tropical regions, it affects healthy children and young adults, while in temperate zones risk factors include diabetes, human immunodeficiency viruses/acquired immunodeficiency syndrome malignancy, chronic kidney disease and immunosuppression [2]. Minor trauma or muscular strain may predispose a muscle to infection via transient bacteraemia [3]. The common muscles involved are the quadriceps femoris, gluteus, iliopsoas and lower extremity muscles. However, in our case, the pectoralis major muscle was involved. The common dilemma would be to differentiate between pyomyositis and abscess. Abscesses

Parameters	Value
Haemoglobin	12.2 g/dL
White blood cells	22,820 /cu.mm
Platelets	3,10,000 /cu.mm
Urea	174 mg/dL
Creatinine	2.2 mg/dL
Sodium	<120 mmol/L
Potassium	5.5 mmol/L
Chloride	94 mmol/L
Bicarbonate	12 mmol/L
Random blood sugar	264 mg/dL
HbA1c	7.7 %
PT/INR	19.1/1.4
APTT	28 sec

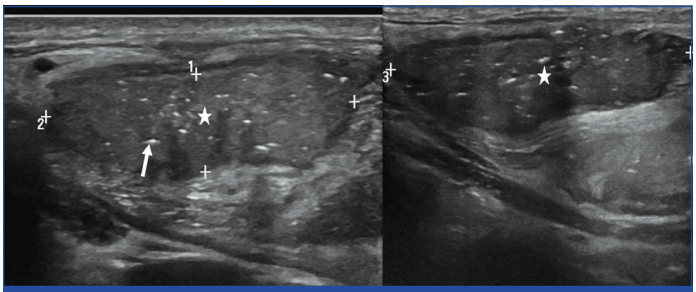
[Table/Fig-1]: Blood parameter of patients.
HbA1c: Glycosylated haemoglobin; PT: Prothrombin time; INR: International normalised ratio; APTT: Activated partial thromboplastin time



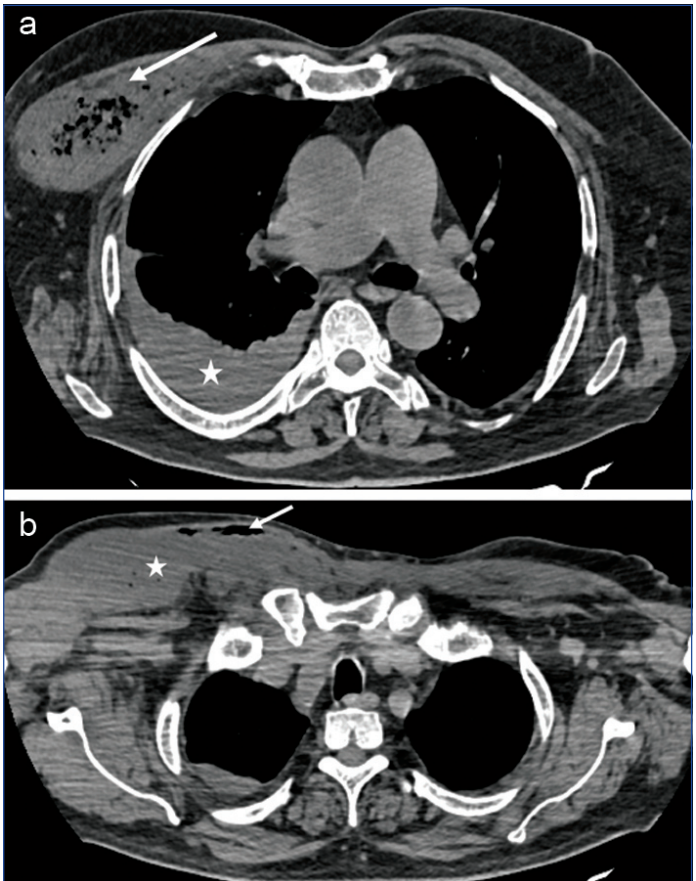
[Table/Fig-2]: Chest radiograph shows right pleural effusion (asterisk) and increased soft-tissue opacity in the right lateral chest wall (arrow).



[Table/Fig-3a]: USG shows an ill-defined echogenic collection involving the intramuscular and intermuscular planes of the right chest wall (asterisks in a). Normal left chest wall for comparison (white arrow in b).



[Table/Fig-3b]: USG shows ill-defined echogenic collection (asterisks) involving the intramuscular and intermuscular planes of the right chest wall with punctate hyperechoic foci representing air pockets within (arrow).



[Table/Fig-4]: a) Plain CT image shows right chest wall collection containing air pockets involving the pectoralis major, pectoralis minor muscles and the intermuscular plane (arrow) and right pleural effusion (asterisk); b) Plain CT image shows right chest wall collection (asterisk) containing air pockets (arrow) involving the pectoralis major, pectoralis minor muscles and the intermuscular planes.

usually present with impending rupture and clinical signs of skin involvement, whereas in pyomyositis, the clinical picture is subtle with almost no findings on the skin till the patient ends up in a septic state. There are case reports of chest wall pyomyositis, these are rare. According to Maravelas R et al., Pyomyositis is significantly associated with HIV, Type 1 and 2 diabetes mellitus, chronic kidney disease, obesity, and rheumatoid arthritis [4]. MRSA is the most common cause of infections. Hence, empirical SA therapy should be started to patients until the specific culture report comes [5].

[Table/Fig-5]: Plain CT image shows the collection containing air pockets extending to the neck within bilateral sternocleidomastoid muscles (bilateral arrows).

Clinically, pyomyositis progresses through three distinct stages. The initial, or invasive stage, presents with dull muscular pain, mild fever, and minimal swelling, often misdiagnosed as a simple muscle strain due to its non-specific nature. As the condition advances to the suppurative stage, abscess formation becomes evident, accompanied by localised pain, noticeable swelling, and systemic symptoms [6]. Our patient, though, presented in a suppurative state but quickly progressed to septic state. If not addressed promptly, the infection may escalate to the septic stage, characterised by systemic dissemination, sepsis, and potentially life-threatening multi-organ failure, warranting urgent surgical intervention [7]. Of particular concern is chest wall pyomyositis, which can mimic a range of conditions such as neoplastic lesions, hematomas, costochondritis, or even pulmonary pathologies [8]. These similarities pose a diagnostic challenge and often lead to delays in appropriate treatment. Thus, heightened clinical suspicion and early imaging are essential to distinguish pyomyositis from other differentials and initiate timely therapy to mitigate morbidity and prevent complications.

CONCLUSION(S)

Though rare, anterior chest wall pyomyositis is serious and often overlooked. This case underscores the need for clinical vigilance, especially in elderly or immunocompromised patients with recent trauma. Early imaging, microbiological confirmation, and timely intervention are essential to prevent complications and reduce mortality.

Declaration

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