

Diabetic Pyomyositis: A Forgotten Entity?—A Case Report

Ankan Pathak¹, Mainak Mandal², Nirmalya Roy³, Abhishek Chanda⁴, Poulami Das⁵, Soumyadeep Maity⁶, Abhishek Prahara⁷

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ABSTRACT

Tropical pyomyositis is an infectious disease that primarily targets skeletal muscle, presenting either as a widespread inflammation or a rapidly progressing necrotic process. *Staphylococcus aureus* is responsible for 90% of the cases, while other less common pathogens include group A *Streptococcus*, *Pneumococcus*, *Neisseria*, *Haemophilus*, *Serratia*, *Yersinia*, *Pseudomonas*, *Klebsiella*, and *Escherichia*. The rarity of the disease and the nonspecific initial symptoms often lead to a delayed diagnosis. This report discusses the case of a 56-year-old male with newly diagnosed type 2 diabetes who developed pyomyositis with multiple muscle abscesses, requiring extensive antibiotic treatment and surgical drainage. Early diagnosis is crucial, as pyomyositis can be fatal if not promptly treated.

Keywords: Case report, Diabetes, Pyomyositis, Tropical.

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INTRODUCTION

First identified by Scriba in 1885, pyomyositis was historically endemic to tropical regions, but has recently seen increased incidence in temperate zones.¹ It accounts for 1–4% of hospitalizations in tropical areas. Normally, skeletal muscle resists bacterial infections, but in tropical pyomyositis, bacteria can invade during transient bacteremia from procedures like dental manipulations or urinary catheterizations, particularly under immunocompromised conditions.^{2–4}

Tropical pyomyositis is often misdiagnosed due to its nonspecific initial presentation, leading to unnecessary investigations, prolonged hospital stays, increased costs, and worsened prognosis if treatment is delayed. Late-stage complications include compartment syndrome, sepsis, and death. Long-term effects can involve osteomyelitis, muscle scarring, and significant functional impairment.

Immunodeficiency is a major factor in the development of pyomyositis. Conditions predisposing individuals include HIV, diabetes, chronic renal failure, primary immunodeficiency diseases, malignancy, immunosuppressant use, chemotherapy, organ transplants, and intravenous drug use. Malnutrition, blunt trauma, and intense exercise may also increase the risk.

CASE DESCRIPTION

A 56-year-old male from a remote village, employed as a sweeper, was referred to our diabetic clinic with poorly controlled diabetes and a diagnosis of “frozen shoulder.” Clinical examination revealed severe tenderness and swelling over the right shoulder and trapezius muscle, along with an elevated body temperature. The patient was admitted for further evaluation. **Table 1** summarizes the relevant investigations conducted. **Figure 1** depicts the presence of pus in the trapezius muscle as observed during the USG of the joint and muscle.

With the presentation in mind, a provisional diagnosis of primary pyomyositis due to uncontrolled hyperglycemia was made. The patient was planned for incision and drainage after proper

^{1–7}Department of General Medicine, KPC Medical College & Hospital, Kolkata, West Bengal, India

Corresponding Author: Mainak Mandal, Department of General Medicine, KPC Medical College & Hospital, Kolkata, West Bengal, India, Phone: +91 9040729050, e-mail: mainakmandal99@gmail.com

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Table 1: Showing the blood work and radiological investigations

Parameter	Results
Hb	10.0 gm/dL
Total leucocyte count	11,300/cumm
Neutrophil	88%
ESR	68 mm/hr
CRP	24 mg/L
FBS	296 mg/dL
PPBS	388 mg/dL
HbA1c	16.1%
Creatinine	0.9 mg/dL
LFT	Within normal limits
Serum sodium	128 mEq/L
Serum potassium	3.3 mEq/L
ECG 12 leads	Sinus Tachycardia
Echocardiography	LVEF–68%, Normal study
TSH	3.64 µIU/mL
Chest skiagram	No abnormality detected
Urine routine examination	Glucose+++ , no pus cells

(Contd...)

Table 1: (Contd...)

Parameter	Results
25 (OH) Vitamin D	22.93 ng/mL (Normal range 30–100 ng/mL)
HbsAg, Anti HCV Ab, HIV 1 and 2	Non-reactive
CPK	145 µg/L (Normal range 10–120 µg/L)
USG of single joint and muscle	Right supraspinatus and right trapezius appear swollen with both hypo and hyperechoic echotexture and increased peripheral vascularity on application of CFI – features suggestive of inflammatory etiology
MRI single joint and muscle	High T2 intensity with low T1 intensity with peripheral contrast enhancement

glycemic control (Basal Bolus regimen). Approximately 50 mL of pus was aspirated from the trapezius muscle and sent for culture. The cultures revealed a growth of *Staphylococcus aureus*, sensitive to Piperacillin + Tazobactam and Clindamycin. The patient was put on injectable antibiotics for 2weeks.

His repeat blood work after 10 days of treatment revealed TLC – 6,300/cumm, CRP – 6, FBS 135 mg/dL and PPBS – 178 mg/dL. The tenderness and swelling had subsided, and the patient was afebrile.

DISCUSSION

The combined analysis of the clinical presentation, imaging, and laboratory values suggested that our patient had pyomyositis of the trapezius muscles. The treatment approach for pyomyositis typically depends on the stage of the disease at diagnosis.

According to studies by Larkin et al., Drosos, and Shepherd, the clinical presentation varies with the stage of the disease. This classification applies to both tropical and non-tropical

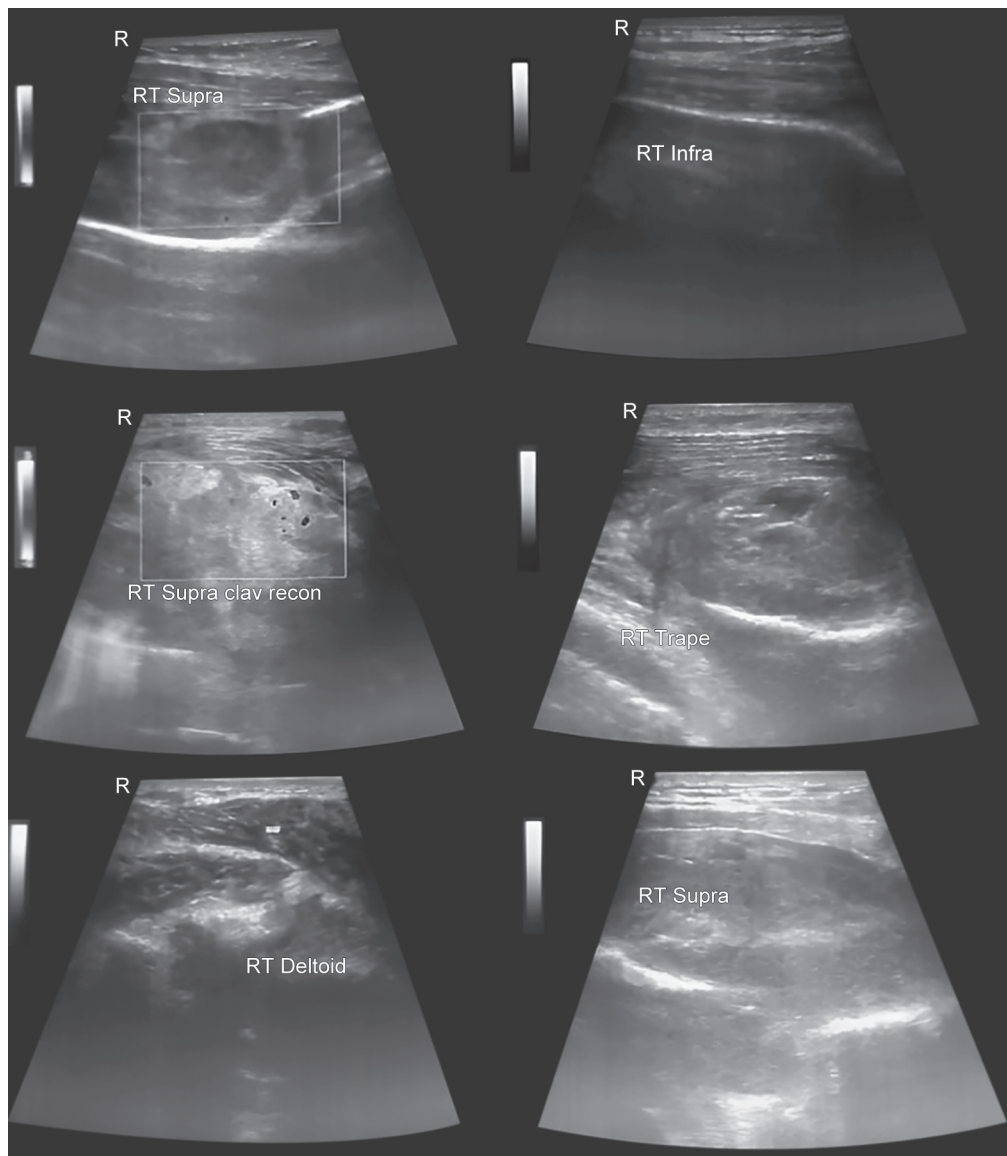


Fig.1: USG of joint/muscle showing pus collection in the trapezius muscle

pyomyositis, with the primary difference being geographical location.⁵⁻⁷

- First Stage (“Invasive stage”): This stage lasts about ten days and is characterized by minimal signs of inflammation. Patients often present with low-grade fever, painful firm swelling, and crampy local muscle pain. Laboratory findings may include leukocytosis, anemia, and eosinophilia. Aspiration at this stage typically yields no pus. Treatment usually involves intravenous antibiotics such as clindamycin or vancomycin. This stage may resolve on its own or progress to the next stage.
- Second Stage (“Suppurative stage”): Occurring between 10 and 21 days after symptom onset, this stage presents with more pronounced signs of inflammation, including muscle tension, edema, high-grade fever, and significant leukocytosis. Over 90% of patients are diagnosed at this stage, benefiting from incision and drainage or needle aspiration of the abscess, as antibiotics alone are insufficient for symptom relief. Without treatment, the condition can advance to the final stage.
- Third Stage (“Late stage”): If untreated, the infection disseminates, causing the patient to become critically ill with high-grade fever and systemic toxicity, potentially leading to septic shock, acute kidney injury, and long-term complications. About 5% of patients present with such severe symptoms, necessitating comprehensive supportive management, including fluids, antibiotics, and surgical intervention.⁸⁻¹⁰

Atypical presentations may occur in patients with HIV infection, diabetes mellitus, hematopoietic disorders, or other conditions impairing neutrophil function.¹¹ Diabetic patients with long-standing disease and poor glycemic control are particularly at risk due to compromised humoral and cellular defenses, as well as nerve and blood vessel damage.

Diagnosing pyomyositis can be challenging due to the nonspecific clinical features, which often overlap with common endemic febrile illnesses, leading to low clinical suspicion. Differential diagnoses include malaria, dengue, viral fevers, polymyositis, septic arthritis, osteomyelitis, cellulitis, lymphangitis, deep vein thrombosis, hematoma, tumors, synovitis, appendicitis, diverticulitis, and peritonitis.¹² Confirmation of diagnosis can be achieved through an abscess culture or a muscle biopsy.

CONCLUSION

Pyomyositis, an unfamiliar entity, may be fatal if not diagnosed early. The initial signs and symptoms are nonspecific, making it often underdiagnosed. A high level of suspicion is imperative in diabetic patients and/or patients with other types of immunocompromised

states; mainly in the presence of fever and myalgia without significant elevation of muscle enzymes. It needs to be noted that, though *Staphylococcus aureus* is the most common causative organism, it may not always be detected in blood cultures. Prompt antibacterial treatment is vital in its management and surgical intervention which, when relevant, should not be postponed. The prognosis remains excellent if the disease is promptly identified and managed appropriately.

ORCID

Mainak Mandal  <https://orcid.org/0009-0002-7226-2598>

Abhishek Chanda  <https://orcid.org/0009-0000-7731-5535>

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