Rapid-onset group A streptococcal pyomyositis after minor blunt leg trauma in an immunocompetent adult: a case report

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ABSTRACT

Background: Pyomyositis is uncommon in temperate regions and is usually caused by *Staphylococcus aureus*. Infections due to group A *Streptococcus* (GAS) are rare but can progress rapidly.

Case presentation: A healthy 50-year-old man presented with a 3-day history of left-calf pain and swelling 2 days after minor blunt trauma. He was tachycardic but normothermic. Work-up for thrombosis and cellulitis showed leukocytosis (24.9 × 10^9/l) and C-reactive protein 436 mg/l; Doppler leg ultrasonography and chest computed tomography (CT) were unremarkable. Within 18 hours, the limb became tense with new blisters and systemic instability. Urgent limb CT revealed extensive subcutaneous edema and fascial fluid. Fasciotomy identified intramuscular abscesses without necrotizing fasciitis. Cultures grew GAS sensitive to penicillin. Broad-spectrum intravenous (IV) antibiotics were streamlined to benzyl-penicillin, meropenem, and metronidazole; 2 weeks of IV therapy followed by 2 weeks of oral co-amoxiclav achieved near complete recovery.

Conclusions: GAS pyomyositis can progress rapidly even in immunocompetent adults; clinicians should suspect deep tissue infection when tachycardia and swelling are disproportionate to cellulitis, and act promptly with imaging, surgical consultation, and exploration.

Keywords: Group A *Streptococcus*, pyomyositis, temperate, tropical, trauma & orthopedic, case report.

Type of Article: CASE REPORT **Specialty:** General Medicine

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Introduction

Pyomyositis is a rare bacterial infection of skeletal muscle. The first case reported in the United Kingdom occurred in 1998, and its incidence since then remains difficult to determine due to underreporting. Historically, pyomyositis was more common in tropical regions than in temperate climates [1]. However, it is now increasingly recognized in temperate regions as well. Group A *Streptococcus* (GAS) pyomyositis commonly occurs in young adults and in immunocompetent patients in temperate climates but has a poor prognosis [2].

Primary pyomyositis is thought to arise from transient bacteremia without an identifiable portal of entry [3]. Even minor, non-penetrating muscle trauma may predispose to infection. Additional risk factors include immunocompromised states such as human immunodeficiency virus infection, diabetes, and malignancy [4].

We present a case of GAS pyomyositis that progressed rapidly within hours of admission but was successfully managed with timely diagnosis and intervention.

Case Presentation

A 50-year-old previously healthy man who worked at a manufacturing plant presented to the medical assessment unit of an enhanced local general hospital (e-LGH) at approximately 00:30 with a 3-day history of left calf pain and swelling. He had sustained a fall onto his left hip from a ladder 2 days earlier but had not experienced any immediate pain, injury, or difficulty with mobility following the incident. He denied having a fever, sore throat, or shortness of breath, although he did report one episode of dizziness.

His medical history included asthma, carpal tunnel syndrome, anxiety, and depression. His regular medications included montelukast, beclomethasone/formoterol and salbutamol inhalers, omeprazole, and duloxetine.

On admission, his vital signs were: temperature, 36.9°C; heart rate, 117 beats per minute; respiratory rate, 19 breaths per minute; oxygen saturation, 97% on room air; and blood pressure, 126/78 mm Hg. Physical examination revealed a grossly swollen and tender left calf,

without changes in skin color or evidence of skin breakdown. Systemic examination findings were otherwise unremarkable.

The initial differential diagnosis included deep vein thrombosis, possibly with pulmonary embolism, and cellulitis. The patient was started on therapeutic dalteparin and intravenous (IV) flucloxacillin while awaiting Doppler ultrasonography and computed tomography (CT) pulmonary angiography (CTPA). A mild acute kidney injury was managed with oral hydration. Blood test results are shown in Table 1.

Table 1. *Initial laboratory results.*

ANALYTE (REFERENCE RANGE)	RESULT
Hemoglobin (130-180 g/l)	132 g/l
White cell count (4.0-11.0 ×10⁹/l)	24.9 ×10⁹/l
Platelets (150-400 ×10⁹/l)	254 ×10⁹/l
Sodium (133-146 mmol/l)	131 mmol/l
Potassium (3.5-5.3 mmol/l)	3.8 mmol/l
Urea (2.5-7.8 mmol/l)	9.7 mmol/l
Creatinine (58-110 µmol/l)	131 µmol/l
Estimated glomerular filtration rate (≥60 ml/min/1.73m²)	50 ml/min/1.73m²
D-dimer (<500 ng/ml)	1499 ng/mL
Corrected calcium (2.20-2.60 mmol/l)	2.38 mmol/l
Phosphate (0.80-1.50 mmol/l)	0.81 mmol/l
Albumin (35-50 g/l)	30 g/l
Globulin (22-43 g/l)	37 g/l
Alkaline phosphatase (30-130 U/l)	128 U/l
Bilirubin (<21 µmol/l)	14 µmol/l
Alanine transaminase (<41 U/l)	37 U/l
C-reactive protein (<10 mg/l)	436 mg/l

Abbreviation: NA, not applicable.

Doppler ultrasonography of the left leg and the CTPA were negative for thrombosis or embolism. Magnetic resonance imaging (MRI) of the leg was requested later that day.

At approximately 20:00 the same day, nursing staff observed two new blisters on the posterior aspect of the patient's left leg. The swelling had worsened and extended into the left thigh. Despite appearing comfortable while seated, the patient continued to exhibit persistent tachycardia, with a heart rate of approximately 120 beats per minute. Electrocardiogram confirmed sinus tachycardia.

Given the rapid progression of swelling, elevated inflammatory markers (C-reactive protein and white cell count), and exclusion of other infection sources, necrotizing fasciitis was suspected. The case was discussed with the on-call trauma and orthopedics (T&O) registrar. The patient was transferred to the higher-level linked local general hospital (LGH) under a new model of shared service delivery.

Upon arrival at LGH around 00:30 the following morning, the patient appeared drowsy and unwell. He had worsening leg swelling, redness, hypotension, tachycardia, and a fever spike (Figure 2). The Laboratory Risk Indicator for Necrotizing Fasciitis score was 9, indicating a high suspicion for necrotizing fasciitis. In accordance with the health board's antimicrobial policy, antibiotics were changed to IV meropenem and clindamycin. IV fluids and other measures were initiated in line with the sepsis protocol. An urgent review by the T&O team prompted an emergency CT scan of the left leg (Figure 1). Imaging revealed circumferential subcutaneous edema, most prominent on the lateral aspect of the left thigh, extending to the entire leg. Intermuscular fascial fluid accumulation was noted between the gastrocnemius and soleus muscles, suggestive of extensive cellulitis and possible myositis. MRI was

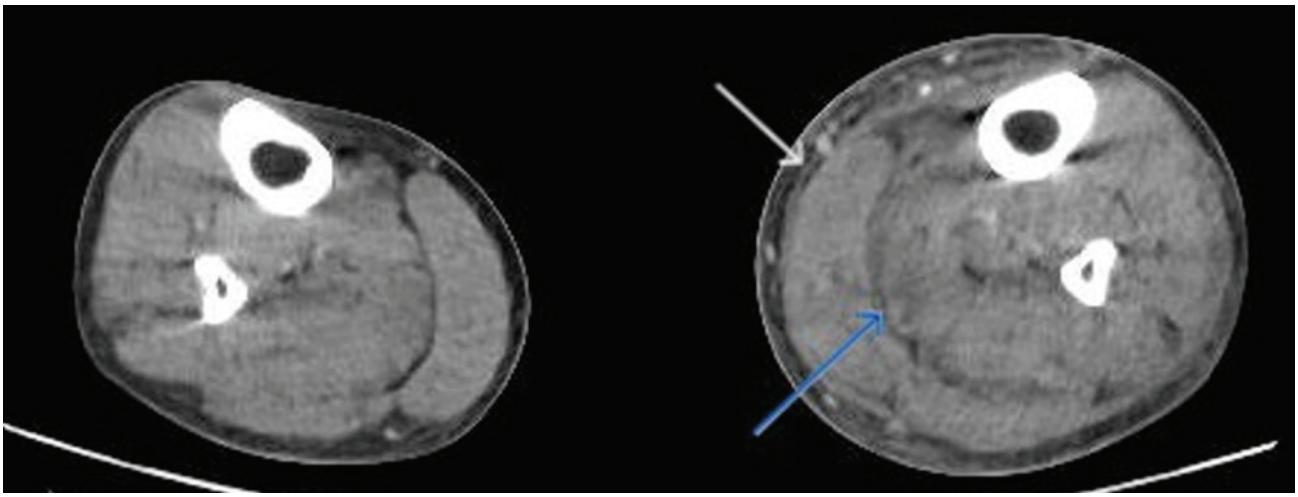

Figure 1. *CT showing subcutaneous edema and fascial fluid in left calf (arrow), consistent with deep infection. Left: Normal right leg. Right: Affected left leg. The top white arrow indicates subcutaneous edema; bottom blue arrow shows fluid between gastrocnemius and soleus muscles.*

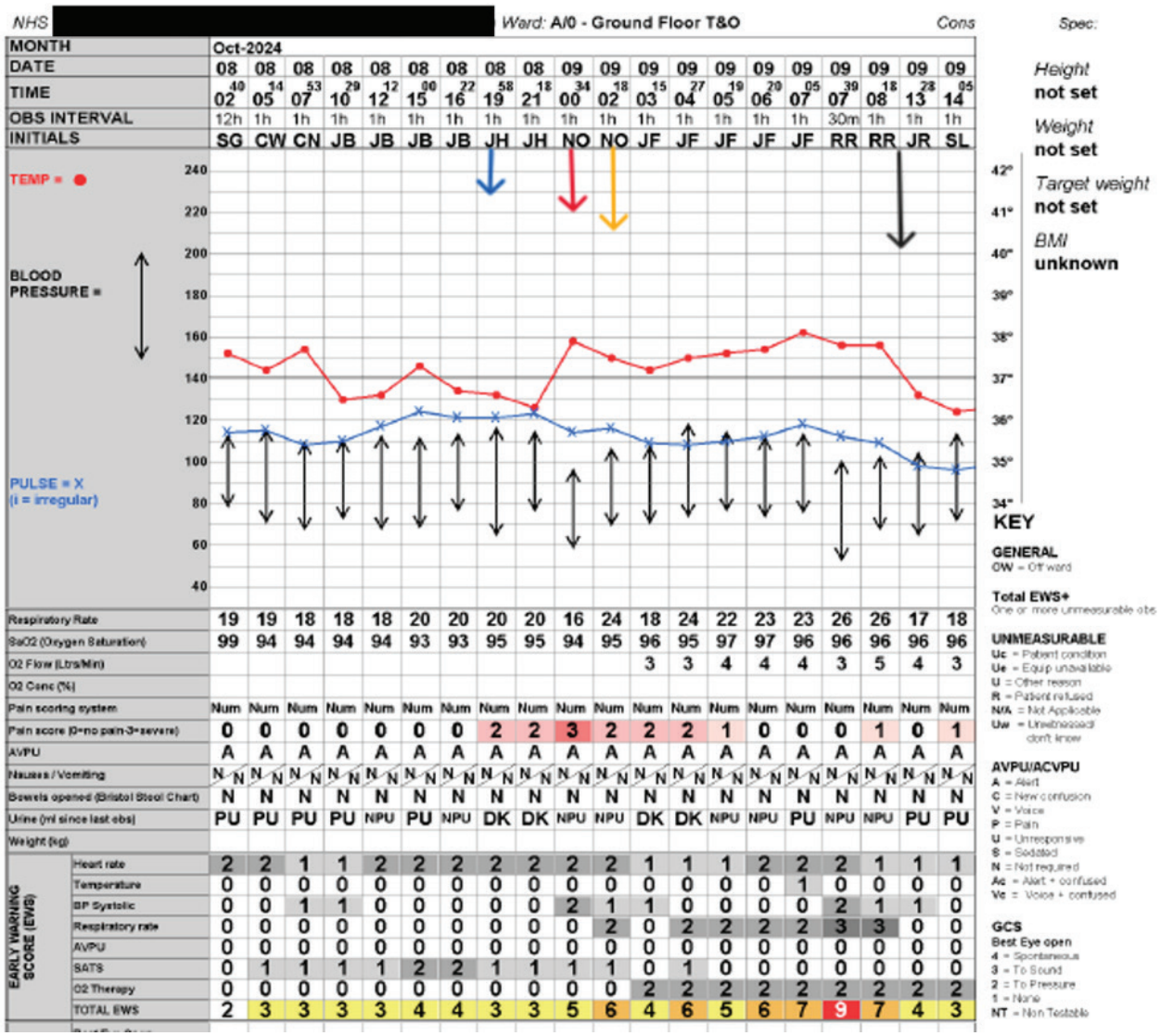

Figure 2. *Timeline of clinical events. Blue: Rapid progression of leg swelling and appearance of two new blisters; escalation to T&O team initiated. Red: Onset of systemic deterioration. Amber: CT of the leg performed. Black: Operative intervention undertaken at approximately 10:00. Abbreviations: CT, computed tomography; T&O, trauma and orthopedics.*

recommended for further evaluation, but was unavailable out of hours.

Because of the unavailability of MRI and CT imaging suggested myositis, with high clinical suspicion for necrotizing fasciitis amid clinical deterioration, the team proceeded with urgent surgical intervention. Urgent fasciotomy with abscess drainage and tissue sampling were performed. Intraoperative findings included significant skin edema, particularly of the medial leg and lateral thigh. Approximately 10 ml of frank pus was noted in the deep medial compartment near the gastrocnemius muscle, suggestive of an intramuscular abscess, as well as a smaller collection in the superficial lateral thigh. The fascia appeared healthy, and although the muscle initially looked dusky, it demonstrated good perfusion and contracted upon contact, confirming viability.

These findings were consistent with severe soft tissue infection involving deep intramuscular compartments, rather than necrotizing fasciitis. Second-look surgery was planned after 24 hours unless early clinical deterioration mandates sooner re-look, to ensure wound wellbeing with a potential for closure. This was performed 48 hours later, during which the wounds appeared healthy and were irrigated. After a satisfactory second look, the patient was planned for outpatient plastic surgeon referral for medial wound closure as it was felt too tight to close and full weight bearing mobility. IV antibiotics were continued based on microbiology guidance. Culture of pus and muscle tissue confirmed growth of GAS, sensitive to penicillin but resistant to clindamycin. On this basis, the microbiology team advised adding IV benzylpenicillin and metronidazole to meropenem and discontinuing clindamycin. Patient deteriorated within hours of admission and ended in sepsis, but there was no evidence of GAS available at that time, and hence, IVIG was not considered then. Later, when pus and muscle tissue culture results were available

after the first surgical intervention, the patient had already recovered clinically as well as biochemically. Histology of the muscle biopsy showed fibrous tissue infiltrated with numerous acute inflammatory cells, including neutrophils.

The patient demonstrated marked clinical and biochemical improvement after 2 weeks of IV antibiotics. Given the healthy wound appearance and overall improvement, therapy was de-escalated to oral co-amoxiclav for a further 2 weeks. Physiotherapists assessed his mobility within 1 week of surgery and discharged him from their service after it was back to baseline in just a few days.

A transthoracic echocardiogram showed no evidence of endocarditis or valvular vegetations. He was discharged in stable condition with outpatient follow-up arranged with the plastic surgery team for wound assessment. He remains under follow-up by tissue viability nurses for a nonhealing wound, but has otherwise returned to his baseline functional level.

Discussion

Staphylococcus aureus remains the leading cause of pyomyositis worldwide, accounting for approximately 90% of tropical-region cases and 75% of cases in temperate climates [5]. By contrast, GAS causes only 1% to 5% of cases [2] yet is notable for its ability to trigger fulminant infections; most critically, necrotizing fasciitis and necrotizing myositis, both of which carry high mortality. Fewer than 1% of patients with GAS necrotizing myositis survive without prompt surgical debridement [6]. Additional complications include osteomyelitis and arthritis [4].

Early diagnosis is difficult because deep muscles mask local signs [4]. Cross-sectional imaging (CT or MRI) is the cornerstone of diagnosis [7], yet these modalities are often deferred until clinical deterioration prompts escalation. The resulting delay increases morbidity and contributes to reported mortality rates of 1%-23% [9]. MRI would have been the preferred imaging modality in this case.

Several features in our patient raised concern for an aggressive deep-tissue infection: persistent tachycardia, rapidly expanding swelling with blister formation, and markedly elevated white cell count and C-reactive protein (Figure 2). Although cellulitis was initially considered, the clinical trajectory soon diverged from that diagnosis. Early telephone consultation with the T&O team did not yield a high index of suspicion for pyomyositis, yet continued clinical deterioration prompted urgent CT and, ultimately, exploratory surgery. A decision to escalate early and to transfer the patient from e-LGH to LGH was made purely based on clinical assessment and available blood results, and CT images of clots being ruled out as were suspected on admission, in the absence of MRI. Notably, CT was suggestive (but not diagnostic) of intramuscular infection; operative findings confirmed deep abscess formation consistent with GAS pyomyositis.

Recent studies have shown an increasing number of cases of clindamycin resistance in GAS infections over the last more than decade [8]. However, this was continued until culture results were available in this case, but may need to be reviewed for health board policy on empirical antibiotics guideline, based on more such evidence in the future.

Conclusion

This case demonstrates that GAS pyomyositis can progress from mild limb discomfort to severe sepsis within hours, even in an immunocompetent patient whose only apparent risk factor was recent blunt trauma. In this patient, vigilant bedside clinical reassessment, swift imaging, timely escalation of care, and decisive surgical intervention enabled near complete recovery; applying the same approach may improve outcomes in similar rapidly progressive infections.

What is new

Group A streptococcal pyomyositis can leap from mild calf pain to limb-threatening sepsis within hours—even in healthy adults after minor blunt trauma. Watch for tachycardia, fast-spreading swelling, and blisters that outpace typical cellulitis; act early with imaging, surgical review, and source control to save limb and life.

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List of Abbreviations

CT	Computed tomography
CTPA	Computed tomography pulmonary angiography
e-LGH	Enhanced local general hospital
GAS	Group A Streptococcus
IV	Intravenous
LGH	Local general hospital
MRI	Magnetic resonance imaging
T&O	Trauma and orthopedics

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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Consent for publication

Written informed consent was obtained from the patient.

Ethical approval

Ethical approval is not required at our institution to publish an anonymous case report.

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References

1. Unnikrishnan PN, Perry DC, George H, Bassi R, Bruce CE. Tropical primary pyomyositis in children of the UK: an emerging medical challenge. Int Orthop. 2010;34(1):109–13. https://doi.org/10.1007/s00264-009-0765-6
2. Rahi M, Will M. Group A Streptococcus necrotising myositis of the limbs secondary to cavitating pneumonia. BMJ Case Rep. 2021;14(4):e239929. https://doi.org/10.1136/bcr-2020-239929
3. Minami K, Kenzaka T, Kumabe A, Matsumura M. Thigh pyomyositis caused by group A streptococcus in an immunocompetent adult without any cause. BMC Res Notes. 2017;10(1):33. https://doi.org/10.1186/s13104-016-2346-2
4. Abbati G, Abu Rumeileh S, Perrone A, Galli L, Resti M, Trapani S. Pelvic pyomyositis in childhood: clinical and radiological findings in a tertiary pediatric center. Children (Basel). 2022;9(5):685. https://doi.org/10.3390/children9050685
5. Ura K, Motoya M, Ishii H. Rapidly-progressing pyomyositis after chest contusion in a patient with well-controlled diabetes mellitus. J Med Cases. 2023;14(4):124–9. https://doi.org/10.14740/jmc4099
6. Tirlangi PK, Sebastian A, Prabhu M M. Tropical pyomyositis. Best Pract Res Clin Rheumatol. 2025;39(2):102041. https://doi.org/10.1016/j.berh.2025.102041
7. Ngor C, Hall L, Dean JA, Gilks CF. Factors associated with pyomyositis: a systematic review and meta-analysis. Trop Med Int Health. 2021;26(10):1210–9. https://doi.org/10.1111/tmi.13669
8. White BP, Siegrist EA Increasing clindamycin resistance in group A streptococcus. Lancet Infect Dis. 21(9):1208–9. https://doi.org/10.1016/S1473-3099(21)00456-4
9. Christin L, Sarosi GA. Pyomyositis in North America: case reports and review. Clin Infect Dis. 1992;15(4):668–77. https://doi.org/10.1093/clind/15.4.668

Summary of the case

1	Patient (gender, age)	Male/50 years
2	Final diagnosis	Group A streptococcal pyomyositis of the left calf with intramuscular abscess
3	Symptoms	3-day history of calf pain and swelling, rapid blistering, persistent tachycardia
4	Medications	Therapeutic dalteparin; IV flucloxacillin → clindamycin + meropenem → benzylpenicillin + meropenem + metronidazole; oral co-amoxiclav on discharge
5	Clinical procedure	Urgent fasciotomy with abscess drainage and second-look washout
6	Specialty	General Medicine