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TROPICAL PYOMYOSITIS, A DIAGNOSTIC ENIGMA

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ABSTRACT

Tropical Pyomyositis is diagnostic enigma in early stages and is underrated due to diagnostic delays. The present rare case is highlighting the clinicopathological profile with an interesting MRI finding in an immunocompetent patient.

BACKGROUND

Tropical Pyomyositis is a rare subacute, deep, bacterial infection of muscle and soft tissues. This rare entity is characterized by suppuration within skeletal muscles, manifesting as single or multiple abscesses.[1]

Tropical pyomyositis described by Scriba in 1885,[2] is called by various other terms like myositis tropical, tropical skeletal muscle abscess, and tropical myositis. Levin et al reported the first case of pyomyositis in 1971 from a temperate region.[3]

In view of the fact that this disease is characteristically found in tropical areas, various terms like Tropical Pyomyositis, Myositis Tropicana are used. With increasing recognition from temperate regions, it is also referred to as infectious myositis, or spontaneous bacterial myositis.[4]

Diagnosis is often missed especially during the early stages, due to its decreasing incidence, unfamiliarity, atypical presentations, lack of specific signs, antibiotic abuse.[6,7]

This case report is enlightening the clinical and laboratory profile and interesting magnetic resonance imaging observations of an immuno-competent patient with tropical pyomyositis (TPM) and discuss the diagnostic delays and their implications.

CASE REPORT

19 year old male presented to the ICU with a history of spasmodic back pain for 5 days preceded by an incidence of lifting heavyweight. The pain was insidious in onset and gradually worsened over two days. The patient was tachycardic and tachypnoeic on examination. A blood sample was taken from the right cubital vein, after which the developed pain and swelling of the right upper limb, extending to the elbow. He developed fever and hypoxia. Intravenous Meropenem and Teicoplanin were started empirically.

A CTPA was done to rule out pulmonary embolism, which was suggestive of fibro atelectatic segments of the lower lobe.

Imaging: A CT of the right arm was done which showed evidence of collections posterior to the right scapula of 53X23mm, in the muscles and subcutaneous region. Another collection was found anterior to the distal 1/3rd humerus which was 67X23mm. The CT abdomen revealed a 67X43mm mass in the left lumbar region with adjacent 5cc of fluid in the subcutaneous tissue that is possibly a hematoma or an abscess. (Figure 1a: Collection in the Rt Arm, Figure 1b: Mass in the left lumbar region).

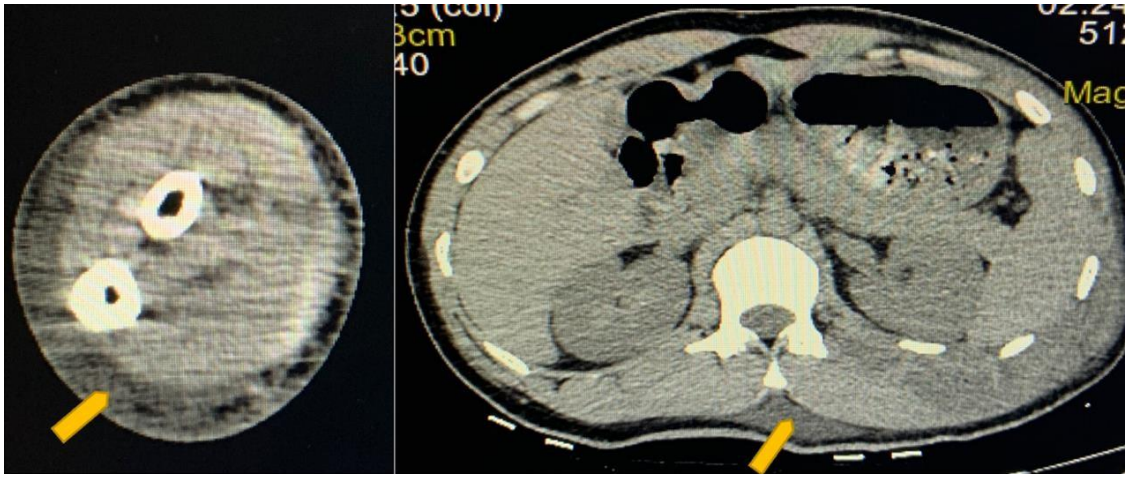

Figure 1a: Collection in the Rt Arm, Figure 1b: Mass in the left lumbar region.

Laboratory findings: Bleeding time, clotting time, fibrinogen levels, PT-INR, aPTT, cardiac markers and LFTS were all within normal limits. The patient initially presented with leucopenia which resolved over the course of treatment. CPK NAC, PCT and CRP showed an increasing trend, and was accompanied by unremitting fever, hence Teicoplanin was withheld, and the antibiotic was upgraded to Vancomycin.

Drainage and exploration of the right arm and back swelling was done and 250cc of pus was drained.

Microbiological work up: The culture report was Methicillin sensitive staphylococcus aureus positive, hence in accordance with the sensitivity report the antibiotic was downgraded from vancomycin to fluoxacillin.

Pathology work up: The histology report revealed fibrinopurulent exudate and inflammatory infiltrate admist necrotic muscle bundles, suggesting myositis with abscess formation. [Figure 2a: 20x H/E STAIN reveling with arrow necrotic muscle fibers, Figure 2b: 4x H/E stain revel inflammatory exudate.]

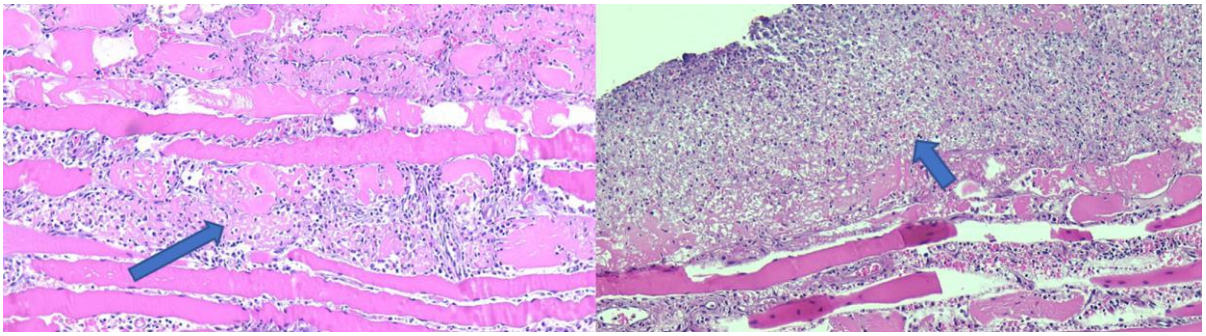

Figure 2a: 20x H/E STAIN reveling with arrow necrotic muscle fibers, Figure 2b: 4x H/E stain revel inflammatory exudate.

Management: The patient was hydrated with IV fluids at 100ml/hr. An increased urine output of upto 7 litres/day was obsereved, therefore urine routine microscopy, urine osmolality, urine spot sodium, urine glucose and urea levels were checked and were all with normal limits.

Aggressive hydration was continued, till fluid balance was stabalized. HTLV, CD4 and CD8 were sent to rule out an immunocompromised condition, however the reports were normal.

DISCUSSION

Pyomyositis can occur in all age groups but is more common in children (2–5 years) and young adults (20–45 years), with a male-to-female ratio of 1.5:1.[2] It is increasingly recognized among patients with immunocompromised conditions (e.g. HIV infection, malnutrition, diabetes mellitus, malignancy, rheumatologic conditions, intravenous drug abuse). The incidence of Tropical pyomyositis TPM is still unclear. In the tropics, it is an important cause of morbidity, including longer hospital stays (>10 days).[4]

Etiopathogenesis: Most commonly cultured organism is Staphylococcus aureus. It is seen in up to 90% of cases in tropical areas and 75% of cases in temperate countries.[8] Group In tropical regions, pus cultures are sterile in 15%–30% cases and 90%–95% of patients also have sterile blood cultures.[9,10]

Pathogenesis of tropical pyomyositis still needs to be unraveled. Skeletal muscle tissue is intrinsically resistant to bacterial infections under normal circumstances. Normal muscle, when damaged, is susceptible to

hematogenous invasion by bacteria with subsequent abscess formation.[11] Generally only a single group of muscle is affected, but in 12%–40% of cases multiple groups are involved either sequentially or simultaneously.[12]

The clinical algorithm of the disease can be divided into three stages: Invasive, Suppurative and Late. The first stage is characterized by subacute onset of fever, painful swelling with a woody consistency of the affected area with or without erythema. The suppurative stage commonly seen in 2nd to 3rd week of onset and can be recognized by the high grade fever, pus upon aspiration of the swelling and other systemic symptoms. Most patients present during this stage. In the late stage, dissemination of infection occurs, resulting into bactermia, septicemia, toxic shock syndrome and metastatic abscess.

In the invasive phase where it presents with fever, muscle tenderness and eosinophilia allow diagnostic pitfalls due to varied differentials. Other differentials such as pyrexia of unknown origin, muscle contusion, septic arthritis, osteomyelitis, cellulitis, muscle haematoma, deep vein thrombosis, muscle rupture or muscle strain, osteosarcoma of muscle, trichinosis and leptospirosis. Non-invasive radiological methods are most helpful in establishing the diagnosis. Ultrasound is the initial screening tool for reasons of economy and easy availability. Hypoechoic areas with an increase in muscle bulk on ultrasound, Computed tomography/ Magnetic resonance imaging show low attenuation with loss of muscle planes, surrounding rim of contrast enhancement as characteristic of pyomyositis.[13,14] Aspiration of pus from the muscle or muscle biopsy with culture and tissue staining is the gold standard.[15] Anaemia, leucocytosis, raised erythrocyte sedimentation rate, and acute phase reactants; serum levels of muscle enzymes may be slightly raised. Surgical drainage of the pus, parenteral anti staphylococcal b- lactamase resistant penicillin (Inj Cloxacillin 1–2 g every six hours), initial recommended treatment). For methicillin resistant staphylococcus (MRSA), vancomycin might be used in a dose of 15 mg/kg to a maximum of 1 g, given every 12 hours.[10]

CONCLUSION

Pyomyositis characterized by suppuration within skeletal muscles, manifesting as single or multiple abscesses needs diagnostic attention as it is often missed especially during the early stages and its diagnostic delay is an important cause of morbidity, including longer hospital stays (>10 days).

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