

# An Unusual Presentation of Tropical Pyomyositis

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## Summary

Tropical pyomyositis is a primary pyogenic infection of skeletal muscle, often caused by *Staphylococcus aureus*. The most common presentation of tropical pyomyositis is that of multiple acute abscesses with fever. Hepatitis is a rare manifestation of this disease. We report a case of tropical pyomyositis who presented with hepatic encephalopathy leading to initial diagnostic dilemma.

**Key Words:** Tropical pyomyositis, Hepatitis, Hepatic encephalopathy, Unusual clinical features

## Introduction

Tropical pyomyositis (TP) is a primary pyogenic infection of skeletal muscle characterized by spontaneous appearance of abscesses within the fascial confines of the muscles<sup>1</sup>. Although TP is commonly seen in tropical countries, where it may be endemic, it has been reported in temperate zones also<sup>1</sup>. *Staphylococcus aureus* has been implicated as the causative organism in about 90% of the cases<sup>2</sup>. We report a case of TP presenting with an unusual complication with hepatitis and hepatic encephalopathy.

## Case Report

A 45-year old unemployed male was referred to our hospital with a history of jaundice for two weeks, fever and vomiting for 4 days and altered sensorium from the previous day. A history of reversal of sleep rhythm was present. The patient was a chronic alcoholic consuming 750-1000 ml of locally prepared alcohol daily and a chronic smoker who used to smoke 15-20 local unfiltered cigarettes/day until the onset of his present illness. The patient had been given an intramuscular injection in the right deltoid region for

fever by a local doctor and had an unconfirmed history of a fall following an alcoholic binge.

On examination, the patient was drowsy but arousable and disoriented to person and place. He had deep icterus and asterixis. The temperature was 38.1°C and the pulse 92 beats per minute. The blood pressure was 128/80 mm Hg. A warm, firm, tender swelling was noticed over the right arm. Physical examination was otherwise within the normal limits. Investigations revealed elevated total WBC count which was 14,600/mm<sup>3</sup> with 70% neutrophils. Hemoglobin was 13.0 g/dL erythrocyte sedimentation rate was 47 mm/I hr. Serum bilirubin was 372.8 µmol/L with direct bilirubin of 290.7 µmol/L; serum transaminases were mildly elevated with AST of 84 U/L and ALT of 45 U/L, alkaline phosphatase of 183 U/L, total protein was 5.4 g/dL with albumin of 3.6 g/dL, GGT was 48 IU/L, ammonia was 148 mmol/L and creatinine kinase was 718 U/L. Prothrombin time was within normal limits. The patient had mild pre-renal failure with serum creatinine of 159.12 µmol/L and blood urea nitrogen of 26.41 mmol/L. Three blood samples for malaria parasites by QBC™ (BD Bioscience) method were negative and blood cultures were sterile. Ultrasound study of the abdomen showed mild hepatomegaly with fatty changes and grade 1 parenchymal change in the

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kidneys. There were no features of portal hypertension. Initially the possibilities of alcoholic or viral hepatitis with hepatic encephalopathy were considered but as the transaminases were only mildly elevated and HBsAg (ELISA) was negative, a differential diagnosis of leptospirosis was made considering the endemicity of this disease and the presence of mild renal failure. The patient was treated with intravenous crystalline penicillin empirically for leptospirosis and anti hepatic-coma measures. Liver biopsy to document the possibility of a chronic liver disease was contemplated, but the patient refused all invasive diagnostic methods.

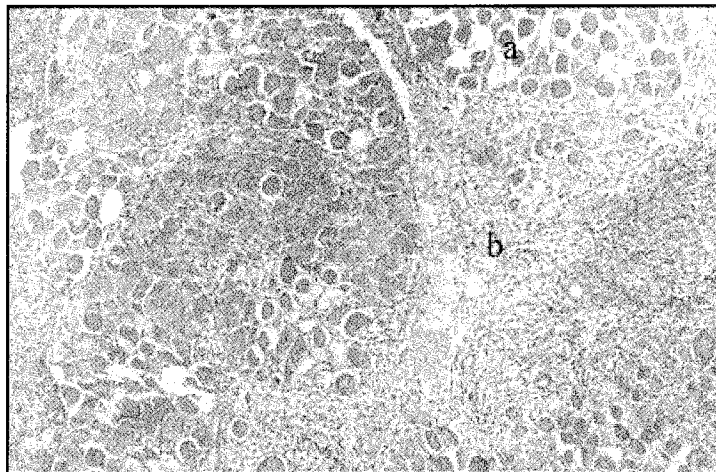
The patient continued to have high-grade fever and the leucocytosis increased but he recovered from hepatic encephalopathy and renal failure. The possibility of an injection abscess in the right arm was considered as the cause of fever as there was a history of an intramuscular injection. Ultrasound study showed an intramuscular abscess in the triceps. Surgical consultation was requested for abscess drainage but they advised conservative management. Even with change of antibiotics to intravenous ceftriaxone and later co-amoxiclav the fever persisted. Over the next few days, the patient developed a swelling over the medial aspect of the right thigh that was firm, warm and tender suggestive of an abscess. The diagnosis of tropical pyomyositis was considered at this stage, as there were multiple abscesses. The aspirated pus grew *Staphylococcus aureus* in culture. A surgical drainage

was performed under general anesthesia and 1000mL of pus was drained from the intramuscular abscesses. Scrapings from the abscess wall showed necrotic debris and inflammatory cells [Figure 1]. The culture from the scrapings also grew *Staphylococcus aureus* thus confirming the diagnosis. Based on the antibiotic sensitivity pattern, co-amoxiclav was continued and intravenous amikacin was started. The patient became afebrile after the surgery and the leucocytosis decreased.

The patient was asymptomatic when he was discharged about a week after the surgery. He remained asymptomatic with normal liver function tests at review after six weeks and three months from the date of discharge.

## Discussion

The most common presentation of tropical pyomyositis is that of multiple acute abscesses with fever. Less commonly, a swelling may be present without pain or fever. Sometimes it may present with a hard, woody and slightly tender mass persisting for weeks that may be difficult to distinguish from a rhabdomyosarcoma. However, if untreated it may result in septicemia, metastatic abscesses, venous thrombosis, intravascular hemolysis, renal failure and death<sup>2</sup>. Despite this spectrum of complications, only one case so far has been reported presenting with hepatitis<sup>3</sup>. There is also



**Fig. 1: Microphotograph of abscess wall scraping taken during surgery shows muscle fascicles (a) and acute inflammatory cells with necrotic debris (b).**

a report of a patient having associated hepatitis A infection. However, there is no report of a patient of TP presenting with hepatic encephalopathy, and this uncommon presentation led to the diagnostic dilemma in our patient. Though bacterial hepatitis is known to occur due to streptococcal infection, it has not been described with staphylococcal infection. Direct involvement of the liver by hematogenous spread, as a part of septicemia, was speculated as the possible cause of hepatitis and resultant encephalopathy in our patient.

Usually single muscle groups are involved in TP but the abscesses may be multiple in about 25% of cases. The most frequent muscles involved are the large muscles of the lower extremity and the trunk muscles. Our patient had multiple sites of abscesses in large muscles of both upper and lower extremities. Though blood cultures are positive in only 5-35% of cases, pus culture yields *S. aureus* in 80% or more of the cases<sup>2</sup>. However, it is thought that *S. aureus* infection is secondary to primary muscle damage. Many predisposing conditions have been proposed. These include trauma, diabetes mellitus, alcoholic liver disease, malnutrition, HIV infection and other immunosuppressive illnesses. Our patient was an alcoholic but had none of the other predisposing factors.

There are three stages of TP. First is the stage of invasion, second is the stage of suppuration and third the stage where systemic manifestations of sepsis and local findings of extreme tenderness dominate. Complications though rare include sepsis, renal failure either due to sepsis or rhabdomyolysis and metastatic abscesses. Our patient presented in the third stage with complications.

Surgical drainage of all the abscesses is the sine qua non of management of TP. Fever may persist in spite of appropriate antibiotic therapy as guided by pus culture and sensitivity, and this happened in our patient as well. The result of surgical drainage was dramatic.

#### **Learning Points:**

1. Tropical pyomyositis is a primary pyogenic infection of skeletal muscles.
2. *Staphylococcus aureus* is the most common causative organism.
3. It is common in tropical countries, but can be seen in temperate zones also.
4. Hepatitis is a rare manifestation of this disease.
5. Hepatic encephalopathy can be an unusual presenting feature of this disease.

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#### **References**

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