

## Tropical Pyomyositis-an Emerging Multi-Disciplinary Emergency

Peter George<sup>1</sup> and Muktharrahamed Bendigeri<sup>2</sup>

<sup>1</sup>Department of Medicine, Father Muller Medical College, Mangalore, India

<sup>2</sup>Department of Medicine, Yenepoya Medical College, Mangalore, India

### Abstract

Tropical pyomyositis, characterised by suppuration of single or multiple skeletal muscles is a challenge for Clinicians. It occurs mostly in diabetics and is caused by *Staphylococcus aureus*. We report a case of tropical pyomyositis in a 55 year old diabetic woman, who was referred to us with features of sepsis. She was managed with broad spectrum antibiotics, insulin, hemodynamic monitoring and multiple surgical drainages. There was delay in diagnosis due to its clinical resemblance with other tropical infectious diseases. Physicians irrespective of their geographic location should identify and manage this potentially life threatening but curable condition, with multi-disciplinary approach.

### Introduction

Tropical pyomyositis, also known as 'Infectious or spontaneous bacterial myositis', is characterised by suppuration of single or multiple skeletal muscles [1,2]. In recent decades, more cases are reported from various non-tropical geographic locations. At times clinical diagnosis is delayed or turns challenging for its clinical similarity with common tropical infections. Over the decades, advances in imaging and isolation techniques have aided in early diagnosis. Multi-disciplinary approach in its identification and treatment can potentially prevent its complications and fatality [1].

### Case Report

A 55 year old woman from an agricultural hamlet, with complaints of low backache, left lower limb pain and high grade fever of 10 days, was referred to us with sepsis. She reported worsening pain over an infected ulcer on the right great toe stump and had difficulty to walk due to severe pain over her thighs. She had history of surgical disarticulation of right big toe 2 years ago and that of 2<sup>nd</sup> and 3<sup>rd</sup> toes 8 months prior. On examination, she was dehydrated, had pallor, tachycardia (120/min) and normal blood pressure. Other than an infected ulcer over the right big toe stump and features of peripheral arterial insufficiency, her clinical examination was normal. Investigations showed: Hb-9.9 gm%, TC-24,000, ESR-95, blood sugar-461 mg/dl, urine negative for ketones, normal chest X-ray, sterile blood cultures, renal and liver biochemistry. Sonograms of abdomen and venous Doppler studies of lower limbs were normal. She was managed as infected diabetes foot ulcer with cellulitis and sepsis. Intravenous crystalline fluids, parental broad spectrum antibiotics along with insulin and supportive measures were administered.

She developed soft swellings around her left knee on day-3 of hospitalisation. Sonograms of the left thigh and knee revealed multiple hypo-echoic areas suggestive of abscesses. We surgically drained pus from muscle layers in these areas. At that point of time, possibility of pyomyositis was considered. In spite of being on sensitive antibiotics and well controlled sugars for over 10 days, she continued to appear toxic. Swellings over the left knee and thighs increased in size; and fresh swelling appeared above her right elbow over the next two days. We further drained 400 ml of pus from her left thigh and 200 ml from the right elbow (Figure 1). Arthroscopic lavage done from left knee drained 150 ml of pus. Two days later, we again drained 200 ml of pus from left thigh and 100 ml from right elbow (Figure 2). Culture of the drained pus grew *Staphylococcus aureus* and *Pseudomonas aerogenosa*.

The infection got controlled after 6-8 weeks of continuing sensitive antibiotics, multiple surgical drainages, insulin and supportive measures. She underwent split-skin grafting over her left thigh and was discharged from hospital.

### Discussion

Tropical pyomyositis, first described by Scirba in 1885 were reported from the tropical countries of Asia, Africa and Caribbean Islands [3]. Tropical pyomyositis is characterised by suppuration of single or multiple skeletal muscles. All age groups can get affected, but incidence is more between 10-40 years with a male to female ratio of 1.5:1. In recent decades, with increase in numbers of HIV, diabetes, cancer patients on immune-suppressants a higher number of pyomyositis from non-tropical and temperate regions are being reported [4,5]. Hence, the term tropical pyomyositis have been replaced with 'infectious or Spontaneous Bacterial Myositis (SBM)'. Even with advances in diagnosis and treatment, pyomyositis is potentially fatal [2,6].



Figure 1: Pus drained from the swelling above right elbow.

\*Corresponding author: Dr. Peter George MD, Associate Professor, Department of Medicine, Father Muller Medical College, Father Muller Road, Mangalore, S India. 575002; Tel: +91 9845177660, +91 824 2238000; Fax: +91 824 2436352; E-mail: [drpetergeorge2002@yahoo.com](mailto:drpetergeorge2002@yahoo.com)

Received February 27, 2013; Accepted April 20, 2013; Published April 24, 2013

Citation: George P, Bendigeri M (2013) Tropical Pyomyositis-an Emerging Multi-Disciplinary Emergency. Trop Med Surg 1: 114. doi:10.4172/2329-9088.1000114

Copyright: © 2013 George P, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



**Figure 2:** Pus from the medial aspect of left thigh on repeated draining.

The clinical presentation of tropical pyomyositis can be divided into three stages; invasive, suppurative and late stage [7]. During invasive stage patient may have sub-acute onset of fever, painful firm swelling, and minimal systemic symptoms with or without erythema. This may resolve by itself or may progress to next stage of suppuration. Most cases present in the suppurative stage which starts in the second week or third week, and abscess forms in the muscle with associated high swinging fever, regional lymphadenopathy and severe systemic symptoms. The focal signs of abscess may be absent but needle aspiration may yields pus. The late stage occurs if the abscess remains untreated and characterised by septicaemia, septic shock, acute renal failure, and metastatic abscesses.

Usually tropical myositis occurs by haematogenous spread and not by contiguous spread from adjacent structures [5]. In most cases the lower limb muscles are involved, but may occur in any other muscle. The muscles usually involved are the quadriceps, glutei, pectoralis major, serratus anterior, biceps, iliopsoas, gastrocnemius and para spinal muscles [1,2,8,9]. In the present report patient had involvement of quadriceps, biceps and triceps muscles due to *Staphylococcus aureus* infection. Most reports from tropics are post traumatic, caused by *Staphylococcus aureus* infection. Other bacteria, viruses, parasites and fungi were also isolated from cultures in reports from non-tropical areas, occurring in immune-deficient individuals [10,11].

Our patient who presented with fever, lower limb pain of ten days, did not have any clinical features suggestive of infective foci other than the diabetic foot. She had little improvement with conventional treatment. Sonological evaluation of soft tissue swellings over the thighs revealed bulky hypoechoic bulky muscles of the thigh characteristic to pyomyositis. The easiest and cost effective mode of imaging for pyomyositis is ultrasonography. CT and MR imaging are superior imaging modalities for diagnosis of pyomyositis [12,13]. The gold standard for diagnosis of pyomyositis is aspiration of pus from the muscle or demonstration of bacteria and necrotised material in muscle biopsy by culture and tissue staining [14].

Once diagnosed, pyomyositis requires urgent multi-disciplinary attention. Surgical debridement and drainage are most important in the management, along with antibiotics [15]. Even though an anti-staphylococcal antibiotic is traditionally the drug of choice, it is prudent to give a broad spectrum antibiotic cover for mixed or anaerobic infections especially in immune-compromised patients. With the emergence of drug resistance, the right choice of antibiotics would significantly improve the outcome [1,16,17]. The duration of treatment is till the wound is clean, the leucocyte counts are normal, and the patient is afebrile for at least a week. If the patient presents in

late stage with secondary spread of infection from involved muscles, a four to six weeks of parenteral antimicrobial therapy is recommended.

Our patient required repeated surgical drainage, along with broad spectrum antibiotics, insulin and supportive measures to control the infection. Further she was diabetic, had an infected wound on her right foot possibly the source of infection. Haematogenous spread would have occurred to cause the pyomyositis in her lower and upper limb muscles.

Tropical pyomyositis is a great mimicker; in most cases physician's at most clinical suspicion will clinch the diagnoses. The diagnosis of pyomyositis is often difficult due to lack of specific clinical features. Also overlap of symptoms with common endemic febrile illnesses, the clinical suspicion is often low. Generally, leptospirosis, malaria, Dengue fever, other viral fevers, polymyositis, septic arthritis, osteomyelitis, cellulitis, lymphangitis, deep vein thrombosis are all to be considered as differential diagnosis.

## Conclusion

Present day physicians encounter more cases of immune-compromised patients. Potentially fatal conditions like pyomyositis, though uncommon must be considered in febrile illnesses. Delay in diagnosis due to its resemblance with other tropical infectious diseases should not occur. Irrespective of their geographic location primary care physician must identify and should manage this potentially life threatening but curable condition, with a multi-disciplinary approach.

## References

1. Chauhan S, Jain S, Varma S, Chauhan SS (2004) Tropical pyomyositis (myositis tropicans): current perspective. Postgrad Med J 80: 267-270.
2. Gambhir IS, Singh DS, Gupta SS, Gupta PR, Kumar M (1992) Tropical pyomyositis in India: a clinico-histopathological study. J Trop Med Hyg 95: 42-46.
3. Scriba J. Beitrangzur. Aetiologie der myositis acuta. Deutsche ZeitChir 1885; 22: 497-502.
4. Hall RL, Callaghan JJ, Moloney E, Martinez S, Harrelson JM (1990) Pyomyositis in a temperate climate. Presentation, diagnosis, and treatment. J Bone Joint Surg Am 72: 1240-1244.
5. Chou H, Teo HE, Dubey N, Peh WC (2011) Tropical pyomyositis and necrotizing fasciitis. Semin Musculoskelet Radiol 15: 489-505.
6. Small LN, Ross JJ (2005) Tropical and temperate pyomyositis. Infect Dis Clin North Am 19: 981-989, x-xi.
7. Chiedozi LC (1979) Pyomyositis. Review of 205 cases in 112 patients. Am J Surg 137: 255-259.
8. Singh SB, Singh VP, Gupta S, Gupta RM, Sunder S (1989) Tropical myositis. A clinical immunological and histopathological study. J Assoc Physicians India 37: 561-563.
9. Malhotra P, Singh S, Sud A, Kumari S (2000) Tropical pyomyositis: experience of a tertiary care hospital in north-west India. J Assoc Physicians India 48: 1057-1059.
10. Crum-Cianflone NF (2008) Bacterial, fungal, parasitic, and viral myositis. Clin Microbiol Rev 21: 473-494.
11. El-Beshbishi SN, Ahmed NN, Mostafa SH, El-Ganainy GA (2012) Parasitic infections and myositis. Parasitol Res 110: 1-18.
12. Pretorius ES, Hruban RH, Fishman EK (1996) Tropical pyomyositis: imaging findings and a review of the literature. Skeletal Radiol 25: 576-579.
13. Turecki MB, Taljanovic MS, Stubbs AY, Graham AR, Holden DA, et al. (2010) Imaging of musculoskeletal soft tissue infections. Skeletal Radiol 39: 957-971.

- 
14. Agarwal V, Chauhan S, Gupta RK (2011) Pyomyositis. *Neuroimaging Clin N Am* 21: 975-983, x.
  15. Stevens DL, Bisno AL, Chambers HF, Everett ED, Dellinger P, et al. (2005) Practice guidelines for the diagnosis and management of skin and soft-tissue infections. *Clin Infect Dis* 41: 1373-1406.
  16. Olson DP, Soares S, Kanade SV (2011) Community-acquired MRSA pyomyositis: case report and review of the literature. *J Trop Med* 2011: 970848.
  17. Lemonick DM (2012) Non-tropical pyomyositis caused by methicillin-resistant *Staphylococcus aureus*: an unusual cause of bilateral leg pain. *J Emerg Med* 42: e55-e62.