Contents lists available at ScienceDirect

Asian Pacific Journal of Tropical Medicine

journal homepage:www.elsevier.com/locate/apjtm

Document heading doi:

Tropical pyomyositis presenting as sepsis with acute respiratory distress syndrome

Siddalingana Gouda TG*, H Manjunath Hande, Weena Stanley, Ragini Bargur

Department of Medicine, Kasturba Medical College, Manipal

ARTICLE INFO

Article history:
Received 15 December 2010
Received in revised form 27 January 2011
Accepted 15 February 2011
Available online 20 April 2011

Keywords:
Tropical pyomyositis
Staphylococcus aureus
Sepsis
Acute respiratory distress syndrome

ABSTRACT

Tropical pyomyositis is an underdiagnosed condition. We reported a 35 year old male farmer, who presented with septicemia and acute respiratory distress syndrome due to pyomyositis involving the paraspinal muscles. Culture of the pus grew methicillin sensitive *Staphylococcus aureus*, and the patient recovered after surgical drainage and antibiotic treatment. Diagnostic delays can be avoided if tropical pyomyositis is considered as a differential diagnosis in patients with septicemia.

1. Introduction

Tropical pyomyositis is a bacterial infection of skeletal muscle. It has a predilection for large muscle masses of the body with no obvious local or adjacent source of infection and is known to affect young adults in the tropics[1,2]. *Staphylococcus aureus* is the predominant organism in over 90% of the cases. It is increasingly being recognized in temperate climate, where 75% of patients are immunocompromised. Early stages of the disease have only local manifestation, and in an untreated case it can cause metastatic abscess, septicaemia and septic shock. Early diagnosis is often missed because of non specific signs, unfamiliarity with disease, atypical presentations and a wide range of differential diagnosis[3-5].

We reported a case of tropical pyomyositis involving paraspinal muscles in a young farmer with septicemia and acute respiratory distress syndrome.

*Corresponding author: Dr. Siddalingana gouda TG, Assistant Professor, Department of Medicine, Kasturba Medical College, Manipal University, Manipal - 576104, Karnataka, India.
Tel: (+91 820) 2922236, +91 9902757053
E-mail: siddalingagouda @gmail.com

2. Case report

A 35 year old farmer presented with non specific abdominal pain and vague mid-thoracic backache for one week, and he had high grade fever with chills and breathlessness since one day. He had no past history of diabetes, alcoholism, exposure to HIV infection, intravenous drug abuse or malignancy. On examination, he was toxic and febrile with temperature being 39.8 ℃, pulse rate was 98/min, respiratory rate 38/min, blood pressure 116/80 mmHg, and saturation on pulse was 88% breathing room air.

Chest auscultation revealed bilateral scattered crepitations in axillary and infrascapular areas. Abdominal examination revealed enlarged, firm, non tender liver of 3 centimeter below the costal margin. Cardiac and neurological examination were unremarkable.

Investigations revealed heamoglobin of 10.3 gm%, total leucocyte count of 1 100/cumm with left shift and toxic changes in neutrophils, the erythrocyte sedimentation rate(ESR) was 70 mm/hr, platelet count was 31 000/cumm, mildly elevated bilirubin and liver enzymes with INR of 1.37, total serum protien of 5.3 gm/dL, albumin of 2 gm/dL,

the creatinine kinase was 634 IU, with normal renal and pancreatic tests. Chest X-ray showed bilateral mid and lower zone infiltrates(Figure 1). Ultrasound abdomen showed hepatomegaly (17.1 cm) with minimal left pleural effusion. Electrocardiogram and echocardiography were normal. Investigations for malaria, leptospirosis, dengue, HIV, hepatitis B, hepatitis C were negative. Arterial blood gases revealed hypoxia, with PaO_2/FiO_2<200.

Diagnosis of sepsis with acute respiratory distress syndrome was made, and treatment with broad spectrum antibiotics was commenced. Since the hypoxia worsened, he required mechanical ventilatory support. On the second day of admission, a swelling was noticed on the left of his neck extending down to the infra scapular region (Figure 2). The swelling was tender and indurated with woody consistency. Ultrasound revealed bulky edematous muscle with altered echogenecity suggesting pyomyositis. Antibiotic 'Teicoplanin' was added to cover methicillin resistant staphylococcus(MRSA). Overtime the patient showed dramatic improvement and was weaned off the ventilator,but he continued to be febrile with swelling on the back becoming soft and fluctuant. Repeat ultrasound revealed abscess in the substance of the left paraspinal muscles extending from cervical to lumbo-sacral region. Multiple incisions were made on the paraspinal area, and around 200 mL of turbid yellow pus was drained out (Figure 3). Pus culture grew methicillin sensitive *Staphylococcus aureas*, and antibiotic was stepped downed accordingly. The patient received antibiotics for a total duration of four weeks and made a good recovery, with the wound fully healed at the end of four weeks.

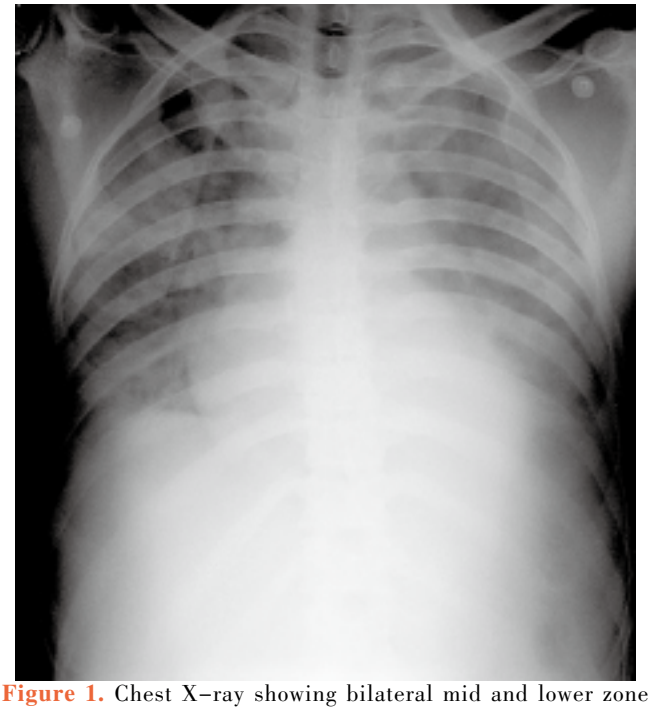

Figure 1. Chest X-ray showing bilateral mid and lower zone infiltrates.

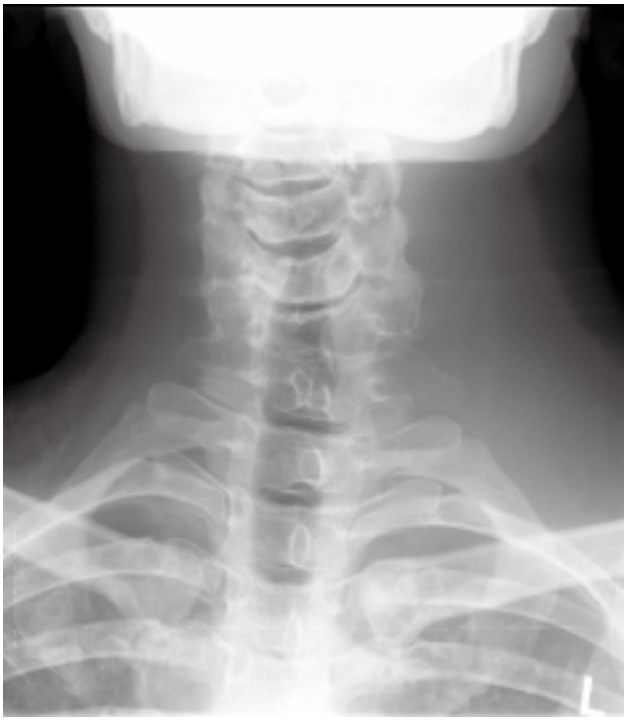

Figure 2. X-ray showing swelling an the left-neck extending down to the infra scapular region.

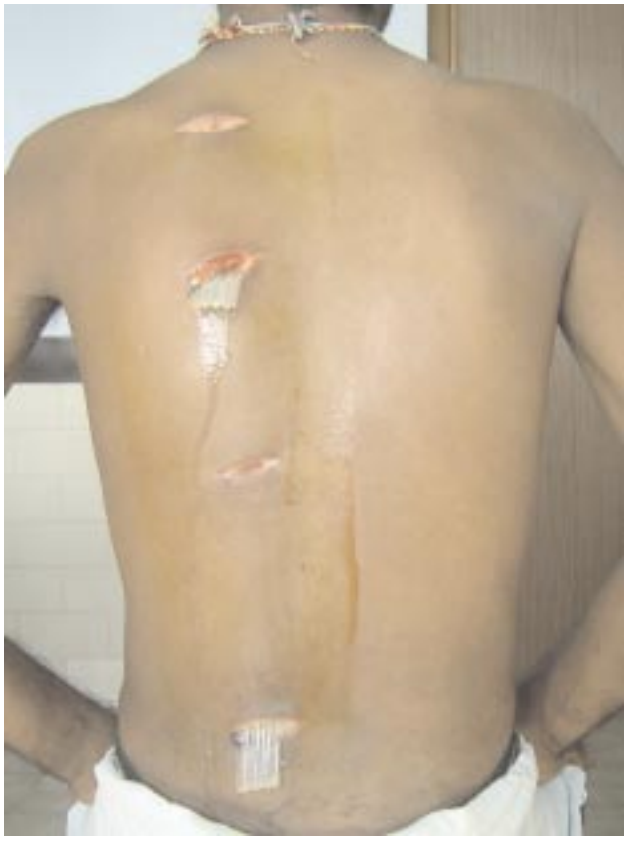

Figure 3. Multiple incision showing turbid yellow pus.

3. Discussion

Tropical pyomyositis has been reported frequently from Africa and Latin America, where it is responsible for 3%–4% of hospital admissions[2]. Most cases tend to involve trunk and lower limb muscles, while paraspinal muscle involvement is quite rare[1]. In India there has only been anecdotal case reports.

Staphylococcus aureus is responsible for 90% of the tropical and 75% of temperate cases of pyomyositis. Group A streptococcus accounts for another 1%–5% of case. Gram negative and anerobic organism are also known to cause this condition. In tropical countries pus culture are sterile in 15%–30% cases and 90%–95% of patients have sterile blood cultures[3]. Primary pyomyositis is believed to be due to transient bacteremia. Under normal circumstances skeletal muscles are resistant to bacterial infections. In patients who died of staphylococcal septicemia, less than one percent of cases had muscle involvement[4]. Therefore, predisposing factors are likely to be present which will aid in the pathogenesis of muscle infection[5]. Risk factors might include malnutrition, parasitic infestations, vitamin deficiency, diabetes mellitus, Crohn's disease, sickle cell anaemia, multiple myeloma and other immunosuppressive states[3,8–10]. In our patient a farmer by occupation, underlying malnutrition and parasitic infestations might have predisposed to this condition.

Clinically pyomyositis can be divided into three stages–invasive, suppurative and late stage. Invasive stage is characterized by crampy local muscle pain, swelling and low-grade fever. Only 2% of patients present at this stage. Suppurative stage is characterized by fever, muscle tenderness and oedema. The classical signs of abscess may be lacking because of the overlying muscle and tense fascia. Needle aspiration in this stage, yields pus. More than 90 % of the patients are seen in this stage. Late stage is seen as dissemination of infection, if the abscess remains untreated[2,3,9]. Our patient presented in the suppurative stage with septic complications.

Diagnosis should be sperformed in all patients with sepsis, particularly in the setting of immunocompromised state. Ultrasound is the initial screening tool, as it is cheaper and easily available. Computerized tomography(CT) and magnetic resonance imaging(MRI) are highly sensitive and specific, and are the ideal investigations of choice. In a clinical setting, an asymptomatic patient with muscle swelling and no constitutional symptoms, with leucocytosis and raised ESR, pyomyositis should be suspected. Creatinine kinase may be normal or slightly raised despite significant muscle destruction. Muscle biopsy in stage 1 or aspiration of pus in stage 2 is the gold standard which not only confirms the diagnosis, but also identifies antibiotic sensitivity pattern to be known[3,8].

Though the abscess in our patient may have initially commenced at a discrete focus within one segment of the erector spinae muscle complex, its extension from the cervical to the sacral region, within the confines of the limiting posterior layers of the thoracolumbar fascia and the chest wall, is essentially without any anatomical barriers. Our patient responded well to multiple incisions to drain the abscess, systemic anti staphylococcal antibiotics, and other supportive management strategies. Physicians should consider the possibilities of this potentially life threatening, but curable disease entity in patients presenting with sepsis.

Conflict of interest statement

We declare that we have no conflict of interest.

References

[1] Abu Hassan FO, Shannak A. Primary pyomyositis of para spinal muscles: A case report and literature review. *Eur Spine J* 2008; **17**(Suppl 2): 239–242.

[2] Col YS sarma, Maj Manas Chatterjee, Col GL Tiwari, VSM, Lt Col SK Kathuria, Lt Col Atul Gupta. Tropical pyomyositis with staphylococcal scalded skin syndrome. *MJAFI* 2004; **60**: 302–304.

[3] Chauhan S, Jain S, Varma S, Chauhan SS. Tropical pyomyositis (myositis Tropicans): Current perspective. *Postgrad Med J* 2004; **80**: 267–270.

[4] Subhankari Prasad Chakraborty, Santanu Kar Mahapatra, Somenath Roy. Biochemical characters and antibiotic susceptibility of *Staphylococcus aureus* isolates. *Asian Pac J Trop Biomed* 2011; **1**(3): 212–216.

[5] Subhankari PC, Santanu KM, Kumar Sahu S, Chattopadhyay S, Pramanik P, Somenath R. Nitric oxide mediated *Staphylococcus aureus* pathogenesis and protective role of nanoconjugated vancomycin. *Asian Pac J Trop Biomed* 2011; **1**(2): 102–109.

[6] Kulkarni GB, Pal PK, Veena kumari HB, Goyal M, Kavoor J, Nadig S, et al. Community-acquired methicillin resistant *Staphylococcus aureus* pyomyositis with myelitis: A rare occurance with diverse presentation. *Neurol India* 2009; **57**(Suupl 5): 653–636.

[7] Sinha S, Taly AB, Jerrry J, Nagaratna S, Singhal AK, Shobha N. Tropical pyomyositis: Clinical and MR imaging characteristics. *Ann Indian Acad Neurol* 2006; **9**: 113–115.

[8] Bhargava A, Lakhotia M, Jain P, Sharma S, Dharma RC. Tropical myositis: An atypical case involving biceps brachii and latissimus dorsi muscles. *JIACM* 2002; **3**(4): 401–403.

[9] Radha Krishnan K, Thomas SV. Tropical pyomyositis. In: Chopra JS, Sawhney IMS, editors. Neurology in tropics. 1st Ed. New Delhi: BI Churchill Livingstone Pvt Ltd; 1999, p. 445–454.

[10] Smith MI, Vickers AB. Natural history of treated and untreated patients with septicaemia. *Lancet* 1960; **1**: 1318–1322.