Tropical Pyomyositis Presenting in the Upper Extremity

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ropical pyomyositis is a staphylococcal infection, usually of a single large muscle, most commonly seen in young men in tropical regions. The following presents a case of tropical pyomyositis in a 62-year-old man that affected all four extremities, including the muscles of the forearms. Computed tomography was a useful guide for directing surgical explorations. To decrease the degree of disability from the multiple operative sites, we successfully used limited longitudinal incisions and conservative débridements.

REPORT OF A CASE

A 62-year-old, previously healthy man experienced malaise and pain in the extremities while traveling through the jungles of South America. Onset of fever and increasing pain in the left side of the back and thigh prompted transfer to North America, where the patient was found to have jaundice and was confused and dyspneic. Findings from the physical examination were significant for weakness, pitting edema, and purpura of all extremities. A roentgenogram of the chest showed bilateral fluffy infiltrates. Laboratory values were significant for azotemia, deranged liver function, erythrocyte sedimentation rate (94 mm/h), thrombocytopenia, and lowgrade disseminated intravascular coagulation. The stool examination detected Ascaris lumbricoides and Entamoeba coli eggs. A human immunodeficiency virus test was negative. Blood cultures grew Staphylococcus aureus that were resistant to penicillin. The patient was started on therapy with intravenous oxacillin sodium and oral mebendazole and metronidazole.

The patient's condition worsened, and examination of the left upper extremity now revealed multiple subcutaneous abscesses. At operation, the tentative diagnosis of tropical pyomyositis was confirmed by pathologic examination of

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(Arch Surg. 1995;130:446-447)

muscle biopsy specimens demonstrating extensive acute inflammation with patchy necrosis (**Figure 1**). Subsequent longitudinal incisions and limited serial débridements were guided by computed tomographic scans, evacuating additional sites from all compartments of the left lower extremity (**Figure 2**), the left hip, the right forearm, the right thigh, and the right shoulder. After all the areas of pyomyositis were treated, the patient completely recovered over a period of 4 months.

COMMENT

Tropical pyomyositis is endemic in tropical regions, but cases have been reported in temperate climates, usually in travelers, diabetics, or the immunocompromised. The first reported case in the United States was in 1971, and to date approximately 50 additional cases have been reported. Unlike the recently popularized Streptococcus gangrene affecting skin, fat, and fascia, tropical pyomyositis classically is due to infection with penicillinresistant S aureus of a single large muscle usually of the quadriceps, gluteal, or truncal muscle group.1 Although other pathogens such as Streptococcus pyogenes, Pseudomonas aeruginosa, and Escherichia coli can be responsible for as many as 10% of cases of tropical pyomyositis, all affect the normally infection-resistant muscle.



Figure 1. Photomicrograph of débrided specimen demonstrating inflammation and necrosis of muscle (hematoxylin-eosin, $\times 40$).

The increased susceptibility of muscle to infection has been attributed to trauma, infectious agents (ie, viruses, parasites, and spirochetes), and nutritional deficiencies (ie, kwashiorkor, scurvy, and beriberi).²

The differential diagnosis includes muscle strain, contusion, hematoma, cellulitis, venous thrombosis, osteomyelitis, septic arthritis, and neoplasm.¹ Needle aspirate is a useful tool, but even in the advanced cases it may not yield pus. Once the diagnosis has been made, identifying all the foci of infection can be challenging. Even though ultrasound, gallium scan, and computed tomographic scan all can visualize abscesses, in the critically ill patient with multiple operative sites, ultrasound and gallium scans are unwieldy.

If multiple abscesses are located, respect of flexion creases and vital structures and liberal use of small, thought-



Figure 2. Computed tomographic scan of thighs documenting left biceps femoris abscess.

fully placed longitudinal incisions all help to decrease morbidity of surgical exploration. On exploration, muscle affected by tropical pyomyositis appears pale with spotty necrosis and is riddled with pus. To preserve muscle function, we found that unless replaced by pus, it is necessary to open only the compartment and muscle fascia. Then after dressing changes for 7 to 21 days, the wounds were closed either by delayed primary closure or by secondary intention.

Accepted for publication November 25, 1994.

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REFERENCES

- Nielsen EJ. Tropical pyomyositis in a temperate climate in an immunocompetent adult. Ann Emerg Med. 1992;21:149-151.
- 2. Chiedozi LC. Pyomyositis. Am J Surg. 1979;137:255-259.

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The Triglyceride Issue Revisited: Findings From the Helsinki Heart Study

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Background: In clinical practice, high triglyceride level is recognized as an indicator of increased risk of coronary heart disease (CHD), while most epidemiological studies have shown that triglyceride level is not an independent risk factor for CHD. In an effort to explain this discrepancy we reanalyzed the Helsinki Heart Study data in the light of findings from recent clinical studies related to the insulin resistance syndrome.

Methods: The log-linear modeling technique was used to study the pattern of cross-sectional interdependence of triglyceride level, high-density lipoprotein cholesterol (HDL-C) level, low-density lipoprotein cholesterol level, blood pressure, and blood glucose level. The CHD risk associated with different combinations of levels of triglycerides, HDL-C, and blood pressure was assessed via Cox proportional hazards models.

Results: Triglycerides occupied a central role in the pattern of associations of the factors studied; in particular, the associations with HDL-C level, blood pressure, and blood glucose level were without threshold values. The prevalence of high triglyceride level plus low HDL-C level was strongly associated with blood pressure and blood glucose level, while the prevalence of low HDL-C level alone was not. Only the subgroup with both high triglyceride and low HDL-C levels showed a substantial CHD risk, while those with low HDL-C levels alone or high triglyceride levels alone showed a marginal risk.

Conclusions: Our results suggest that triglycerides play a central mediating role in the occurrence of several CHD risk factors, especially those related to the insulin resistance syndrome. Because of these interdependencies, the question of an independent effect of triglycerides is not relevant, and when assessing CHD risk, triglycerides should be considered jointly with HDL-C.

(Arch Intern Med. 1994;154:2714-2720)