

Necrotizing Fasciitis Associated With Acupuncture: A Case Report

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Infectious complications from acupuncture are extremely rare; we present a case of severe necrotizing Fasciitis (type 1) in an elderly nondiabetic male. *Journal of Hospital Medicine* 2010;5:565–566. © 2010 Society of Hospital Medicine.

KEYWORDS: acupuncture, infection, necrotizing fasciitis.

Presentation

An 84 year-old male with past history of osteoarthritis, extensive degenerative spine disease with spinal stenosis presented to the emergency room with left groin pain accompanied by a foul-smelling discharge from the acupuncture site. He had been receiving regular physical therapy and acupuncture sessions for the past 6 months prior to his presentation. One and a half weeks prior to presentation, needles were inserted over the left groin as part of his acupuncture regimen. The patient described the acupuncture needles originating from a single use, unopened package. Additionally, the patient states his skin was cleaned with an antiseptic solution prior to insertion. Within 3 days, he developed generalized weakness, malaise with localized swelling, erythema, and warmth over the left groin area. His primary care physician performed an incision and drainage and prescribed ciprofloxacin. The patient continued to experience worsening fatigue, difficulty ambulating, ongoing purulent drainage, and consequently presented to the hospital for further evaluation. The patient has an allergy to penicillin but no history of diabetes. He quit smoking 40 years ago and has occasional alcohol intake. Surgical history includes bilateral knee replacement 15 years ago for osteoarthritis and right inguinal hernia repair and appendectomy 60 years ago.

On physical examination the patient had a temperature of 96.8°F, pulse of 88 beats per minute, blood pressure of 97/63 mm Hg, and an oxygen saturation of 98% on room air. There was extensive swelling, erythema, and induration of the left anterior and proximal inguinal area, with a 2-cm malodorous ulcer over the midline thigh. No crepitation or mass was palpable. Range of motion at the hip on the affected limb was limited due to pain. Distal pulses on the lower extremity were present and equal bilaterally. Laboratory examination revealed white blood cell (WBC) = 16.4 with 41% bands. Blood cultures were sent and intravenous vancomycin, ciprofloxacin, clindamycin, and metronidazole were started. A computed tomography (CT)-scan of the left lower extremity was performed and revealed skin thickening and reticulation of the subcutaneous tissues edema extending from the left groin to the left buttock. Several foci of gas

were present within the soft tissues with the largest in the lateral aspect of the buttocks of gas in the soft tissues (Figure 1). The Laboratory Risk Indicator for Necrotizing Fasciitis, the patient scored a 3 out of a possible 13 points. The diagnosis of necrotizing fasciitis was made based on clinical findings and radiographic imaging.

Assessment

Patient became significantly hypotensive which required vasopressor support. He underwent surgical exploration of the left inguinal area. During surgery, tender crepitation of the antero-lateral aspect of the thigh was noted. Extensive debridement with fasciotomy was performed. Tissue was sent for histopathological analysis and gram-stain. A negative-pressure wound dressing was placed over the defect. Post-operatively, patient required intubation and continued vasopressor support. On post-operative day 3, patient was extubated. Wound culture report revealed gram negative rods and *Enterococcus faecalis* which was sensitive to the patients' current antibiotic regimen. Clindamycin was discontinued. The patient was discharged to a subacute rehabilitation facility and returned for a split thickness skin graft 2 months after initial presentation.

Necrotizing fasciitis is a deep-seated infection of the subcutaneous tissue that results in progressive destruction of fascia and fat. Presenting symptoms include pain, erythema, or bullae formation at the site of infection. Systemic symptoms such as fever, malaise, and myalgias may also be present at the time of presentation. Two types of necrotizing fasciitis are noted to occur. Type 1 is a mixed infection with a predominance of anaerobes¹ and carries a 21% mortality.² It is common post-operatively and in patients with diabetes. In type 2 necrotizing fasciitis, Group-A streptococcus was the most common cause of monomicrobial necrotizing fasciitis² and mortality can be as high as 30%.³ Risk factors for the development of fasciitis include immunosuppression, diabetes, surgery, or penetrating injuries. Gas on soft tissue x-rays, CT scan, or magnetic resonance imaging (MRI) is a highly specific but insensitive finding and is common in type I necrotizing fasciitis.



FIGURE 1. Computed tomography-scan of the left lower extremity. The arrow points to several foci of gas present within the soft tissues.

The patient in this case likely developed type I necrotizing fasciitis due to the presence of gas on CT scan and polymicrobial culture findings.

Diagnosis

A PubMed search of necrotizing fasciitis and acupuncture reveals only one case report, in which a diabetic patient underwent an unsterile acupuncture consultation.⁴ To our knowledge, we are the first to describe necrotizing fasciitis occurring in a nondiabetic patient who underwent a sterile acupuncture technique.

Given the lack of an explainable causal relationship regarding the pathogenesis of necrotizing fasciitis in our patient, it appears to be due to the acupuncture needle placement. The patient had no other history of abscesses, trauma and other portals of entry. The patient's presenta-

tion, temporal relation of the site of acupuncture, and the development of infection prompted a high index of suspicion as acupuncture as the main etiology.

Management

Treatment of necrotizing fasciitis includes early and aggressive surgical debridement. Multiple antibiotic regimens may be necessary due to the polymicrobial nature of the infection. In our patient, ciprofloxacin was initiated for broadened gram negative coverage, vancomycin for community acquired methicillin-resistant *Staphylococcus aureus* (MRSA) and metronidazole for anaerobic coverage. Clindamycin was initiated due to concerns of toxin production, but was discontinued as the patient's condition improved.

Although complications of acupuncture may be rare, there exists the potential to cause life threatening complications. Necrotizing fasciitis has been observed as an adverse effect of acupuncture in a single diabetic patient,⁴ but can develop in nondiabetic individuals, such as in our patient.

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References

1. Brook I, Frazier EH. Clinical and microbiological features of necrotizing fasciitis. *J Clin Microbiol.* 1995;33(9):2382–2387.
2. Wong CH, Chang HC, Pasupathy S, Khin LW, Tan JL. Low CO Necrotizing fasciitis: clinical presentation, microbiology, and determinants of mortality. *J Bone Joint Surg Am.* 2003;85-A(8):1454–1460.
3. Stevens DL, Tanner MH, Winship J, et al. Severe group A streptococcal infections associated with a toxic shock-like syndrome and scarlet fever toxin A. *N Engl J Med.* 1989;321(1):1–7.
4. Saw A, Kwan MK, Sengupta S. Necrotising fasciitis: a life-threatening complication of acupuncture in a patient with diabetes mellitus. *Singapore Med J.* 2004; 45(4):180–182.