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Clinical Communications: Adults

"SYNCHRONOUS" MULTIFOCAL NECROTIZING FASCIITIS

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☐ **Abstract—Background: Necrotizing fasciitis (NF) is an infection of the soft tissue, and is fatal if not promptly and aggressively treated. Although it is rare, it is not exceptional; nevertheless, its presentation may be misleading and may delay the diagnosis. We highlight the possible synchronous development of NF in multiple noncontiguous areas. Case Report: A 44-year-old diabetic man with no history of trauma complained of nonspecific lower back pain, which he treated with analgesics and oral antibiotics. Erythema at the left arm appeared, and the general condition worsened. The patient was admitted to the Emergency Department, and NF was diagnosed at the right gluteus and left arm. Conclusion: "Synchronous" multifocality is not an expected presentation of NF, and it complicates the diagnosis and delays treatment, with a potentially negative impact on outcome.** © **2013 Elsevier Inc.**

☐ **Keywords—necrotizing fasciitis; multifocal; infection; soft tissues; fascia**

INTRODUCTION

Necrotizing fasciitis (NF) is a lethal but subtle infection of the muscle sheath, spreading through fascial planes, resulting in necrosis of the fascia, subcutaneous tissues, and muscles. Though rare (incidence rate 0.40 cases/100,000 adults), the associated mortality remains high at 25–30% (1,2). Although the necrotic process typically involves single sites (e.g., a lower/upper extremity, head/neck, trunk, perineum), the concurrent or secondary involvement of distant sites is extremely rare and few cases are reported in the literature (3). The atypical presentation of inflammation at multiple sites can be misleading for making the diagnosis and may lead to delays in treatment that could be fatal.

CASE REPORT

A 44-year-old man was seen by a general practitioner with a 12-h history of fever (up to 40.1°C) and lower back pain that was poorly responsive to analgesics. He denied any trauma. His medical history was significant for type II diabetes mellitus and hypertension. The physical examination was unremarkable, and he was discharged with a prescription for stronger painkillers. However, the fever continued, and swelling with erythema appeared on the right gluteus. The patient was examined again the next day, and an empiric oral antibiotic therapy (third-generation cephalosporin) was administrated. Over the next 6 h, swelling and erythema of the left arm appeared. The patient deteriorated and was transported to the local hospital. At admission to the Emergency Department, his condition appeared critical, with shortness of breath and tachypnea, suggesting pulmonary distress. The right gluteus and the left arm were extremely painful, edematous, and hard to palpate, and serosanguinolent blisters were present. The extremities were cold and cyanotic. The patient was tachycardic

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Table 1. Patient Parameters at Admission and Postoperatively on Day 0

Parameter	Admission	ICU Admission
Heart rate, beats/min	120 r	132 r
Blood pressure, mm Hg	105/55	70/50
C-reactive protein, mg/L*	317	-
WBC, cells/mm^3*	5.02	1.7
Hemoblobin, g/dL*	12.6	7.9
Sodium, mmol/L*	118	118
Creatinine, mg/dL*	2.4	2.8
Glucose, mg/dL*	137	-
Plt /μL*	170,000	76,000
D-dimer, μg/mL*	7720	2915
LRINEC score points, sum	9	-
Risk category	High (> 75%)	-

WBC = white blood cell.
Based on admission parameters (*), a LRINEC (Laboratory Risk Indicator for Necrotizing Fasciitis) score was calculated.

but normotensive. Laboratory studies were significant for normal white cell count but elevated C-reactive protein and creatine phosphokinase value (Table 1). Intravenous empiric broad antibiotic coverage was started. A computed tomography (CT) scan demonstrated subfascial layer heterogeneity and thickening on the posterolateral side of the right thigh and on the ventral side of the left arm (Figure 1A, B). Gas bubbles were revealed within the right gluteus maximus muscle.

With a diagnosis of NF suspected, the patient was brought to the operating room within 2 h from admission. Under general anesthesia, hypotension was followed by complete heart block. Cardiopulmonary resuscitation was performed and rhythm was established after 15 min. Surgical exploration and fasciotomies were carried out, revealing liquefied necrosis with foul-smelling drainage, gray-colored fascia, and focal muscular necrosis (Figures 2, 3). Specimens were sent for microbiological and histological examination.

The patient was admitted postoperatively to the Intensive Care Unit, remaining assisted by mechanical ventilator and still hypotensive (Table 1). Over the following 12 h, both the right thigh and the left arm grew cold, with absent peripheral pulses. The patient was brought back to the operating room for further debridement. In the next days, the patient remained critical and needed hemodialysis, but his general condition progressively stabilized.

Pathology and microbiology reports confirmed NF caused by Group A beta hemolytic *Streptococcus*. Antibiotic therapy was modified according to the antibiogram (penicillin G 3 million units every 6 h [q6h] + clindamycin 600 mg q8h).

On day 4, further debridement, deep washout, and positioning of a vacuum-assisted closure device at the lower extremity wounds were performed. Necrosis at the upper extremity was extensive, with loss of most soft tissue of the volar compartment of the forearm and exposure of the median and ulnar nerves. Once tissue necrosis demarcated, an amputation of the upper extremity was judged the best option.

After 2 weeks, verbal and motor responses were absent, whereas light and corneal reflexes and spontaneous conjugate eye movements were present, with a Glasgow Coma Scale score of 3 (E (eye) = 1, V (verbal) = 1, M (motor) = 1). A CT scan revealed loss of gray–white differentiation. By 2 months, all wounds were closed and the patient was discharged and transferred to a Center for permanent coma status patients.

DISCUSSION

NF is a life-threatening infection of the soft tissues, characterized by subtle, rapid onset of spreading inflammation and necrosis starting from the deep fascia enveloping muscles. Intense edema and thrombosis of vessels running in

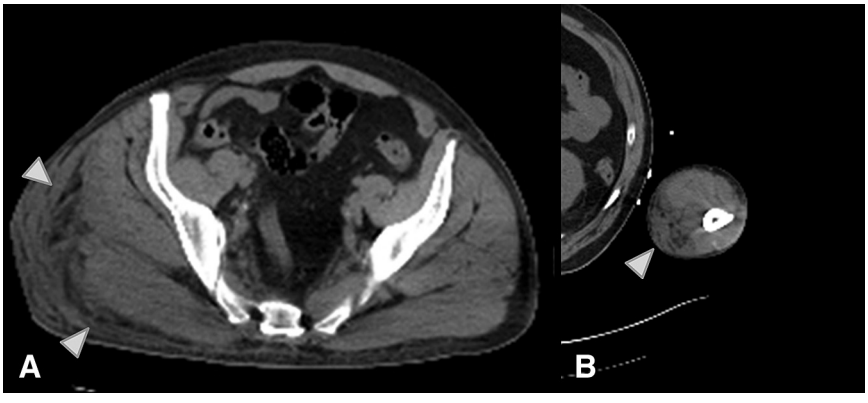

Figure 1. Computed tomography scans of the two necrotizing fasciitis sites at admittance, demonstrating fascial dishomogeneity (arrowheads). (A) Right gluteus; (B) left arm.