Hand ulceration

In the American Southwest, a common problem can be diagnosed with the knowledge of the local environment and its inhabitants.

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A 45-YEAR-OLD MAN presented to a south Texas emergency department with a red, tender, edematous left hand. Earlier that day, he had been working in an oil field when his hand suddenly began to hurt.

On physical exam, puncture wounds were visible at the metacarpophalangeal joint of the thumb and the interphalangeal joint, dorsal aspect; the area was surrounded by necrotic black tissue (FIGURE). Additionally, erythema with extensive edema extended distally to the proximal interphalangeal joints of each digit. Upon palpation, the area was warm, firm, and tender, with the edema tracking proximally to his mid-forearm.

The patient had a temperature of 99.5 °F; his other vital signs were normal. His past medical history included hypertension.

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU TREAT THIS PATIENT?

FIGURE

Necrotic ulceration, erythema, and edema of the hand

PHOTOS COURTESY OF ELBERT BELK, MD

A 21-year-old man presented with necrotic ulceration localized to interphalangeal and metacarpophalangeal joints of the left hand (**A**). Comparison of the left and right hands (**B**) showed the erythema and diffuse edema of the left hand with skin tightening.

Cardiovascular collapse and disseminated intravascular coagulation are 2 potentially fatal complications of a scorpion sting.

Dx: Cellulitis, compartment syndrome by scorpion sting

Based on the necrotic puncture wounds, unilateral distribution of the swelling, and the patient's acknowledgement that he'd seen a scorpion in his work environment prior to symptom onset, he was given a diagnosis of cellulitis with secondary compartment syndrome following a scorpion sting.

A geographic problem

In the United States, there are approximately 17,000 reported cases of scorpion stings every year, with fewer than 11 related deaths reported between 1999 and 2014.[1] These cases tend to follow a geographic distribution along the American Southwest, with the highest incidence occurring in Arizona, followed by Texas; the majority of cases occur during the summer months.[1]

The most clinically relevant scorpion in the United States is the *Centruroides sculpturatus*, also known as the *Arizona bark scorpion*.[2] *Centruroides spp* can be recognized by a slender, yellow to light brown or tan body measuring 1.3 cm to 7.6 cm in length. There is a tubercule at the base of the stringer, a defining characteristic of the species.[3]

Urgent care is necessary for more severe symptoms

The most common complaint following a scorpion sting tends to be pain (88.7%), followed by numbness, edema, and erythema.[1] Other signs and symptoms include muscle spasms, hypertension, and salivation. Symptoms can persist for 10 to 48 hours. Cardiovascular collapse and disseminated intravascular coagulation are 2 potentially fatal complications of a scorpion sting.

The diagnosis is made clinically based on history and physical exam findings; a complete blood count, coagulation panel, and creatine kinase and amylase/lipase bloodwork may be ordered to assess for end-organ complications. Local serious complications, such as compartment syndrome, should be urgently referred for surgical management.

Signs of compartment syndrome include tense, swollen compartments and pain with passive stretching of muscles within the compartment. Rapid progression of symptoms, as seen in this case, is also a red flag.

Differential diagnosis includes necrotizing fasciitis

The differential diagnosis includes uncomplicated cellulitis, as well as necrotizing fasciitis and methicillin-resistant *Staphylococcus aureus* (MRSA) cellulitis.

Necrotizing fasciitis. The lack of subcutaneous crackles and pain that is out of proportion to touch, as well as relatively normal vital signs, ruled out a diagnosis of necrotizing fasciitis in this case.

Community-acquired MRSA is seen with purulent cellulitis. However, this patient had no purulent discharge.

Antivenom is only needed for severe cases

Treatment is primarily supportive; all patients should have the wound thoroughly cleaned, and pain can be controlled using nonsteroidal anti-inflammatory drugs or opioid therapy.[2] Tetanus prophylaxis should be given. The *Centruroides* antivenom, Anascorp, should be considered for patients with severe symptoms, including loss of muscle control, roving or abnormal eye movements, slurred speech, respiratory distress, excessive salivation, frothing at the mouth, and vomiting.[4] In most cases, local poison control centers should be consulted for advice on management and to answer questions about antivenom availability.

Our patient was admitted to the hospital and an urgent surgery consult was obtained. The surgeon performed a fasciotomy to treat the compartment syndrome, and the patient survived without loss of his hand or arm. JFP

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