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CLINICAL VIGNETTE

Pseudomonas Hot Foot Syndrome

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Case Report

A 22-year-old female went to Big Bear for the weekend with some friends and developed "bumps" on her legs. She presented to the office with a two-day history of red raised bumps on her legs and feet. She used the hot tub at the resort and reported that everyone who stayed at the cabin developed the same kind of bumps on their legs. She denied pruritus, and reported mild pain, which increased to moderate pain if the bumps were touched or with weight bearing. She denied any prior history of similar rash. She did complain of some general malaise and a low-grade fever.

Her past medical and surgical history was unremarkable, and she denies any drug allergies or allergies to foods. She neither smokes nor drinks and her family medical history is unremarkable. She is currently not taking any prescription medications or over the counter medications.

Physical exam revealed normal vital signs and no abnormalities except on skin exam.

Both feet had blanching erythema, edema and tenderness to palpation bilaterally along the heels. There was blanching erythema and edema noted along plantar aspect of phalanges and metatarsals. Erythematous papules and pustules extended along both anterior shins.

Discussion

Pseudomonas aeruginosa was recognized as the causative agent for hot tub folliculitis in the early 1970s¹. *Pseudomonas aeruginosa* is a ubiquitous gram-negative rod². Three environmental conditions predispose to infection: length of water exposure, increased number of bathers and hypochlorination (found in whirlpools, hot tubs, saunas and swimming pools)¹. Hot tub folliculitis usually appears 1-3 days after hot tub exposure¹. Lesions are papillovesicular on an erythematous base and some develop into pustules¹.

A more rare and new presentation of hot tub folliculitis is *Pseudomonas* hot foot syndrome. It was first diagnosed in 1998 in 40 children ages 2-15 years old¹. The syndrome included exquisitely painful erythematous plantar nodules that appeared 40 hours after the patients used a wading pool with a floor coated with abrasive grit to prevent slippage¹. The grit likely traumatized the feet of the affected children permitting infection from contaminated water. These nodules were attributed to *Pseudomonas aeruginosa*. Patients often present with follicular, macular, papular, vesicular, or pustular lesions on any part of the body that has been immersed in the contaminated water³. In addition the affected skin appears erythematous. Patients will often complain of severe pain and a sensation of heat in the soles accompanied by exam findings of swelling, erythema, and multiple, tender reddish-purple plantar nodules².

The mechanically stressed areas of the foot are particularly affected after contact with contaminated water from saunas, swimming pools, and hot tubs. It is hypothesized that this may be due to micro tears in the skin's surface allowing entrance of bacteria³.

Fever, lymphadenopathy, and malaise occur in a small number of cases. Lesions in the immunocompetent patient typically resolve spontaneously within a period of seven to ten days⁴. It only rarely requires treatment with topical or oral antipseudomonal medication like ciprofloxacin⁵. Treatment is directed at prevention by appropriately cleaning the whirlpool or hot tub and maintaining appropriate chlorine levels in the water⁴.

Alternative diagnoses that should be considered include: erythema nodosum; septal panniculitis that often involves the legs; and traumatic-pressure urticaria, characterized by tender plantar macules and papules resulting from mechanical stress such as running and dancing. The pathophysiology of traumatic urticaria is thought to be similar to that of delayed-pressure urticaria³.



Figure 1

Outcome

The patient received ciprofloxacin 750 mg po bid for one week and her symptoms including the rash resolved. She reported that her friends who had joined her in the hot tub also reported resolution of their rashes in a weeks' time with supportive care.

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