

# Nonblanching, Erythematous, Cerebriform Plaques on the Foot

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A 48-year-old otherwise healthy man presented with a tender lesion on the dorsal aspect of the right foot with dysesthesia and progressive pruritus that he originally noticed 9 days prior after snorkeling in the Caribbean. He recalled kicking what he assumed was a rock while swimming. Initially there was negligible discomfort; however, on day 7 the symptoms started to worsen and the lesion started to swell. Application of a gauze pad soaked in hydrogen peroxide 3% failed to alleviate symptoms. Physical examination revealed a 4-cm region of well-demarcated, nonblanching, erythematous plaques in a lattice pattern accompanied by edematous and bullous changes. Triamcinolone acetonide cream 0.1% was prescribed.

## WHAT'S YOUR DIAGNOSIS?

- accidental trauma
- coral dermatitis
- cutaneous larva migrans
- infectious dermatitis
- seabather's eruption

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The authors report no conflict of interest.

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## THE DIAGNOSIS: Coral Dermatitis

At 3-week follow-up, the patient demonstrated remarkable improvement in the intensity and size of the erythematous cerebriform plaques following daily application of triamcinolone acetonide cream 0.1% (Figure). The lesion disappeared after several months and did not recur. The delayed presentation of symptoms with a history of incidental coral contact during snorkeling most likely represents the type IV hypersensitivity reaction seen in the diagnosis of coral dermatitis, an extraordinarily rare form of contact dermatitis.<sup>1</sup> Not all coral trigger skin reactions. Species of coral that contain nematocysts in their tentacles (aptly named *stinging capsules*) are responsible for the sting preceding coral dermatitis, as the nematocysts eject a coiled filament in response to human tactile stimulation that injects toxins into the epidermis.<sup>2</sup>

Acute, delayed, or chronic cutaneous changes follow envenomation. Acute responses arise immediately to a few hours after initial contact and are considered an irritant contact dermatitis.<sup>3</sup> Local tissue histamine release and cascades of cytotoxic reactions often result in the characteristic urticarial or vesiculobullous plaques in addition to necrosis, piloerection, and localized lymphadenopathy.<sup>2,4</sup> Although relatively uncommon, there may be rapid onset of systemic symptoms such as fever, malaise, hives, nausea, or emesis. Cardiopulmonary events, hepatotoxicity, renal failure, or anaphylaxis are rare.<sup>2</sup> Histopathology of biopsy specimens reveals epidermal spongiosis with microvesicles and papillary dermal edema.<sup>1,5</sup> In comparison, delayed reactions occur within days to weeks and exhibit epidermal parakeratosis, spongiosis, basal layer vacuolization, focal necrosis, lymphocyte exocytosis, and papillary dermal edema with extravasated erythrocytes.<sup>1,6</sup> Clinically, it may present as linear rows of erythematous papules with burning and pruritus.<sup>6</sup> Chronic reactions manifest after months as difficult-to-treat, persistent lichenoid dermatitis occasionally accompanied by granulomatous changes.<sup>1,2,4</sup> Primary prevention measures after initial contact include an acetic acid rinse and cold compression to wash away residual nematocysts in the affected area.<sup>4,7,8</sup> If a rash develops, topical steroids are the mainstay of treatment.<sup>3,8</sup>

In tandem with toxic nematocysts, the rigid calcified bodies of coral provide an additional self-defense mechanism against human contact.<sup>2,4</sup> The irregular haphazard nature of coral may catch novice divers off guard and lead to laceration of a mispositioned limb, thereby increasing the risk for secondary infections due to the introduction of calcium carbonate and toxic mucinous deposits at the wound site, warranting antibiotic treatment.<sup>2,4,7</sup> Because tropical locales are home to other natural dangers that inflict disease and mimic early signs of coral dermatitis, reaching an accurate diagnosis can be difficult, particularly for lower limb lesions. In summary, the diagnosis of coral



Clinical appearance of coral dermatitis on day 26 following daily application of triamcinolone acetonide cream 0.1%.

dermatitis can be rendered based on morphology of the lesion and clinical context (exposure to corals and delayed symptoms) as well as response to topical steroids.

The differential diagnosis includes accidental trauma. Variations in impact force and patient skin integrity lead to a number of possible cutaneous manifestations seen in accidental trauma,<sup>9</sup> which includes contusions resulting from burst capillaries underneath intact skin, abrasions due to the superficial epidermis scuffing away, and lacerations caused by enough force to rip and split the skin, leaving subcutaneous tissue between the intact tissue.<sup>9,10</sup> Typically, the pattern of injury can provide hints to match what object or organism caused the wound.<sup>9</sup> However, delayed response and worsening symptoms, as seen in coral dermatitis, would be unusual in accidental trauma unless it is complicated by secondary infection (infectious dermatitis), which does not respond to topical steroids and requires antibiotic treatment.

Another differential diagnosis includes cutaneous larva migrans, which infests domesticated and stray animals. For example, hookworm larvae propagate their eggs inside the intestines of their host before fecal-soil transmission in sandy locales.<sup>11</sup> Unexpecting beachgoers travel barefoot on this contaminated soil, offering ample opportunity for the parasite to burrow into the upper dermis.<sup>11,12</sup> The clinical presentation includes signs and symptoms of creeping eruption such as pruritic, linear, serpiginous tracks. Topical treatment with

thiabendazole requires application 3 times daily for 15 days, which increases the risk for nonadherence, yet this therapy proves advantageous if a patient does not tolerate oral agents due to systemic adverse effects.<sup>11,12</sup> Oral agents (eg, ivermectin, albendazole) offer improved adherence with a single dose<sup>11,13</sup>; the cure rate was higher with a single dose of ivermectin 12 mg vs a single dose of albendazole 400 mg.<sup>13</sup> The current suggested treatment is ivermectin 200 µg/kg by mouth daily for 1 or 2 days.<sup>14</sup>

The incidence of seabather's eruption (also known as chinkui dermatitis) is highest during the summer season and fluctuates between epidemic and nonepidemic years.<sup>15,16</sup> It occurs sporadically worldwide mostly in tropical climates due to trapping of larvae spawn of sea animals such as crustaceans in swimwear. Initially, it presents as a pruritic and burning sensation after exiting the water, manifesting as a macular, papular, or maculopapular rash on areas covered by the swimsuit.<sup>15,16</sup> The sensation is worse in areas that are tightly banded on the swimsuit, including the waistband and elastic straps.<sup>15</sup> Commonly, the affected individual will seek relief via a shower, which intensifies the burning, especially if the swimsuit has not been removed. The contaminated swimwear should be immediately discarded, as the trapped sea larvae's nematocysts activate with the pressure and friction of movement.<sup>15</sup> Seabather's eruption typically resolves spontaneously within a week, but symptom management can be achieved with topical steroids (triamcinolone 0.1% or clobetasol 0.05%).<sup>15,16</sup> Unlike coral dermatitis, in seabather's eruption the symptoms are immediate and the location of the eruption coincides with areas covered by the swimsuit.

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