A 35-year-old man presented with a month-long history of a mildly pruritic erythematous, papular rash on the anterior aspect of his left lower leg. He had been diagnosed with localized cellulitis and treated with a 10-day course of dicloxacillin 500 mg 4 times per day, without improvement. On presentation he was in the middle of a 5-day course of azithromycin, also without notable improvement. He denied fever, chills, pain in the area, or any other local or systemic symptoms. He denied any allergies and had not used any topical medications or other therapies on the irritated area. He reported a history of a second-degree burn to this same area when he was about 14 years of age, and described that since that injury he had experienced almost yearly episodes of a similar mildly pruritic, erythematous rash in the same location. During the ensuing years these episodes were often diagnosed as cellulitis and empirically treated with various oral antibiotics. The condition would gradually resolve, though not clearly in conjunction with the antibiotic therapy. On some instances, the patient would opt not to seek treatment and the condition would still resolve in approximately the same amount of time. He denied any additional past medical or surgical history.

On examination, the patient had a large papulovesicular eruption with surrounding erythema overlying the old burn site (Figure 1). The underlying skin was devoid of hair follicles and was shiny and slightly atrophic in appearance. There was no warmth to the skin in this area and no spread of the condition beyond the margins of the old burn scar. No popliteal or inguinal lymphadenopathy was appreciated and he had no other significant dermatologic findings on a complete skin examination.

**Case Report**

Eczematous dermatitis is a common condition affecting many. The condition may occur as a result of several pathophysiologic processes. In most cases, patients respond well to treatment and often require only maintenance or episodic therapy. Although less common, dermatitis in loco minoris resistentiae may respond similarly. Presentation of dermatitis in loco minoris resistentiae, however, may be misleading and the condition may go undiagnosed or improperly treated, delaying resolution and placing patients at risk for complications due to inappropriate therapies. Primary care physicians who consider this condition in their differential diagnoses may be able to diagnose it more accurately, treat it more effectively, and reduce the possibility of treatment side effects.

**Abstract**

Eczematous dermatitis is a common condition affecting many. The condition may occur as a result of several pathophysiologic processes. In most cases, patients respond well to treatment and often require only maintenance or episodic therapy. Although less common, dermatitis in loco minoris resistentiae may respond similarly. Presentation of dermatitis in loco minoris resistentiae, however, may be misleading and the condition may go undiagnosed or improperly treated, delaying resolution and placing patients at risk for complications due to inappropriate therapies. Primary care physicians who consider this condition in their differential diagnoses may be able to diagnose it more accurately, treat it more effectively, and reduce the possibility of treatment side effects.

**Conflict of Interest:**

Drs Shenenberger and Anthony report having no financial or advisory relationships with corporate organizations related to this activity.

**Off-Label Product Discussion:**

The authors of this article do not include information about off-label use of products. The opinions or assertions herein are the private views of the authors and are not to be construed as official or as reflecting the views of the United States Navy or the Department of Defense.

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A 3-mm punch biopsy was performed on the affected area, which showed superficial perivascular dermatitis with eosinophils and mild spongiosis (Figure 2). Fungal staining was negative. The rash finally resolved after a 5-day course of oral steroids (untapered) in conjunction with 10 days of topical 0.2% hydrocortisone valerate cream (Figure 3).

**Discussion**

There is only 1 paper in the medical literature directly describing dermatitis in loco minoris resistentiae as a clinical entity. In 1982, Zuehlke et al. described a series of cases in which patients developed some form of eczematous dermatitis in an area of skin that had been previously damaged by various forms of trauma (Table). The mean time to onset of symptoms was 5.4 years, but the range was anywhere from 2 months to 25 years. Average age at presentation was 40 years. Although this broad range of time to presentation might weaken the theory that these patients have some unifying condition, it is entirely possible that our knowledge of the condition is not yet sufficient to appreciate its various characteristics.

Dermatitis in loco minoris resistentiae, though not a common condition, probably occurs more often than appreciated. It should be considered in the differential diagnosis of any nonspecific eczematous dermatitis in areas of previous trauma. The diagnosis should also be considered in patients receiving treatment empirically for presumed localized, nonspreading cellulitis—particularly if the condition is not responding to antimicrobials.

Despite the fairly typical eczematous skin changes, erythema may prompt a diagnosis of localized cellulitis. Treatment failure with broad-spectrum antibiotics in a nonprogressing clinical course should point the clinician towards a noninfectious etiology. The apparent localized worsening of the condition despite what seems to be appropriate antimicrobial therapy may only represent the natural course of the condition; however, the clinician must consider the possibility of a drug reaction and antimicrobial resistance. Microvesiculation and scaling should guide the physician toward considering an eczematous disorder in the differential diagnosis.

**Diagnostic Testing**

While the diagnosis may be presumed based on clinical evaluation and pattern recognition, a definitive diagnosis can only be made by demonstrating characteristic changes on biopsy. Histologically, areas of spongiosis are seen along with other signs characteristic of an eczematous disorder. Although the finding of spongiosis is not very specific, its presence is most often associated with eczematous disorders. However, similar histologic findings are present in many other disorders.

The location of the condition varies from small isolated areas to multifocal regions and intracellular
edema. Evidence of inflammation is present with the finding of perivascular lymphocytic infiltrates. In cellulitis, one would typically find neutrophilic infiltration within the dermis. Clinically, cellulitis would usually present with tissue warmth and erythema, possible lymphatic streaking, and regional lymphadenopathy; depending on the severity such patients might present with fever or other systemic symptoms.

**PATHOGENESIS**

Apart from the Zuehlke study there has been no notable research on this condition, so the pathophysiology is speculative. Presumably the underlying pathologic finding—spongiosis—results from a fluid shift from the dermis to the epidermis. It is possible that antecedent damage may compromise the function of the components of the skin that allow it to act as a protective barrier.

Specifically, lymphatic drainage, vascular structure, and/or complement function may be impaired or damaged, altering the functional barrier the skin provides. This initial skin injury may have caused enough damage that any small change in cellular fluid equilibrium began a cascade of events that ultimately produced an eczematous eruption. While this explanation is theoretical, it does make practical sense.

**TREATMENT**

As dermatitis in loco minoris resistentiae is both clinically and histologically an eczematous process, it should respond to topical steroids and possibly to the newer nonsteroidal agents such as tacrolimus and pimecrolimus. Other topical preparations aimed at restoring a functional barrier, such as emollients, may be helpful in speeding resolution or preventing recurrence.

**CONCLUSION**

Dermatitis in loco minoris resistentiae, if considered in the differential diagnosis, is a treatable disorder that may be misdiagnosed as an infectious condition. With the ever-rising concerns about bacterial resistance to antimicrobials and the possibility of compounding the problem by causing a drug reaction, careful attention should be paid to the certainty of the diagnosis.

**REFERENCES**