Tender Edematous Nodules on the Hand

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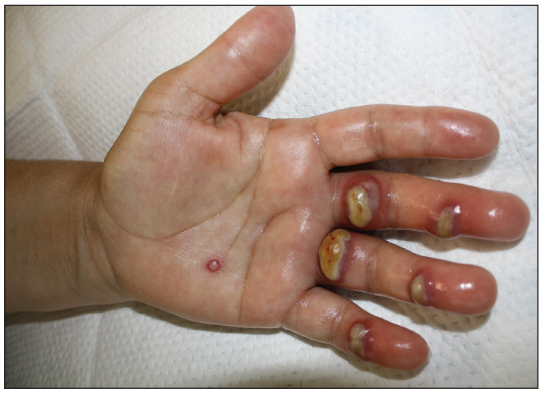

A 57-year-old woman presented to the emergency department (ED) for evaluation of a rash on the left hand of 2 weeks' duration. She described pinpoint red lesions on the left palm, as well as the third, fourth, and fifth fingers, which gradually enlarged and became painful. She denied any specific trauma but recalled cutting her hand on a piece of metal in the ground prior to the onset of the rash. She worked on a farm and bottle-fed sheep and chickens. Physical examination revealed tender edematous nodules with central gray pustules, and the left axillary lymph node was enlarged and tender. Ulceration was not appreciated. Various antibiotics including cephalexin, trimethoprim-sulfamethoxazole, and clindamycin were prescribed during prior ED visits, but she reported no improvement with these medications. She remained afebrile throughout the course of the hand rash, and laboratory workup was consistently unremarkable. Two sets of herpes simplex virus cultures from the ED visits showed no growth, and a hand radiograph also was normal. Medical history included coronary artery disease, myocardial infarction, mitral regurgitation, and hyperlipidemia.

WHAT'S THE **DIAGNOSIS?**

a. ecthyma contagiosum (orf)
b. milker's nodule
c. pyogenic granuloma
d. sporotrichosis
e. tularemia

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The authors report no conflict of interest.
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THE **DIAGNOSIS:** Ecthyma Contagiosum (Orf)

Orf, or ecthyma contagiosum, is a zoonotic cutaneous infection caused by the orf DNA virus of the genus *Parapoxvirus* of the family Poxviridae. It is transmitted to humans through direct contact with infected animals, namely sheep and goats, and as such is most commonly seen in patients with occupational exposure to these animals such as butchers, farmers, veterinarians, and shepherds.[1,2] Human-to-human transmission is exceedingly rare in immunocompetent patients.[2,3] In affected animals, lesions usually are found around the mouth, muzzle, and eyes. In humans, hands are the most commonly affected site, and lesions occur 3 to 10 days after contact. Clinically, the lesions are nonspecific, and our patient presented with tender, erythematous, edematous nodules on the left hand. The differential diagnosis is broad and includes a milker's nodule, pyogenic granuloma, tularemia, anthrax, atypical mycobacterial infection, and sporotrichosis.[1,4,5]

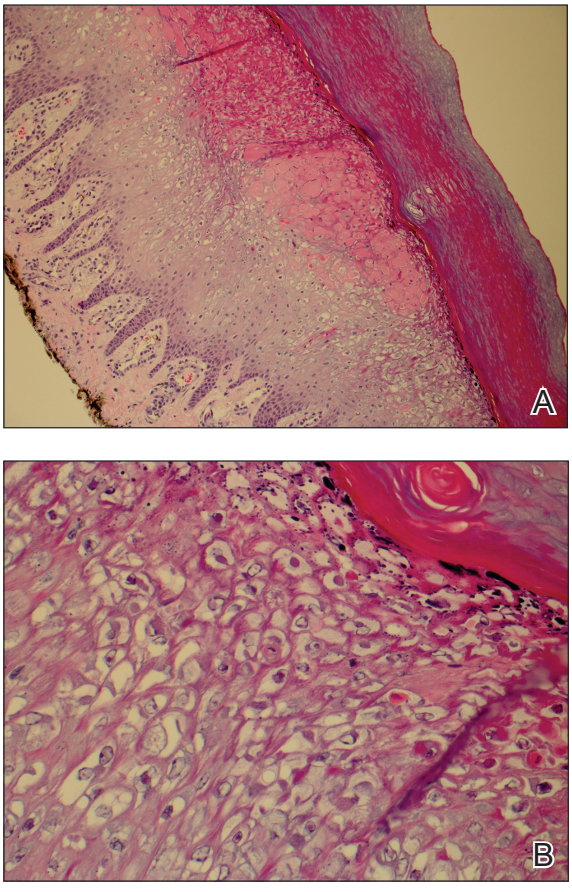
The diagnosis usually is made with a thorough history and examination, but in cases of uncertainty, routine pathology with hematoxylin and eosin staining, electron microscopy, or real-time polymerase chain reaction may be used.[2-4] Histopathologically, lesions demonstrate intraepidermal vesicles, vacuolization of keratinocytes of the upper epidermis with characteristic cytoplasmic inclusion bodies, rete ridge elongation, and dilated vessels in the intervening dermal papillae. Central necrosis may occur in well-developed lesions.[2,6] Interestingly, our patient's biopsy exhibited all of these findings (Figure). Immunostains for cytomegalovirus and herpes simplex virus were negative, and Grocott-Gomori methenamine-silver and acid-fast bacillus stains also were negative.

Our patient also developed lymphangitic streaking suggestive of a bacterial superinfection and was treated with a course of intravenous antibiotics. She eventually was discharged with reassurance, wound care instructions, and outpatient antibiotics. She returned to an outside institution's emergency department for further evaluation, and she was admitted for workup. A lesional swab was sent for real-time polymerase chain reaction, which confirmed the diagnosis as orf. When the patient was contacted for follow-up 1 week after biopsy, the hand lesions had notably improved.

Orf is self-limited and typically resolves within 4 to 8 weeks after undergoing evolution through 5 described stages. The maculopapular stage is denoted by enlarging erythematous macule. The targetoid stage is described by a red center within a white halo surrounded by a broader red halo. The nodular stage is self-descriptive. The regenerative and regression stages describe the progressively improving, drier, and crusted nodules.[3]

Because orf is self-limited, no treatment is required, and patients should be counseled that their lesions should resolve within weeks. Complications include lymphangitis, secondary bacterial infection, and erythema multiforme.[1,2,4,5] Immunocompromised patients may develop recalcitrant, giant, or multiple lesions that may be treated with topical imiquimod, topical cidofovir, intralesional interferon alfa, or surgical excision.[1,2,4,7]

We present a case of orf to remind practitioners of this rare entity. Although the disease is endemic worldwide, it likely is underreported due to its self-limited nature.[2,4] A careful history may reveal the diagnosis, and overtreatment with antibiotics, many of which have their own significant side-effect profile, can then be avoided.



Intraepidermal vesicle with vacuolization of keratinocytes of the upper epidermis (A)(H&E, original magnification ×100) and pale vacuolated keratinocytes with eosinophilic cytoplasmic inclusion bodies (B)(H&E, original magnification ×400).

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Acknowledgment—We thank Eric Behling, MD (Camden, New Jersey), for his contributions in obtaining the histologic images.

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