

# Vesicular Eruption



**Figure 1.** Painful, umbilicated vesicles on the patient's face and neck.

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**A** 49-YEAR-OLD MAN WITH A HISTORY OF SEVERE ECZEMA PRESENTS TO YOUR office with slightly eroded, erythematous scaly patches on his face, chest, and back. You prescribe oral doxycycline hyclate, 150 mg/d, to avoid bacterial infection and tacrolimus ointment, 0.1%. After 5 days, he returns to your office with painful, umbilicated vesicles on his face, ears, neck and chest, and back (FIGURE 1). He is afebrile and denies systemic symptoms; he has no known drug allergies and denies having complications due to tetracyclines in the past. He takes no additional medications.

## What Would You Do Next?

- Continue current management and prescribe a tapering course of oral prednisone.
- Discontinue doxycycline immediately and initiate treatment with a cephalosporin.
- Discontinue tacrolimus ointment, initiate treatment with valacyclovir, and send culture for further studies.
- Discontinue current management and prescribe a tapering course of oral prednisone.

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## Diagnosis

Eczema herpeticum

### What to Do Next

B. Discontinue tacrolimus ointment, initiate treatment with valacyclovir, and send culture for further studies.

The development of a vesicular eruption in the same distribution of atopic dermatitis is characteristic of eczema herpeticum, a widespread herpes simplex virus (HSV) infection. The preferred course of action is to initiate treatment with an antiviral agent effective against HSV, such as valacyclovir. If topical calcineurin inhibitors are being used, they should be stopped because they are a potential pathogenetic factor for eczema herpeticum.<sup>1</sup>

### Comment

Patients with atopic dermatitis are prone to a number of different disseminated viral infections including eczema vaccinatum, eczema molluscatum, and eczema herpeticum. The most common of these infections is eczema herpeticum.<sup>2</sup> Kaposi's varicelliform eruption<sup>3</sup> describes disseminated cutaneous infection with HSV superimposed on any skin disease. The underlying skin disorder most associated with eczema herpeticum is atopic dermatitis.<sup>2</sup>

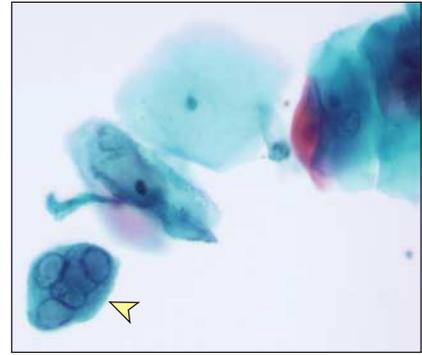
Clinically, patients present with monomorphic, dome-shaped vesicles and systemic symptoms of lymphadenopathy; fever and malaise may be present. The head, neck, and trunk are most commonly affected. Blisters crust within 2 weeks of infection and heal completely within 2 to 6 weeks.<sup>2</sup> Secondary impetiginization of lesions with *Staphylococcus aureus* or *Streptococcus pyogenes* may cause complications. Before effective antiviral treatment, the mortality rate due to eczema herpeticum was estimated between 10% and 50%,<sup>4</sup> with most deaths caused by viremia with multisystem organ failure, including meningitis and encephalitis.<sup>4,5</sup>

Primary infection with HSV usually occurs in childhood. Patients with decreased cell-mediated immunity, as seen in atopic dermatitis, are prone to recurrent and severe HSV infections. In such patients, a strong T<sub>H</sub>2 cell response has been suggested as a contributing factor to HSV overgrowth.<sup>6</sup>

Historically, eczema herpeticum was associated most commonly with children, but a retrospective review of 75 cases demonstrated that the majority of cases occur in the second and third decades of life.<sup>7</sup> Another retrospective review of 100 cases identified early onset of atopic dermatitis and high total serum IgE level as predisposing factors. The majority of patients in this study had untreated atopic dermatitis, and in more than 75% of cases there was no use of corticosteroids in the 4 weeks before development of eczema herpeticum.<sup>8</sup> While this suggests that topical corticosteroids may not predispose to eczema herpeticum,<sup>8</sup> there is some evidence that topical calcineurin inhibitors may increase the risk of eczema herpeticum.<sup>1</sup>

In most cases, eczema herpeticum may be diagnosed by its clinical features. However, diagnosis should be confirmed by polymerase chain reaction for viral DNA or by identification of HSV-infected cells with a commercial immunofluorescence test.<sup>2</sup> A Tzanck or Pap test supports the diagnosis through the demonstration of large multinucleated cells (FIGURE 2). In most cases, the Tzanck test is used; in this case we used a Pap test because it provides greater nuclear detail. Patients should be monitored for systemic symptoms. Body temperature, erythrocyte sedimentation rate, and differential blood cell count reflect the severity of disease. If bacterial superinfection is suspected, it can be confirmed with culture; oral cephalosporins are a good choice, empirically.<sup>2</sup>

It is critical to initiate systemic antiviral therapy as soon as possible to effectively treat eczema herpeticum. Children diagnosed with eczema herpeticum should be hospitalized and receive 24 to 48 hours of intravenous acyclovir (and possibly intravenous antibiotics as determined by skin and blood cultures). This should be followed by at least 1 week of acyclovir at a dosage of at least 10 mg/kg, 3 times daily, and then a 3- to 6-month course of suppressive oral acyclovir. If the patient is old enough to swallow large pills, suppressive therapy with 500 mg/d of either oral valacyclovir or famciclovir would be preferable.<sup>9</sup> In adults, treatment with acy-



**Figure 2.** Pap test showing a multinucleated, herpes simplex virus–infected cell (arrowhead).

clovir (200 mg orally, 5 times per day for 7 days) has been shown to be effective for eczema herpeticum.<sup>10</sup> However, oral valacyclovir is likely more effective due to its better pharmacodynamic profile.

### Patient Outcome

The patient was treated effectively with valacyclovir, 1 g orally 3 times a day for 7 days, with complete clearance of the lesions. Additional workup included a viral culture, which was positive for HSV-1, and a Pap test (Figure 2).

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