

## Online Quiz

# Test Your Knowledge: Ten Questions about Eczema Herpeticum

This quiz is related to the Learning Forum article in the November issue of *PLoS Medicine* (DOI: 10.1371/journal.pmed.0010017).

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**Question 1. Based on the evidence to date, which of the following describes the incidence of eczema herpeticum?**

- The incidence has probably not changed over the last 50 years
- The incidence is probably falling
- The incidence is probably increasing

**Question 2. Based on epidemiological data, in patients with atopic dermatitis (eczema), which one of the following is most likely to predispose them to developing eczema herpeticum?**

- Low total levels of serum IgE
- Earlier onset of atopic dermatitis
- Corticosteroid treatment

**Question 3. Which one of the following statements best reflects the association between eczema herpeticum and other skin diseases?**

- Eczema herpeticum most commonly occurs in patients with pre-existing atopic dermatitis
- Eczema herpeticum only occurs in patients with pre-existing atopic dermatitis
- Eczema herpeticum can occur in a variety of skin diseases, all of which are either allergic or autoimmune

**Question 4. Which one of the following best reflects current knowledge of eczema vaccinatum occurring after smallpox vaccination?**

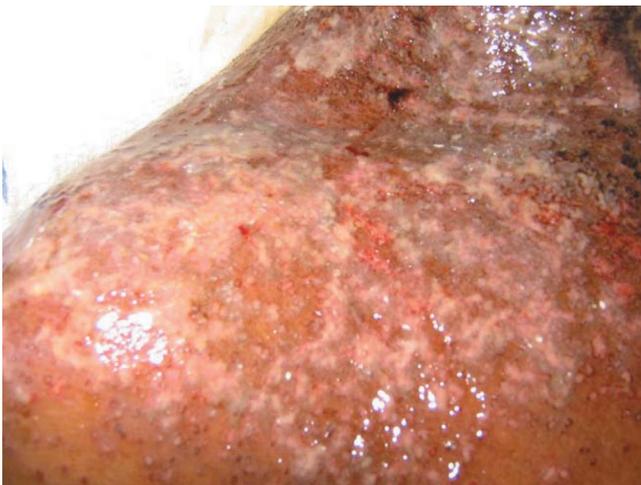
- Following the recent smallpox vaccination campaign in the United States, there have been a large number of cases of eczema vaccinatum
- Eczema vaccinatum is only a risk in those who are vaccinated
- The US Centers for Disease Control and Prevention (CDC) states that a person who has a past history of atopic dermatitis but who has no active disease can safely receive smallpox vaccination
- The CDC cautions that any history of atopic dermatitis or eczema is a contraindication to receiving smallpox vaccination

**Question 5. Which herpes virus is the most common cause of eczema herpeticum?**

- Herpes simplex virus type 1 (HSV-1)
- Herpes simplex virus type 2 (HSV-2)
- Human herpes virus 6 (HHV-6)

**Question 6. Which kind of rash does eczema herpeticum usually cause?**

- Dome-shaped vesicles, which dry out and form crusts
- An itchy macular rash
- A hemorrhagic rash



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**Question 7. Which one of the following best reflects current knowledge of antiviral therapy for eczema herpeticum?**

- There have been no randomized controlled trials of antiviral therapy for eczema herpeticum
- Intravenous therapy is indicated for all patients, regardless of disease severity
- Oral therapy has been shown to be effective, but is generally used only for mild cases

**Question 8. Which of the following best reflects current practice when it comes to using aciclovir to treat pregnant women with eczema herpeticum?**

- Since there is no evidence for a teratogenic effect, there are no concerns about giving the drug during pregnancy
- Aciclovir is teratogenic and should never be given to pregnant women with eczema herpeticum
- Although the issue of whether to give the drug during pregnancy is still controversial, women are often given the drug because eczema herpeticum in pregnancy can cause intrauterine infection in 50% of cases

**Question 9. Which of the following best reflects the current management approach to eczema herpeticum?**

- Since the disease is viral, there is no place for antibiotics
- Antibiotics are often needed because secondary bacterial sepsis is common, usually involving anaerobic bacteria
- Antibiotics are often needed because bacterial sepsis is common, usually involving *Staphylococcus aureus* or group A beta-hemolytic streptococci

**Question 10. Which of the following most accurately describes the association between atopic dermatitis and viral skin infections?**

- Eczema herpeticum is the only viral infection associated with atopic dermatitis
- Patients with atopic dermatitis are at risk of a variety of viral infections, many of which can become disseminated eruptions
- Patients with atopic dermatitis are at risk of a variety of viral infections, but eczema herpeticum is the only one that becomes a disseminated eruption

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**Answer 1. The incidence is probably increasing**

There has been little research on the incidence of eczema herpeticum, but one study from the Department of Dermatology at the University of Mainz, Germany, found a sharp rise in incidence in the period from 1969 to 1986 [1]. From 1969 through 1981, 13 cases were registered, whereas for the years 1982 to 1986, the number of cases was 62. It is unclear whether the increase in registered cases reflected a genuine change in the epidemiology of atopic eczema/ herpes simplex or was due to increased reporting.

**References**

1. Bork K, Brauning W (1988) Increasing incidence of eczema herpeticum: Analysis of seventy-five cases. *J Am Acad Dermatol* 19: 1024–1029.

**Answer 2. Earlier onset of atopic dermatitis**

Two retrospective analyses—one of 75 cases and the other of 100 cases—found two predisposing factors [1,2]: early onset of atopic dermatitis and a *high* total serum IgE level. In these studies, topical corticosteroids did not predispose to eczema herpeticum. In one of the studies, 75% of those who developed eczema herpeticum had *not* received corticosteroids in the four weeks preceding its onset—the authors concluded that most cases of eczema herpeticum occurred in patients with inadequately treated atopic dermatitis [2].

**References**

1. Bork K, Brauning W (1988) Increasing incidence of eczema herpeticum: Analysis of seventy-five cases. *J Am Acad Dermatol* 19: 1024–1029.
2. Wollenberg A, Zoch C, Wetzel S, Plewig G, Przybilla B (2003) Predisposing factors and clinical features of eczema herpeticum: A retrospective analysis of 100 cases. *J Am Acad Dermatol* 49: 198–205.

**Answer 3. Eczema herpeticum most commonly occurs in patients with pre-existing atopic dermatitis**

Eczema herpeticum most commonly occurs in patients with pre-existing atopic dermatitis. In one retrospective analysis of 100 cases of eczema herpeticum, most occurred in patients with untreated atopic dermatitis [1]. However, eczema herpeticum can be associated with other skin conditions with a wide range of etiologies—not just allergic or autoimmune—such as seborrheic dermatitis [2], pemphigus [3], second degree burns [4], and conditions due to sun exposure [5].

**References**

1. Wollenberg A, Zoch C, Wetzel S, Plewig G, Przybilla B (2003) Predisposing factors and clinical features of eczema herpeticum: A retrospective analysis of 100 cases. *J Am Acad Dermatol* 49: 198–205.
2. Wheeler CE, Abele DC (1966) Eczema herpeticum, primary and recurrent. *Arch Dermatol* 93: 162–173.
3. Zouhair K, Ouzzani TE, Azzouzi S, Sqalli S, Lakhdar H (1999) Surinfection herpétique du pemphigus: Six cas. *Ann Dermatol Venerol* 126: 699–702.
4. Nishimura M, Maekawa M, Hino Y, Mihara K, Kohda H (1984) Kaposi's varicelliform eruption: Development in a patient with a healing second-degree burn. *Arch Dermatol* 120: 799–800.
5. Wolf R, Tamir A, Weinberg M, Mitrani-Rosenbaum S, Breener S (1992) Eczema herpeticum induced by sun exposure. *Int J Dermatol* 31: 298–299.

**Answer 4. The CDC cautions that any history of atopic dermatitis or eczema is a contraindication to receiving smallpox vaccination**

There have been no cases so far of eczema vaccinatum following the recent smallpox vaccination program in the US, though if the program is extended there may be new cases. There has been a case of eczema vaccinatum following smallpox vaccination in Israel [1].

Eczema vaccinatum occurs in the setting of a compromised epidermal barrier. It should be suspected in any patient with a history of atopic dermatitis who has typical clinical features and either has been vaccinated against smallpox or has had contact with an individual who has been vaccinated 5–20 days prior to presentation [2].

To reduce the risk of inadvertent inoculation of a patient with atopic dermatitis, the CDC cautions that any history of atopic dermatitis or eczema is a contraindication to receiving smallpox vaccine [3].

The CDC has a freely available Internet-based training module on smallpox for physicians at <http://www.bt.cdc.gov/agent/smallpox/training/index.asp>.

## References

1. Moses AE, Cohen-Paradosu (2002) Images in clinical medicine. Eczema vaccinatum—A timely reminder. *N Engl J Med* 346: 1287. Available: <http://content.nejm.org/cgi/content/full/346/17/1287>. Accessed 29 September 2004.
2. Kramer SC, Thomas CJ, Tyler WB, Elston DM (2004) Kaposi's varicelliform eruption: A case report and review of the literature. *Cutis* 73: 115–122.
3. Cono J, Casey CG, Bell DM, Centers for Disease Control and Prevention (2003) Smallpox vaccination and adverse reactions. *MMWR Recomm Rep* 52: 1–28.

### Answer 5. Herpes simplex virus type 1 (HSV-1)

Eczema herpeticum is most commonly caused by herpes simplex virus type 1 (HSV-1) [1], usually in patients with atopic dermatitis, though a similar disease may also occur with coxsackie virus and vaccinia [2]. HHV-6 is the cause of the childhood exanthema erythema subitum.

## References

1. Yoshida M, Umene K (2003) Close association of predominant genotype of herpes simplex virus type 1 with eczema herpeticum analyzed using restriction fragment length polymorphism of polymerase chain reaction. *J Virol Methods* 109: 11–16.
2. Kramer SC, Thomas CJ, Tyler WB, Elston DM (2004) Kaposi's varicelliform eruption: A case report and review of the literature. *Cutis* 73: 115–122.

### Answer 6. Dome-shaped vesicles, which dry out and form crusts

Patients with eczema herpeticum typically present with a disseminated monomorphic eruption of dome-shaped vesicles, most often on the head, neck, and trunk. Within two weeks, the vesicles usually dry out and form crusted papules [1].

## References

1. Wollenberg A, Wetzel S, Burgdorf WHC, Haas J (2003) Viral infections in atopic dermatitis: Pathogenic aspects and clinical management. *J Allergy Clin Immunol* 112: 667–674.

### Answer 7. Oral therapy has been shown to be effective, but is generally used only for mild cases

There has been one multi-center, controlled trial of oral aciclovir for eczema herpeticum, involving 69 patients who were randomized to aciclovir (200 mg five times per day for five days) or placebo. Clinical efficacy was assessed using a numerical rating scale for various parameters, such as lesion stage, pain, and general improvement. The drug was found to have a significantly greater clinical efficacy than placebo [1].

The cornerstone of treatment for eczema herpeticum is prompt systemic antiviral therapy, such as a seven-day course of intravenous aciclovir (5–10 mg/kg three times per day), which may be prolonged according to clinical response [2,3]. As discussed above, oral therapy has been shown to be effective, though it has a lower bioavailability than intravenous therapy and its use is generally restricted to less severe cases [2,3].

## References

1. Niimura M, Nishikawa T (1988) Treatment of eczema herpeticum with oral acyclovir. *Am J Med* 85: 49–52.
2. Wollenberg A, Wetzel S, Burgdorf WHC, Haas J (2003) Viral infections in atopic dermatitis: Pathogenic aspects and clinical management. *J Allergy Clin Immunol* 112: 667–674.
3. De Clercq E (2004) Antiviral drugs in current clinical use. *J Clin Virol* 30: 115–133.

### Answer 8. Although the issue of whether to give the drug during pregnancy is still controversial, women are often given the drug because eczema herpeticum in pregnancy can cause intrauterine infection in 50% of cases

It is standard practice to give aciclovir to pregnant women with eczema herpeticum (5–10 mg/kg intravenously three

times per day for at least seven days) because there is a 50% risk of intrauterine infection (usually during the first 20 weeks) [1]. Intrauterine infection can cause spontaneous abortions and birth defects [1].

While there is no evidence of a teratogenic effect, there are still concerns about giving the drug during pregnancy because no large, well-controlled studies have been done [1].

## References

1. Wollenberg A, Wetzel S, Burgdorf WHC, Haas J (2003) Viral infections in atopic dermatitis: Pathogenic aspects and clinical management. *J Allergy Clin Immunol* 112: 667–674.

### Answer 9. Antibiotics are often needed because bacterial sepsis is common, usually involving *Staphylococcus aureus* or group A beta-hemolytic streptococci

Patients with eczema herpeticum often require antibiotic therapy because they commonly get secondary bacterial infection with *S. Aureus* or group A beta-hemolytic streptococci [1,2].

## References

1. Brook I (2002) Secondary bacterial infections complicating skin lesions. *J Med Microbiol* 51: 808–812.
2. Wollenberg A, Wetzel S, Burgdorf WHC, Haas J (2003) Viral infections in atopic dermatitis: Pathogenic aspects and clinical management. *J Allergy Clin Immunol* 112: 667–674.

### Answer 10. Patients with atopic dermatitis are at risk of a variety of viral infections, many of which can become disseminated eruptions

Patients with atopic dermatitis are at risk of many different viral skin infections, all of which can become disseminated, including the following: eczema herpeticum (usually due to herpes simplex virus type 1), eczema molluscum (due to molluscum contagiosum virus), and eczema vaccinatum (following smallpox vaccination) [1].

## References

1. Wollenberg A, Wetzel S, Burgdorf WHC, Haas J (2003) Viral infections in atopic dermatitis: Pathogenic aspects and clinical management. *J Allergy Clin Immunol* 112: 667–674.

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- Bork K, Brauninger W (1988) Increasing incidence of eczema herpeticum: Analysis of seventy-five cases. *J Am Acad Dermatol* 19: 1024–1029.
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