

Case Scenario 4

A 32 y.o. male ER physician in a large southwestern state presents with an redness and swelling around his left eye 10 days after receiving smallpox vaccination. Periorbital edema is present with erythema, a few small pustules with slight ulceration are present on the upper eyelid close to the lid margin, the conjunctiva are not inflamed. The patient does not complain of eye pain and no corneal lesions are apparent. The patient's primary vaccination site shows a central pustule with 4 cm of surrounding erythema; the patient notes some pruritis and discomfort but says the lesion is beginning to improve.

The patient relates that he has been keeping his bandage on the site with changes at the occupational health clinic except that when off work on days 5 and 6 after vaccination, he cleared brush on his ranch in very dusty conditions. During this period of time he had left his vaccination site unbandaged since he was not having any contact with other persons and he did not want sweat to cause maceration of the lesion. He does not wear contacts or glasses. The patient denies a history of 'fever blisters' or 'cold sores'.

1. What is the most likely diagnosis?

Inadvertent inoculation of the eye (ocular vaccinia). The presence of the ulcerated pustules with surrounding erythema and edema is very suspicious. This type of ocular involvement could be categorized as isolated blepharitis without conjunctivitis or keratitis.

2. Are there other conditions that should be considered?

Other conditions that might cause a similar picture in this patient would include implantation (or reactivation) of herpes simplex virus (perhaps from contact with a patient's lesion) or allergic contact dermatitis from poison oak or ivy with the history of clearing brush. Some other conditions are listed on the clinical evaluation tool

3. What might a reasonable course of management for this patient?

Topical antiviral prophylaxis should be considered and an ophthalmology consult should be obtained to assist in the management. While topical antivirals (trifluridine and vidarabine) are not FDA approved for treatment or prophylaxis of vaccinia, the product labels state that the drugs have in vitro and in vivo activity against vaccinia.

4. What is the usual course of the patient's condition?

The evolution of the individual vaccinia lesions in inadvertent inoculation follows the course of normal smallpox vaccination lesions although anecdotally, ones that appear after day 5 tend to have a milder course.

5. If conjunctivitis and corneal lesions were present along with the blepharitis, how would suggested management differ?

For vaccinia-induced blepharitis or conjunctivitis associated with keratitis, emergent ophthalmologic consultation and topical antiviral treatment would be recommended. VIG may be considered although data on the efficacy of VIG in ocular lesions is not available from controlled trials.

6. If isolated keratitis was present, would there be a difference in the suggested management?

There is very limited older experimental data in a rabbit model that suggests that VIG may induce greater corneal opacity when used to treat vaccinia keratitis. If the patient had isolated keratitis, the use of VIG has not been shown to offer added benefit over topical antivirals and would not be recommended.

7. Do non-ocular inadvertent inoculations require specific anti-vaccinia treatment?

VIG may be considered for other inadvertent inoculations where the lesions are severe, extensive, or painful. Inadvertent inoculations to areas of skin inflammation due to conditions such as allergic contact dermatitis are likely to be more widespread than inoculations into areas with intact skin.

Goals:

Clinical picture of inadvertent ocular inoculation including mild and severe forms

Therapeutic modalities available

Outcome

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- 2. Are there other conditions that should be considered?**
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- 6. If isolated keratitis was present, would there be a difference in the suggested management?**
- 7. Do non-ocular inadvertent inoculations require specific anti-vaccinial treatment?**