Smallpox Vaccination

**Vaccination Method & Reactions**

Because mumps vaccine use is widespread, many clinicians are unaccustomed to the risks, positive outcomes, and complications of single doses of smallpox vaccine. The guide also includes images and text to help identify the different reactions to vaccination. Additional in-depth analysis of vaccination from those that were common and may require intervention.

**Vaccination**

Adverse reactions of vaccination from those that differentiate the more common, self-limiting responses to vaccination. Additional in-depth analysis of vaccination from those that were common and may require intervention.

**Recommended vaccination method:**

Multiple-puncture vaccination is the default area of the vaccine. This method is simple, gives good individual inoculation, and makes it easier to see if the vaccine has been applied. This method also allows for multiple nodules of vaccine to be applied to each site.

**Step-by-Step Instructions**

1. NO alcohol: vaccination will be inhibited. No skin preparation is required prior to vaccination.
2. 3-4 Papule
3. 5-6 Vesicle with surrounding erythema →
4. 12+ Pustule crusts over → scab
5. 17-21 Scab detaches revealing scar

**Normal Reaction Timeline**

<table>
<thead>
<tr>
<th>Day</th>
<th>Description</th>
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<tbody>
<tr>
<td>6-8</td>
<td>Normal reaction normally occurs.</td>
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<tr>
<td>9-14</td>
<td>Normal variants (rate: 2.4%-6.6%) are NOT adverse reactions.</td>
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**Normal Variants/Revaccination**

- **Vaccinia Immune Globulin (VIG)**

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ADVERSE REACTIONS

Severity:

Post-vaccinial encephalitis is a rare complication of smallpox vaccination. It usually occurs less than 10 days after vaccination, primarily in children, and may result in seizures, encephalitis, or death. It may be prevented by using VIG (Vaccinia Immune Globulin) post-exposure prophylaxis. If seizures occur, administration of VIG may be beneficial. Post-vaccinial encephalitis is considered a severe adverse event, and hospitalization is recommended.

Accidental Administration:

Most vaccines are administered subcutaneously or intramuscularly. Accidental administration at the wrong site, especially subcutaneously, can cause local inflammation, pain, and swelling. It is important to follow the recommended route of administration. If an adverse event occurs as a result of intramuscular administration, consult an experienced ophthalmologist for treatment of corneal cloudiness.

Bacterial Infections:

Infections may occur as a result of improper sterile technique or contaminated equipment. These infections are usually localized and self-limited, but may lead to sepsis or meningitis in immunocompromised individuals. Treatment is with antibiotics specific to the agent. Initial topical antiviral agents are the treatment of choice in uncomplicated cases, while more severe cases may require hospitalization and supportive care.

Vaccinia Keratitis:

Vaccinia keratitis may occur as a result of inoculation of the eye with vaccinia virus in the form of a vaccine. Symptoms include pain, photophobia, tearing, and redness. Antiviral therapy with topical antiviral agents is the treatment of choice. If no improvement is seen, consultation with an experienced ophthalmologist is recommended. In rare cases, systemic treatment may be necessary.

Progressive Vaccinia

Progressive vaccinia is a rare complication occurring in individuals who are immunocompromised. It can be prevented by using VIG post-exposure prophylaxis. The primary symptoms include fever, malaise, and generalized vaccinia. Treatment is with VIG and supportive care. Early recognition and treatment are crucial to prevent serious complications.

Eczema Vaccinatum

Eczema vaccinatum is a complication of smallpox vaccination that affects individuals with eczema or atopic dermatitis. It is characterized by vesicular lesions that progress to scarring. Treatment is with antibiotics specific to the agent. Early recognition and treatment are crucial to prevent serious complications.

Progressive Vesiculopustular Lesions

Progressive vesiculopustular lesions are seen in staph infection and Group A Beta Hemolytic Streptococci. Anaerobic infections, although lesions identical to the staph infection, are less common. Diagnosis may be more difficult in contact cases, because history of contact with a vaccinee may be unknown or unrecognizable. Treatment is with antibiotics specific to the agent. Early recognition and treatment are crucial to prevent serious complications.

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