

Oops, I did not follow my Post Vaccination Instructions

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Introduction

Smallpox vaccine is derived from vaccinia virus, a large, double-stranded DNA virus. With the worldwide eradication of smallpox, routine vaccination with vaccinia virus is no longer performed. However, at-risk laboratory and health care personnel continue to be vaccinated against smallpox, and large numbers of military personnel in the United States resumed smallpox vaccination after the anthrax bioterrorism in 2001. Two available smallpox vaccines are part of the strategic stockpile in the United States; one is a replication-deficient modified vaccinia Ankara vaccine (MVA), and the other is a replication-competent smallpox vaccine (ACAM2000). Among others, one of the potential complications of smallpox vaccine is an accidental autoinoculation or accidental inoculation of close contacts.

Case Summary

A 27-year-old female presented to the employee health clinic at Vidant Medical Center with a 7-day lesion on her right upper extremity. She denied any fever, chills, pets at home, insect bites or trauma to the area. She was using inhaled nebulizers for her asthma and lived in Greenville, NC, with her boyfriend. The lesion was non itchy, approximately 5 mm blister like rash that ulcerated with a grayish, white center and had a surrounding red border. On further questioning, she disclosed that her boyfriend was a marine, who was recently vaccinated against smallpox two weeks before she developed the skin lesion, but he did not cover the site as instructed. Her lesion was un-roofed and a sample was collected and sent to NC State Laboratory of Public Health for identification. It was also reported to the NC State Department of Health for possible contact transmission of smallpox. In the meantime, the patient was instructed to cover the area while at work, keep the lesion open to air at home, and avoid skin-to-skin contact. The sample returned positive for *Orthopoxvirus* DNA by PCR.

Laboratory Results for Poxvirus		
Test	Result	Release Date
Real-Time PCR for Non-variola orthopoxvirus	Non-variola orthopoxvirus DNA detected	10/01/2019
Real-Time PCR for Orthopoxvirus	Orthopoxvirus DNA detected	10/01/2019

CONCLUSION: Presumptive positive Identification of Orthopoxvirus

Conclusion Comments:

Comment(s):

The performance characteristics of the procedures used for identification were determined and validated by the Centers for Disease Control and Prevention (CDC) and verified by the NCSLPH. The assays have not been cleared or approved by the U.S. Food and Drug Administration (FDA).

Interpret these results in conjunction with clinical, epidemiological, and other laboratory data when making the diagnosis.



Lesion on Day 1



Lesion after un-roofing for lab specimen collection

Conclusion

Recipients of smallpox vaccine have a potential for autoinoculation and inoculation of close contacts. Hence, the vaccine recipients should be well educated about proper care of the vaccination site for preventing possible contact transmission of the virus. These include covering the vaccination site, proper hand washing after bandage changes, and avoiding skin-to-skin contact.

Reference

Rotz LD, Dotson DA, Damon IK, Becher JA; Advisory Committee on Immunization Practices. Vaccinia (smallpox) vaccine: recommendations of the Advisory Committee on Immunization Practices (ACIP), 2001. MMWR Recomm Rep. 2001 Jun 22;50(RR-10):1-25; quiz CE1-7. PMID: 15580803.