

☐ E. Advise patient never again to receive a smallpox vaccination.

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1. REPORT DATE		2. REPORT TYPE		3. DATES COVE	RED	
1 JUL 2006		N/A		-		
4. TITLE AND SUBTITLE				5a. CONTRACT NUMBER		
Photo quiz. Unusual reaction to smallpox vaccination. An Physician 74:145 - 147			erican Family	5b. GRANT NUMBER		
				5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S)				5d. PROJECT NUMBER		
Aldis, J Kortepeter		5e. TASK NUMBER				
			5f. WORK UNIT NUMBER		NUMBER	
	ZATION NAME(S) AND AD y Medical Research	8. PERFORMING ORGANIZATION REPORT NUMBER RPP-04-297				
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)		
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAIL Approved for publ	LABILITY STATEMENT ic release, distributi	on unlimited				
13. SUPPLEMENTARY NO The original docum	otes nent contains color i	mages.				
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16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF	18. NUMBER	19a. NAME OF	
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified	- ABSTRACT SAR	OF PAGES 3	RESPONSIBLE PERSON	

Report Documentation Page

Form Approved OMB No. 0704-0188

Discussion

The correct answer is C: provide symptomatic management. The range of expected reactions occurring after smallpox vaccination can include fatigue, headache, myalgia, regional (usually axillary) lymphadenopathy, lymphangitis, pruritus, vaccination site edema, and satellite lesions (*see accompanying table*^{1,2}). These normal reactions usually do not require specific treatment.³ The incidence of "robust takes" (i.e., vaccination reactions larger than 10 cm in diameter) varies between 2 and 16 percent.¹ Again, these reactions rarely require specific treatment.

Lymphangitis near the vaccination site may occur with robust takes. This presents as erythema and induration surrounding the pustule and usually is most pronounced on days 8 through



10. A less common presentation shows a hyperemic and indurated band extending from the vaccination site (usually located over the middle or lower deltoid area) that traverses distally and then passes around the back of the upper arm toward the axilla and its regional lymph nodes (*Figure 2*).

This patient demonstrated a variation of the lymphangitis described above. The vaccination site usually is lower over the deltoid area than it was in this patient. In this case, the higher position of the vaccination site may have spared the patient axillary adenopathy (which often occurs with robust primary vaccine takes) and channeled the lymphatic drainage along a different route. This also may explain the patient's neck and supraclavicular pain. The tender induration in the center of the erythematous area was likely an inflamed interpectoral lymph node.

Norm	al reaction	<u>-</u>			
<u>Day</u>	Description	Normal variants*	Adverse reactions†		
0	Vaccination	Local satellite lesions (normal in appearance)	Erythema multiforme		
3 to 4	Papule	Lymphangitis	Bacterial infection		
5 to 6	Vesicle with surrounding erythema vesicle with depressed center	Robust take (intense inflammation surrounding the papule)	Accidental implantation‡		
8 to 9	Well-formed pustule	Local edema	Vaccinia keratitis		
12+	Pustule crusts over scab		Eczema vaccinatum		
17	17 Scab detaches, revealing		Generalized vaccinia, congenital		
to 21	scar		vaccinia, progressive vaccinia, encephalitis		
note: For more information on adverse reactions to smallpox vaccination, go to http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5501a1.htm . *-Not considered adverse events. †-Must be reported to state public health authorities and to the national Vaccine Adverse Events Reporting System (VAERS) at http://vaers.hhs.gov . ‡-Accidental implantation is autoinoculation of sites away from primary vaccination site (e.g., face). Information from references 1 and 2.					

This is a generally benign viral process for which antibiotics are not useful, antiviral agents and immune globulin are not indicated, and hospitalization is unnecessary. The transient lymphangitic

infection and the local inflammation at the vaccination site are limited by the patient's normal immune response. Because this type of reaction occurs almost exclusively with primary smallpox vaccinations, it is highly unlikely that it would recur with revaccination.

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The opinions and assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the U.S. Army Medical Department or the U.S. Army Service at large.

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