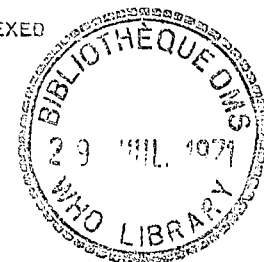




RESULTS OF VIROLOGICAL EXAMINATION OF SMALLPOX  
CONVALESCENTS AND CONTACTS

INDEXED



by

E. M. Shelukhina,<sup>a</sup> S. S. Marennikova,<sup>a</sup> N. N. Maltzeva,<sup>a</sup>  
G. R. Matzevich<sup>a</sup> and A. A. Hashmi<sup>b</sup>

Many investigators have described the results of attempted isolation of variola virus from skin lesions<sup>2,3,8,11,12</sup> and virus has been recovered at all stages of the rash. In some instances, variola virus can also be isolated from nasopharyngeal discharges before the appearance of rash.<sup>4,5,9,10</sup> However, only a few have reported isolation of virus late in the course of the disease.<sup>1,7,12</sup> In these studies, virus was isolated from blood between 19 and 38 days after infection and from the nasopharynx after 22 and 23 days.

As the duration of excretion of virus after all crusts have fallen off is of epidemiological interest, we conducted virological studies of a small group of convalescents. Some contacts of cases were also examined, who, at the time specimens were taken and during the following three weeks, were healthy. Throat swabs and urine specimens were obtained. (So far as we know, attempts to isolate smallpox virus from urine have not before been attempted.)

Specimens were obtained in Karachi in March-April 1970 from 13 convalescent smallpox patients who had been discharged from the hospital 16 to 36 days after onset of disease. At the time of discharge, the patients were healthy and all crusts had separated. Virus isolation was conducted at the Moscow Research Institute of Viral Preparations one to two months after the specimens were taken.

Twelve-day-old chick embryos were used for virus isolation. Specimens were not considered negative until after three passages had been made. A buffer solution containing antibiotics was added to the throat swabs in a volume of 0.5 to 1.5 ml depending on the number of swabs and then were extracted for 60 to 90 minutes. The urine was sedimented and penicillin and streptomycin added before inoculation. Even with this approach, there were many deaths among the chick embryos because of heavy bacterial contamination.

Results of virus isolation attempts from throat swabs and urine of smallpox convalescents are summarized in Table 1. Variola virus was isolated from the urine of two persons 23 and 25 days after onset and from the nasopharynx of four patients 16, 24, 25 and 26 days after onset of illness.

Virus isolates from patients two, eight and 12 (nasopharynx) were recovered on the first passage on CAM of chick embryos, thus demonstrating a rather high concentration in the material. From patient 11 (urine) and patient 13 (nasopharynx), virus was recovered on the second passage and from patient 12 (urine) on the third passage.

Thus, it would appear that, in a certain number of cases, virus can be isolated from convalescents even after the patient has recovered and all crusts have fallen off.

<sup>a</sup> Research Institute of Viral Preparations, Moscow, USSR.

<sup>b</sup> Hospital of Epidemic Diseases, Karachi, West Pakistan.

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From healthy persons in intimate contact with smallpox patients, throat swabs only were obtained. Specimens for this purpose were taken in Landhi Colony (15 km from Karachi) where, at that time, an outbreak of smallpox was in progress. Throat swabs were taken from 12 contacts, all of whom remained healthy for at least three weeks afterwards. Results of virus isolation attempts from healthy contacts are given in Table 2. Variola virus was recovered in only one case: a two-year-old child who had been vaccinated five days earlier. This child had a slight fever but was otherwise well. Presumably, this was a case of variola sine eruptione.

Although these observations are limited, they are of interest from the epidemiological point of view. Further work is planned.

TABLE 1. RESULTS OF VARIOLA VIRUS ISOLATION FROM NASOPHARYNX AND URINE OF SMALLPOX CONVALESCENTS

Patient No.	Age (years)	Vaccination scar	Day of illness specimen taken	Results of virus isolation	
				Urine	Nasopharynx
1	1	No	24	0	0
2	8	No	24	0	+
3	22	No	22	0	0
4	?	No	?	0	0
5	40	No	21	0	0
6	6	Yes	21	0	0
7	?	?	?	0	0
8	9	No	16	0	+
9	35	No	28	0	0
10	19	No	36	0	0
11	17	No	23	+	0
12	22	Yes	25	+	+
13	5	Yes	26	0	+

TABLE 2. RESULTS OF VIRUS ISOLATION FROM HEALTHY CONTACTS OF SMALLPOX PATIENTS

Patient No.	Age (years)	Vaccination scar	Type of contact	Presence of fever when specimen taken	Result of isolation
1	24	No	same room	+	0
2	1-1/2	No	same room	+	0
3	6	No	street	+	0
4	2	*(5)	same compound	+	+
5	7	No	same room	-	0
6	6	*(8)	close	+	0
7	9	Yes	street	+	0
8	6	Yes	street	+	0
9	5	*(10)	street	+	0
10	4	*(11)	same house	-	0
11	18	Yes	intimate	-	0
12	1	No	street	+	0

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