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AN OUTBREAK OF SMALLPOX IN A VILLAGE IN AFGHANISTAN

by

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The constant supervision of vaccinators in a smallpox eradication programme to ensure that they do a thorough and systematic job, can, at times, be frustrating but never so the investigation of outbreaks of smallpox, which is always an enlivening experience. Having been busy in recent months in organizing a vaccination programme, we thought it high time to take a hand in the equally, if not more, important activity of outbreak containment operations. Whilst cogitating thus, on 3 July 1969, an alarm was sounded - a case of smallpox had been admitted to one of the local hospitals in Kabul. Needless to say, we rushed post-haste to the hospital.

The patient was a 25-year-old female. Her mother, an old lady, was in attendance. The first thing to do was, of course, to make sure whether it was indeed a case of smallpox. So we looked at the patient from all angles in good light. The depth and distribution of lesions which were in the vesicular stage, the absence of pleomorphism and a history of a pre-eruptive fever with constitutional symptoms clinched the diagnosis. The case was an ordinary - semiconfluent type.

We proceeded to make further inquiries. Had she ever been vaccinated? The mother replied remorsefully that while she herself and the son-in-law were vaccinated, the patient was not.

Now, how to determine the source of infection? "Ask the patient" is an old formula. It worked! The patient revealed that she contracted the infection from a child of her sister whom she visited for a few days about a month ago at a village some distance from the capital. Her own house was in a village only a mile from her sister's village.

The patient had been hospitalized and was being taken care of. Our presence was no longer needed. We hastened back to the Ministry and called the outbreak-containment team to "action station", collected several packets of vaccine and a boxful of bifurcated needles and headed for the village.

The road was tarred only for a short distance. Thereafter it was more of a dirt track, just jeepable, careering over hills and dales and across ploughed fields and irrigation ditches. Three hours after a bumpy, back-breaking ride, we were at a dead end so far as motoring was concerned. There was no alternative but to climb down and walk the rest of the way.

The village was located a thousand yards away from the road-head, deep in a narrow valley, along a small stream. It was a small-sized village - a cluster of about 30 mud houses with no other village within a radius of one mile.

No sooner had we arrived than the urchins of the village gathered around us. The purpose of our visit known, we were conducted in a procession as it were to the house of S.J. whose wife was the sister of the patient referred to above. S.J. who was working in the field was soon located and brought to meet us.

After customary exchanges of courteous greetings, we were requested to step into the living room of the humble abode which consisted of this room and another, the latter being the confines of the womenfolk of the family. It is pertinent to mention that the typical village house is constructed of mud and has not more than two rooms, with a small courtyard in front. The rooms are generally ill-ventilated and S.J.'s house was no exception.

The floor of the room was covered by a cotton rug and there were piles of rolled-up bedding stacked against the walls. Some quilts were fetched from the other room and spread out. As guests, we sat on the quilt and used the bedding rolls as a back-rest. Having thus comfortably ensconced us, S.J. offered to answer any queries we might have. We noticed that entering the house with us were some elder members and many children of the neighbouring houses. We felt as if we were in a jam-packed court room and the cross-examination was about to begin.

Besides S.J., everyone in the room was eager to provide answers to our questions. The village being a compact one, everyone knew everyone else and all seemed to be in the know of every incident, big or small, in the village. But there was one problem - no one could tell us the exact dates on which the various events had occurred. They did not have a calendar. It was either a week or fifteen days or a month ago, that too approximately.

True, the hospitalized patient (I.B.) had been here a month ago. At that time, case 1 (see Table), a two-year-old son of S.J. had been ill with smallpox. I.B. used to caress him. As we expressed our desire to see the boy, he was called in from the other room. All the scabs, except for one or two on the hands and feet, had fallen off leaving depigmented areas.

Were there any other cases in the family? No, but there was one in the adjacent house of J.K., a brother of S.J. Before we could say "Jack Robinson" the patient, a two-year-old boy, was brought in. There was no doubt about the diagnosis. Although the rash was in the vesicular stage, the child was fondled by one and all in the room with love and sympathy!

We were then told of two deaths due to smallpox, that had occurred 25 days ago - the victims being one, a less than one-year-old child of S.J. and the other, a five-year-old son of J.K.

Were the children who contracted the disease vaccinated before? No. What about those who did not get the disease? Both the fathers and their children had been vaccinated a year ago, whereas the two mothers had never been immunized.

Was there any isolation of the patient? None at all. The smaller children and those who were sick slept with the mother in one room, while the father and the older children shared the other.

Did they clean the rooms and how did they deal with the beddings? From time to time, they swept the floors, dusted the rugs, aired and sunned the bedding and washed the cotton clothes. When was the bedding on which we were reclining last dried in the sun? A couple of weeks ago? Here was one active case and one in the late scabbing stage moving about. We wondered whether there were at that moment in this infected household, virus on the walls, floors and in the bed linen. We were reminded of the experimental research in Madras, during which virus was isolated from the pillow covers that were earlier used by smallpox patients, even up to 45 days. We wished that Dr A. R. Rao was here to continue his research under natural conditions!

The question and answer hour had been a long one. We thought we had better go round the village to see if there were other cases. Our searches proved fruitful. Sure enough, there were two more cases - a four-year-old boy and a one-year-old boy, in two other families. Both were ordinary, discrete types, in the early scabbing stage. We found that neither of the boys had been vaccinated before. We obtained particulars of the family contacts as well.

From what we saw of the close intermingling of the members of the first two families, both could justifiably be treated as a single household. In all probability, case 1 (see Table) was the source of infection of our hospitalized patient and it appeared that cases 1 and 2 got the infection from case 3, though one cannot be sure, due to uncertainties of the dates of onset of illness. The source of infection for case 3 could not be traced.

All the children who had been vaccinated a year ago escaped the disease. So also had the two variolated fathers. But surprisingly, the two mothers, though unprotected, did not get the disease in spite of close and prolonged contact with the infected children.

With regard to the other two cases in the village, one saw that everyone mixed with everyone else in this small village community. Women took their sick children with them while visiting their neighbours and the sick children, once they could get up from bed, were allowed to play with the healthy children. We were informed that the families of W.K. and S.A. exchanged visits often with those of the first two families. Thus it is likely that cases 5 and 6 contracted the infection from the household of S.J.

Surprisingly, in these two families also, the unprotected mothers as well as the two unvaccinated girls of W.K's family, did not develop the disease. The immunization status of the fathers could not be ascertained as they were away from the village.

As to the rest of the people in the village, we learned that the provincial vaccinators had been to this village a year ago and had vaccinated most of the children and some of the older male members. Additionally, about 15 days before our visit, a couple of provincial vaccinators had vaccinated a number of children and left. Though a thorough coverage had not been achieved by either of the teams, their activities no doubt helped to limit the spread of the disease.

Now, a few words about the containment action we took. At our request, the village malik assembled all the people of the village including the women in a central place. The female vaccinator and the sanitarian vaccinated 43 women and 65 men and children. Only those who were successfully vaccinated 15 days before were omitted.

The day's work done, we bade goodbye to the populace after a few words of advice regarding the benefits of isolation of cases and simple and practical measures of disinfection, and after a steep climb to the jeep-head and another bumpy ride, we were back in Kabul.

The next day, we despatched the outbreak containment team to I.B.'s village to see if there were any cases there and to vaccinate the population. No cases were found. The team, however, vaccinated the population of 400 and returned to base.

So ended this stimulating experience, although we shall still have to revisit the area after a couple of weeks to see if new cases have occurred.

To sum up, several interesting points are notable.

1. All cases were among the unvaccinated.

2. Successful vaccination a year ago, afforded complete protection against the disease notwithstanding the closest of contact with the cases.

3. Two unvaccinated mothers and two unvaccinated girls among the family contacts escaped the disease in spite of close exposure. This is a mystery. Could they have had subclinical infection.

4. Transmission of smallpox occurs even if there remain small groups which are unprotected. The importance of thorough coverage of all age-groups of the population is obvious.

5. Last but not least, is the necessity to improve notification if the containment actions are to be successful in reducing the reservoir of infection.

DATA REGARDING CASES OF SMALLPOX AND FAMILY CONTACTS

Case No.	Age	Sex	Vaccination/ Variolation scar	Date	Onset	Outcome
S.J.'s family						
Father	44	M	Variolation	childhood*		
Mother	?	F	No			
Son	11	M	Vaccination	1968		
Son	9	M	Vaccination	1968		
1 Son	2	M	No		1 June	Recovered
2 Son	1	M	No		2 June	Died
J.K.'s family						
Father	47	M	Variolation	childhood*		
Mother	?	F	No			
Son	14	M	Vaccination	1968		
Son	6	M	Vaccination	1968		
3 Son	5	M	No		20 May	Died
4 Son	2	M	No		15 June	Recovered
W.K.'s family						
Father	?	M	? (absent at time of visit)			
Mother	30	F	No			
Daughter	7	F	No			
Daughter	5	F	No			
5 Son	4	M	No		15 June	Recovered
S.A.'s family						
Father	?	M	? (absent at time of visit)			
Mother	?	F	No			
6 Son	1	M	No		15 June	Recovered

* Revaccinated in 1968.