

Tanapox. A serological survey of the lower Tana River valley

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SUMMARY

Sera collected from the indigenous population of the Tana River valley during the Tana River Expedition in 1976 were examined for neutralizing antibody to Tanapox virus. Antibody was found in 9.2% of the population in infected areas. This result and the presence of antibody in four children indicated that infection had continued to occur in the area since the 1962 outbreak.

INTRODUCTION

Two outbreaks of Tanapox occurred in 1957 and 1962 among the indigenous population living in the Tana River valley in Kenya (Downie *et al.* 1971). Those affected suffered from a mild febrile illness and one or sometimes two firm, slowly developing pock like lesions on the upper part of the body. From a biopsied skin lesion the causative virus was isolated in cultures of human cells and was propagated thereafter in the laboratory in monkey or human cell cultures. In 1966 outbreaks of a pox virus infection occurred in monkey colonies in America and from the animals, human contacts became infected (España, 1971; Hall & McNulty, 1967). Rhesus monkeys seemed especially susceptible to the disease. The viruses isolated from these outbreaks proved to be identical with Tanapox (Downie & España, 1972). As it seemed likely that monkeys might serve as a reservoir of infection from which humans became infected, sera from primates caught in various parts of the world were examined for neutralizing antibodies to Tanapox virus. These studies indicated that Tanapox infection had occurred in various species of monkey in Africa and in macacus monkeys in Malaysia. Tanapox antibodies were absent from the sera of rhesus monkeys from India and from various species of monkey in the new world (Downie, 1974). In 1971 the examination of sera from natives living in the flood plain area by the Tana river suggested that Tanapox infection had continued to occur in the population of that area since the outbreak in 1962 (Manson-Bahr & Downie, 1973).

The Tana River Expedition in 1976 provided an opportunity for the collection by one of us (J.S.A.) of further serum samples from the population in a more

extended area of the river valley. The results of examination of these sera for Tanapox antibodies by the technique previously described, are reported here.

RESULTS

It will be seen from Fig. 1 that sera were collected from inhabitants of villages on the lower half of the river valley; the incidence of positive sera in the various collecting areas is also shown. It is obvious that, with the exception of one result,

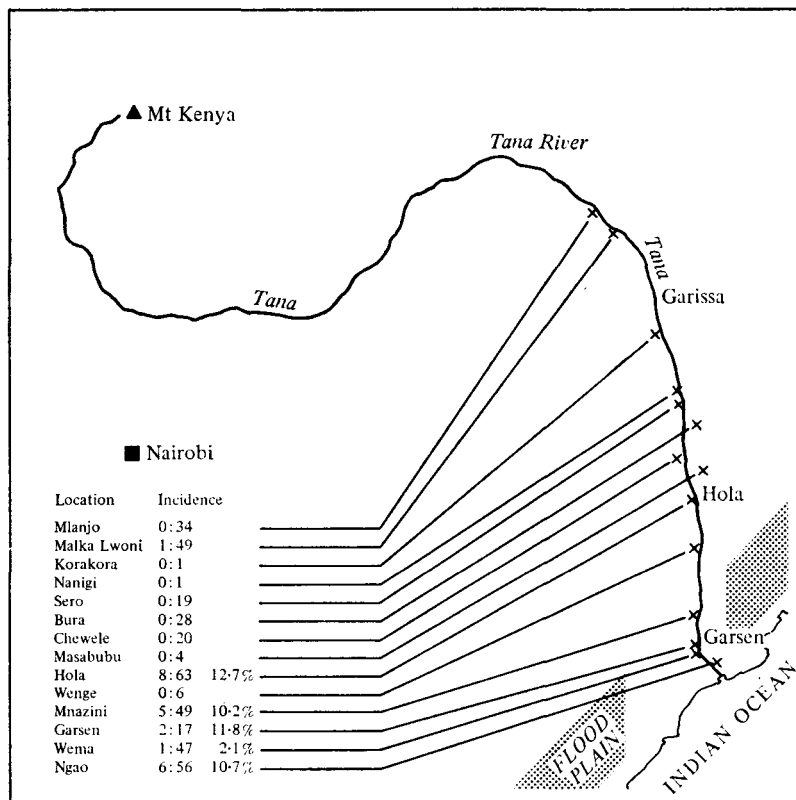


Fig. 1. Tanapox: incidence of antibody in sera collected in the Tana River valley, 1976.

all the sera containing antibody were collected from Hola and the villages lower down the river. The individual positive sera are listed in Table 1, which shows the age and sex of the donors. There is a marked preponderance of males among the positive donors and four of them were under 13 years of age. The data are further analysed in Table 2. The overall figures indicate a lower incidence of positive sera as compared with the results of the 1971 survey (Manson-Bahr & Downie, 1973) in which the sera were collected from the Garsen–Ngao area. However, the percentage of positive sera among those collected in Hola and the villages lower down the valley was not much lower than that in the same area in 1971.

Table 1. *Persons showing Tanapox antibody in sera*

Village	Number	Age	Sex	
Malka Lwoni	63	28	F	
Hola	160	50	M	
	161	35	M	
	169	20	F	
	185	32	M	
	199	32	M	
	207	21	M	
	209	38	M	
	210	38	M	
	Mnazini	233	29	M
		257	9	M
259		7	M	
271		50	F	
276		12	M	
Garsen		282	45	F
	288	50	F	
Wema	310	49	M	
Ngao	348	21	M	
	349	50	M	
	365	29	M	
	375	2	M	
	378	27	M	
	399	80	M	

Table 2. *Incidence breakdown*

	Incidence of antibody in sera
Total sample	23/394 (5.8%)
Under 13 years	4/74 (5.4%)
Others	19/320 (5.9%)
Total Hola and South	22/238 (9.2%)
Under 13 years	4/36 (11.1%)
Others	18/202 (8.9%)
Male	18/233 (7.7%)
Female	4/161 (2.5%)

DISCUSSION

The only positive serum collected above Hola came from a 28 year old female in the village of Malka Lwoni (Table 1). There is some movement of the tribes along the valley but we have no information relating to this lady's possible stay in the lower part of the river valley. The examination of repeated samples of serum from persons with a known history of Tanapox infection, indicates that neutralizing antibody is not detectable after 2 or 3 years (Manson-Bahr & Downie, 1973). The findings in the present study and the occurrence of antibody in the sera of young children confirms the results of the 1971 survey in demonstrating the persistence of Tanapox infection in the lower reaches of the Tana River valley. There is no evidence that infection spreads directly from person to person. It has been suggested that human infection is acquired from monkeys, possibly through the

agency of mosquitoes (Downie *et al.* 1971; Manson-Bahr & Downie, 1973). Examination of sera from monkeys caught in Ethiopia and Kenya showed Tanapox neutralizing antibodies in 16%. Several species of monkeys are known to be present in the Tana River valley but we have not had any sera for examination from them.

In the original paper on Tanapox, it was stated that the 1962 outbreak extended from Garissa to Garsen and was confined to people of the Wapakomo tribe. Our results provide little evidence of recent infection above Hola, a town approximately midway between Garissa and Garsen. The results obtained in the present investigation, like those in the 1971 survey, show that infection certainly occurs in tribes other than the Wapakomo.

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