

SHORT COMMUNICATION

AN OUTBREAK OF ANTHRAX IN HIPPOS OF RUAHA NATIONAL PARK, TANZANIA

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SUMMARY

An outbreak of anthrax involving only hippos occurred in Ruaha National Park between September and November 1989. Fifty-three hippos were recorded and confirmed dead of anthrax. Confirmation was based on post-mortem features and demonstration of *Bacillus anthracis* in dead individuals. Source of infection could not be established although vultures and the river could have played some role. The latter also could be significant in the subsequent dissemination of infection from decomposing carcasses of the present outbreak. Direct aerial counts after the outbreak showed that only 208 live hippos remained, indicating that loss due to the present outbreak was significant.

INTRODUCTION

Anthrax is an infectious febrile bacterial disease caused by *Bacillus anthracis* and characterized by a sudden onset, a rapidly fatal course and exudation of tarry blood from body orifices (Davis *et al.*, 1970). In game animals, anthrax has been reported in various species including the hippos (Ebedes, 1975; Davis *et al.*, 1970). In Tanzania, anthrax outbreaks have been reported from Arusha National Park (VIC Arusha unpublished report 1974) and Manyara National Park (Mbise *et al.*, 1984). In these epizootics, Impalas, elephants, hippopotamus, rhinos, buffalos, bushbuck, Zebras, dik dik, jackals, hyena, baboons, vultures and maribou stalk were recorded dead of anthrax. Although it appears that anthrax could be common in wildlife, a unique outbreak involving hippos only was observed in Ruaha National Park between September and November 1989. The objectives of this work was to present salient epidemiological observations made during the outbreak.

MATERIALS AND METHODS

Field investigations were carried out between late September and early November 1989 over reports concerning the deaths of hippopotamus in Mzombe river of Ruaha National Park in Iringa region. The Mzombe river forms a boundary between Ruaha National Park in the South and the Rungwa Game Reserve in the North. The river starts from the Usangu plains in Chunya district and flows North-Eastwards through the Rungwa game reserve in Chunya and Manyoni districts to join the Kizigo river before emptying its waters in Mtera dam with the Great Ruaha river. Deaths occurred in ponds of Mzombe river in a stretch of about 14 kilometers at Mpululu ranger post. Most of the carcasses were found upstream about the ranger post and at the confluence of the Saba and Mzombe rivers. Live hippos were directly counted from the air at a later stage during routine follow-up.

RESULTS

Between late September and early November 1989 a total of 53 hippos were recorded dead. Direct aerial counts showed that only 208 live hippos remained in the area. No other species of wild animals died. The condition of carcasses examined were either completely autolyzed or fresh. The area was littered with pieces of meat and intestines from feeding vultures. The ponds were heavily contaminated with decomposing hippos and blood which oozed out from fresh dead hippos. Although the exact number of male and female dead hippos was not taken, generally there appeared to be more dead males than females, and majority of these dead males had several skin scratches and wounds which could be a result of frequent fights. Post-mortem was done on three fresh hippos. Blood films and impression smears were taken. There was generalized haemorrhages particularly of the skin and internal organs. Spleen was enlarged and soft. Blood and impression smears stained with either Giemsa or polychrome methylene blue revealed presence of *B.anthraxis*. The latter was also isolated from organs from the autopsied cases. No attempts to control the disease was carried out because of a widespread contamination over a stretch of more than 14 kilometers.

DISCUSSION

The deaths of hippos occurred in the densely populated ponds. The source of infection could not be established and spread from other sources by vultures and the stream was suspected. Subsequent contamination of the soil by vultures and water by decomposing hippos provided a source of infection to susceptible hosts.

During dry period of the year especially at the time of the present outbreak, there is overcrowding of hippos in pools and ponds of Mzonbe river.

This causes a lot of fighting among bull hippos which may have contributed considerable to the onset of the outbreak involving hippos only. It is not clear why other games were not involved despite heavily contaminated environment including drinking water. The 53 hippo carcasses recorded represent a significant loss bearing in mind that only 208 live ones were later observed.

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