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Anthrax in Cheetahs (*Acinonyx jubatus*) in Namibia

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ABSTRACT: *Bacillus anthracis* caused the death of five cheetahs (*Acinonyx jubatus*) on a farm in the Gobabis district in Namibia. The mode of infection was believed to be a freshly shot baboon (*Papio ursinus*) with a cutaneous anthrax lesion.

Key words: *Bacillus anthracis*, anthrax, cheetah, *Acinonyx jubatus*, baboon, *Papio ursinus*.

Anthrax (*Bacillus anthracis*) has been a well known disease in Namibia since ancient times (Schmid, 1955). In Etosha, the national game reserve, anthrax has been identified as a major disease of various game species, especially during the last decade (Ebedes, 1976). In the commercial farming areas, where cattle and goats are the main species encountered, few outbreaks of anthrax have been recorded, since in 1973 a yearly vaccination of cattle was demanded by the government. However, this changed with the introduction of game farming and cases of anthrax have occurred in gemsbuck (*Oryx gazella*) (Voigts, 1989) and cheetah (*Acinonyx juliatus*). This report describes an outbreak of anthrax in the cheetah.

The carcass of a cheetah was brought to the Central Veterinary Laboratory (CVL), Windhoek, Namibia, in October 1986. The farmer reported that it had died the previous day and it was the last of a group of five. He kept 15 2- to 4-yr-old wild captured cheetahs for export in groups of five in 40 × 90 m enclosures with shelters and shade. The farm (Omateva, ca. 22°15′N, 18°10′E) lies in an area which had four outbreaks of anthrax in cattle on four different farms the previous year. These farms are all situated near the main road from Windhoek to Gobabis where many outbreaks of anthrax occurred in 1920.

The affected group of cheetahs were fed the carcass of a chacma baboon (*Papio ursinus*), which the farmer had killed because it came to the house daily to steal maize and eggs. The day after the baboon carcass was thrown into the cage, the first cheetah died, followed by two others the next day. The fourth animal died on the third day when the last of the group also became ill. This cheetah died on the fourth day after exposure to the baboon carcass. As soon as the first cheetah died, the farmer removed and burned the pieces of skin and the bones that remained of the baboon carcass. All of the affected cheetahs showed an increased respiratory rate, vomiting and apathy prior to death. None of the other cheetahs in the neighbouring cages died although contact between the cheetahs could have been possible.

The cheetah carcass was in an advanced stage of decomposition when delivered to the CVL. Before opening the carcass a smear of blood from the ear was made and stained with Cam's Quick Stain, a modified Wright's Giemsa stain (C. A. Milsch Pty. Ltd., London, England). Many different bacteria were seen in the bloodsmear but none was suggestively *B. anthracis*. A bright red nasal discharge was present and severe sinusitis was observed. There was severe lung edema and blood-tinged hydrothorax. The spleen was not enlarged, but a stained impression smear revealed small single rods and cocci which were addressed as bacteria of decomposition and a small number of brick-shaped rods with obvious capsules; these were found to be gram-positive.

Spleen and lung samples were cultured at 37 C aerobically and anaerobically on blood agar for 24 hr. The aerobically incubated plates showed, amongst other colonies, typical non-hemolytic grey-white colonies of *B. anthracis*. Some of these were subcultured and tested by the gamma-phage test (Brown and Cherry, 1955) which

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yielded a positive result for *B. anthracis*. The gamma-phage is used and cultured in the CVL since its opening in 1967.

Adult white laboratory mice were inoculated subcutaneously with 0.1 ml of a suspension prepared from a 1 μl loop of bacteria in 1 ml saline. The mice died approximately 18 hr after inoculation and capsulated *B. anthracis* was reisolated from blood from the tail. Subsequent to the diagnosis of anthrax in the cheetah, soil samples (10–20 g) were taken from the cheetah cages, suspended in 2 ml/g of sterile water and heated in a water bath at 60 C for 30 min to kill vegetative organisms. One ml of each sample thus prepared was spread over four nutrient and four blood agar plates, but *B. anthracis* was not isolated. Furthermore, when the farmer introduced other cheetahs into this enclosure without prior disinfection no more losses occurred.

Cheetahs in the wild seldom return to their kill and take carrion only in extreme situations. Thus, infections with *B. anthracis* via contaminated meat are unlikely. Outbreaks of anthrax in captive carnivores are well documented; most were caused by feeding contaminated meat (Morbidity and Mortality Weekly Report, 1974; Ikede et al., 1976; Lyon, 1973; Orr et al., 1978; Petrovski and Popev, 1973; Rietschel and Senn, 1977).

A few cases of anthrax have been reported in cheetahs (Pienaar, 1960; Ebedes, 1976). In our case, the farmer remembered that the baboon fed to the cheetahs had peculiar carbuncles on its arms but otherwise seemed healthy. Unfortunately, no samples could be obtained from the remains of the baboon carcass, because the farmer removed and burned all residues after the first cheetah died. Pienaar (1961) reports the death of a baboon due to anthrax in Kruger National Park, but *B. anthracis* could not be demonstrated. It is possible the baboon fed to the cheetahs had the cutaneous form of anthrax.

LITERATURE CITED

BROWN, E. R., AND W. B. CHERRY. 1955. Specific identification of *Bacillus anthracis* by means of a variant bacteriophage. Journal of Infectious Diseases 96: 34–39.

EBEDES, H. 1976. Anthrax epizoonotics in Etosha National Park Madoqua 10: 99–118.

IKEDE, B. O., S. FALADE, AND R. R. GOLDING. 1976. Anthrax in captive carnivores in Ibadan, Nigeria. Journal of Wildlife Diseases 12: 130–132.

LYON, D. G. 1973. An outbreak of anthrax at the Chester Zoological Gardens. Veterinary Record 92: 334–337.

MORBIDITY AND MORTALITY WEEKLY REPORT. 1974. Animal anthrax associated with pack saddle pads—Washington. Center for Disease Control, U.S. Department of Health, Education and Welfare, Atlanta, Georgia 23: 339.

ORR, J. P., W. G. JOHNSTON, AND J. R. A. MORRISON. 1978. Anthrax lesions in a zoo cat. Veterinary Record 102: 312–313.

PETROVSKI, P., AND S. POPEV. 1973. Prilog kon pojavuvaneto na antraksot j divite zhivotni. Makedonski Veterinaren Pregled 2: 61–65.

PIENAAR, U. DE V. 1960. 'n Uitbraak van miltsiekte onder wild in die Nasionale Kruger-National Park 28.9.59-20.11.59. Koedoe 3: 238–251.

———. 1961. A second outbreak of anthrax amongst game animals in the Kruger-National Park. Koedoe 4: 4–16.

RIETSCHEL, W., AND J. SENN. 1977. Bekaempfung von Milzbrand im Zoologischen Garten Kabul durch Einsatz von Lebendvaccine. Tieraerztliche Umschau 1: 36–37.

SCHMID, G. 1955. The veterinary surgeon in South West Africa forty years ago. Journal of the South African Veterinary Association 26: 21–28.

VOIGTS, B. 1989. Anthrax in oryx and goats in Namibia. Vetmed 2: 179.

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