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DISEASES IN FREE-RANGING BLACK AND WHITE RHINOCEROSES

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INTRODUCTION

As expected a review of the diseases of an animal which is endangered or rare will not be extensive. The fact that sphere of interest is confined to free-ranging animals further limits the extent of the information available as definitive diagnoses are not often made in such animals.

INFECTIOUS DISEASES

Anthrax

The deaths of four black rhinoceroses (*Diceros bicornis)* in the Lake Manyara National Park during an anthrax outbreak in 1984 have been reported[12]. Two black rhinoceroses were reported to have died in the Etosha National Park in Namibia in the period 1984-1987[23]. Four free-ranging black rhinoceroses in the Etosha National Park were shown to have antibody titres to anthrax[23]. However, these animals had been vaccinated a few months prior to the collection of serum samples. No deaths from anthrax have been reported from the Kruger National Park.

Babesiosis

The death of a black rhinoceros due to babesiosis has been reported[17]. This was later questioned by Brocklesby[2] who reported seeing *Babesia* parasites in blood smears from sick rhinoceroses but suggested that the presence of piroplasms did not necessarily indicate that they were pathogenic. Both a large and a small *Babesia* were described by Brockelsby in blood smears from black rhinoceroses[2].

A large *Babesia* was described in blood smears from two white rhinoceroses (*Ceratotherium simum*) captured in Zululand[1]. Both animals were calves, a male and a female. There was no sign of disease.

A small piroplasm believed to be *Babesia* or *Theileria* was seen in blood smears of 32,1% of rhinoceroses captured between July 1967 - March 1969 in Zululand. All of these animals showed no sign of disease[1].

Bacterial infections

Bacterial infections identified in newly-captured black rhinoceroses include Group L *Streptococcus* and *Staphylococcus aureus* both of which were isolated from animals that had died as a result of septicaemia[4]. The most effective antibiotics for routine use in black rhinoceroses were identified as penicillin and streptomycin[4].

Leptospirosis

The significance of findings such as the presence of antibodies to *Leptospira interrogans* in a large proportion of the black rhinoceroses captured and translocated in Zimbabwe is not known[6]. Tests

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on sera from these animals were performed as part of the investigations into deaths of captive black rhinoceroses due to intravascular haemolysis[15 16].

Tuberculosis

Tuberculosis was first reported in southern Africa in a black rhinoceros[11]. A later report gave details of the death of a black rhinoceros in Zululand with lung lesions apparently caused by a *Mycobacterium*[7]. This animal, an old cow, was first noticed with an abscess on the mandible in 1967. In 1969 she was treated for infected wounds in the groin and perineal region. She died in 1970 in poor condition. Focal disseminated granulomata in lungs, lymph nodes and pleura were seen at autopsy. Multinuclear giant cells and acid-fast *Mycobacterium* spp were seen on histological examination of the granulomatous foci[7]. Similar lesions have been described in captive animals[10 15]. *Mycobacterium tuberculosis* was identified as the cause in one[15] and *M. bovis* in the other[10].

Salmonellosis

Death due to salmonellosis has been reported in a black rhinoceros bull six days after capture. *Salmonella typhimurium* was isolated from the liver. The animal was noticed to be behaving strangely four days after it had been captured. Two days later it was down in its pen and died that day. Post mortem findings included a marked enteritis, congestion of the lungs and a hydropericard.

Trypanosomiasis

Deaths from trypanosomiasis have been reported in black rhinoceroses (*D. bicornis*) in Tanzania and Kenya[3 13]. In studies conducted on 39 black rhinoceroses that were captured and translocated 18% were found to have a trypanosome parasitaemia[3]. Most of the infected animals were sub-adults. All of the isolates were identified as members of the *T. brucei* group. Thirty-two of the 33 serum samples from this group of animals were found to have antibodies to *Trypanosoma*. It has been suggested that infected rhinoceroses may develop trypanosomiasis due to the stress of capture and translocation[3 13 14]. Naive animals translocated into areas where trypanosomiasis occurs should be monitored carefully for at least 2 months[13 14]. Treatment with trypanocides should be undertaken early if it is to be successful[3]. Berenil at a dosage rate of 7mg/kg has been used[3]. Signs of trypanosomiasis in rhinoceroses include subcutaneous oedema particularly over the front part of the body with swelling of the lips and around the eyes[3]. Haematological findings of anaemia, lymphocytopaenia and thrombocytopaenia have been reported[13 14].

NON-INFECTIOUS DISEASES

Suspected algal toxicity

Three of four white rhinoceroses died within two months of being translocated from the Umfolozi Game Reserve to the Barakologadi Game Reserve, which is situated on the banks of the Klipvoor Dam (26°57'E, 25°5'S)[21]. Two of these animals were found after being dead for some time. A post mortem examination was conducted on the third animal, an adult female. A severe hepatomegaly was found together with widespread petechiae and ecchymoses. Histological examination showed that hepatocytes had under gone extensive lysis necrosis, the architecture of the liver tissue was distorted and no inflammatory cells were seen. A tentative diagnosis of *Microcystis* poisoning was made. This was supported by the fact that the dam from which the animals drank was heavily contaminated with *Microcystis aeruginosa*.

Intestinal volvulus

Intestinal volvulus was described in a white rhinoceros cow that was being kept in a 257 ha holding enclosure in the Kruger National Park. The animal died two weeks after being transported there from Zululand.

Coronary artery aneurysm

Aneurysms in the coronary arteries were described in two black rhinoceros females that died during or shortly after being translocated in Zimbabwe[8]. The primary lesion in both these animals was an arteritis and the presence of eosinophils in the lesion of one animal suggests that this may have resulted from a parasitic infestation.

Skin lesions

Granulomatous skin lesions were first described in free-ranging black rhinoceroses in the game reserves in Zululand[20]. Sympatric white rhinoceroses do not appear to develop similar lesions. These lesions, seen commonly behind the shoulder, are more prominent during summer when they are pruritic. Filarial nematodes are seen within the lesion. Similar lesions have been described in east African black rhinoceroses[18,22] and of late in black rhinoceroses captured and translocated in Zimbabwe[9]. The filarial parasite found in lesions from animals in Kenya was identified as *Stephanofilaria dinniki*[19].

Constipation

Haigh[5] reported treating a female white rhinoceros with constipation as a result of a severe horning of the hind quarters. The animal responded well to the removal of dry faeces from the rectum, a 12 ℓ enema and antibiotic therapy for the infected horn wounds. The antibiotics used were a combination of sodium, procaine and benzathine penicillin and ampicillin.

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