

A SYNDROME SIMULATING RINDERPEST AMONG CAPTIVE WILD ANIMALS AT CALCUTTA ZOO

D. K. Ray* and D. P. Samanta

Zoo-Veterinarians, Calcutta Zoo

Rinderpest is a natural disease of ruminants and pigs. Natural infections have been recorded in fiftysix species of (free-living and captive) artiodactyls (Scott, 1970). The same author has listed unbelievable infections in nine species of non-artiodactyls (Scott, *loc.cit*).

In India, the only authentic published account of rinderpest in captive animals was the one in Sambhar (*Rusa*) described by Gupta and Verma (1949). They also reported suspicious symptoms in black buck (*Antelope cervicapra*), four-horned antelope (*Tetracerus*), hog deer (*Axis*), spotted deer (*Axis*), barking deer (*Muhtiacus*) and nilgai (*Boselaphus*). Earlier reports had also incriminated deer in Assam (White, 1871) and a black buck in Mukteswar (Lingard, 1906); but only infection in the latter species was confirmed as rinderpest. More recently, the virus was recovered from an outbreak in wild bison (*Bison sp.*) in forest areas of Tamil Nadu (Ramani, 1972). The involvement of wild animals in India is a disquieting epizootological feature, particularly when viewed in the background of abundant serological evidence furnished by Plowright (1963) that in East Africa, the wild life is capable of maintaining the virus even in the absence of cattle. It is, therefore, imperative that rinderpest-like syndromes in wild animals, should be reported and confirmed.

The authors encountered a syndrome clinically and pathologically resembling rinderpest in captive artiodactyls in Calcutta Zoo in February, 1969 and the object of this paper is to record details of its occurrence and the efforts undertaken to control its spread. However, virus isolation was not possible.

History of Outbreak

In the Calcutta Zoological Garden, an outbreak of rinderpest-like disease started on 4-2-1969 in a paddock where 3 nilgai, 1 gayal and 19 hog deer, 2 common crane, 2 sarus crane, 2 elephantine tortoise were exhibited (Fig.). The syndrome characterized predominantly by diarrhoea and depression, first occurred in a nilgai followed by gayal and hog deer.

Meantime, all the in-contact hog deer in the enclosure were transferred to the isolation paddocks. The animals were isolated in three groups, namely the clinically affected, in-contacts, suspected to become sick and the healthy in-contacts. The last-mentioned were protected with rinderpest goat-adapted vaccine.

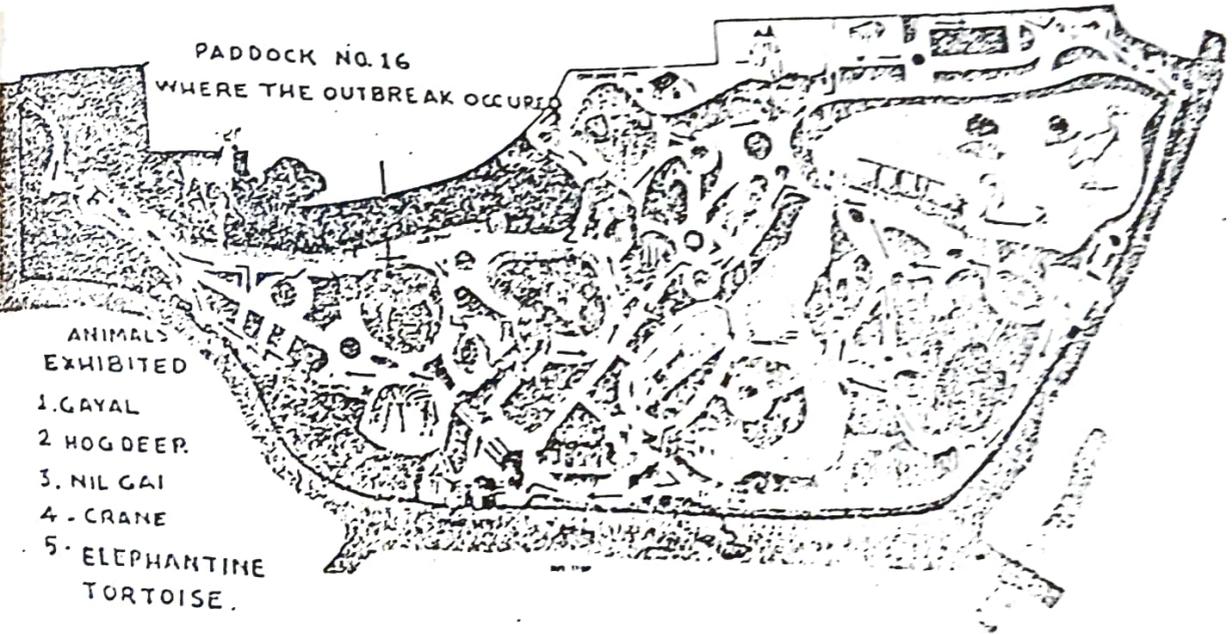
Present address : * Division of Bacteriology and Virology, Indian Veterinary Research Institute, Mukteswar-Kumaon, Distt. Nainital, U.P. India.

Rinderpest-like syndrome among captive wild animals

CALCUTTA
ZOOLOGICAL
GARDENS



TOTAL AREA
755 ACRES



The exact place of occurrence of the outbreak

Clinical features

1. Nilgai (three):

- (a) Diarrhoea with blood and mucus.
- (b) Nasal discharge - mucopurulent.
- (c) Mucous membrane of the eye - highly congested.
- (d) Ulcers on the gum and ventral aspect of the tongue.
- (e) Offensive smell from the mouth.
- (f) High temperature in two cases.
- (g) Off-feed.

2. Gayal (One) - Almost same as mentioned above.

3. Hog deer (ten) - Almost same as mentioned above.

Pathological features (Table 1 and 2)

TABLE 1

Number of captivated wild animals affected in a paddock at Calcutta zoo

| Common name | Scientific name | Number of animals before the outbreak | Mortality | Percentage of mortality |
|-------------|--------------------------------|---------------------------------------|-----------|-------------------------|
| Nilgai | <i>Boselaphus tragocamelus</i> | 3 | 3 | 100.00 |
| Gayal | <i>Bibos frontalis</i> | 1 | 1 | .. |
| Hog deer | <i>Axyls proclnus</i> | 19 | 10 | 52.63 |

TABLE 2

Details of mortality of captivated wild animals affected by this outbreak

| Serial No. | Common name | Sex | First symptom showed (date) | Died on (date) |
|------------|------------------|--------|-----------------------------|----------------|
| 1 | Nilgai | Female | 4-2-1969 | 7-2-1969 |
| 2 | Nilgai | Male | 11-2-1969 | 15-2-1969 |
| 3 | Gayal | Male | 13-2-1969 | 15-2-1969 |
| 4 | Hog deer | Female | 14-2-1969 | 16-2-1969 |
| 5 | Hog deer | Female | 17-2-1969 | 18-2-1969 |
| 6 | Nilgai | Female | 15-2-1969 | 18-2-1969 |
| 7 | Hog deer (young) | Female | 19-2-1969 | 21-2-1969 |
| 8 | Hog deer | Female | 21-2-1969 | 24-2-1969 |
| 9 | Hog deer | Female | 24-2-1969 | 24-2-1969 |
| 10 | Hog deer (young) | Male | 25-2-1969 | 27-2-1969 |
| 11 | Hog deer | Male | 25-2-1969 | 28-2-1969 |
| 12 | Hog deer | Male | 28-2-1969 | 28-2-1969 |
| 13 | Hog deer | Male | 25-2-1969 | 1-3-1969 |
| 14 | Hog deer | Female | 28-2-1969 | 1-3-1969 |

Postmortem examination was done in each and every case that died. The pathological findings were almost the same in all cases.

- (a) Ulceration and yellowish deposit under the surface of the tongue and gum; eyes full with mucopurulent discharge.
- (b) Congested lungs in case of one nilgai, gayal and 3 hog deer.
- (c) Spleen highly enlarged in case of gayal and two hog deer.
- (d) Abomasum - mucous membrane highly congested.
- (e) Small intestine - ulceration and extensive haemorrhage on the mucous membrane all along the length of intestine.
- (f) Large intestine - zebra markings near the ileo-caecal opening in the case of 5 hog deer, gayal and nilgai male. Patches of ulceration and haemorrhage were also noticed.