FOOT-ROT DISEASE AMONG FREE LIVING SPOTTED DEER (*AXIS AXIS*) IN BANDIPUR PROJECT TIGER RESERVE : INVESTIGATION AND CONTROL MEASURES

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Introduction

Epidemic diseases like Rinderpest, Anthrax, Foot and Mouth disease, Haemorrhagic septicaemia had been observed among free living ungulates in the Bandipur Tiger Reserve causing severe damage to the population. The Rinderpest epidemic disease which occurred in 1968 had almost wiped out the Gaur (*Bosgaurus*) population.

Survey of the disease in the adjacent villages of the Tiger Reserve has revealed that certain diseases are endemic to particular bunch of villages. Surrounding villages of Bandipur are mostly affected by Foot and Mouth disease, Haemorrhagic septicaemia and black quarters whereas villages of N. Begur are known for Anthrax and Rinderpest (Khadri, 1993).

Many preventive measures like control of cattle grazing inside the reserve, preventing driving of scrub cattle to Kerala on foot through the reserve, immunisation of cattle found in the adjacent villages of the reserve have helped in controlling the epidemic diseases. Inspite of total ban on grazing of cattle inside the reserve, because of the absence of cattle barriers between the reserve and the adjacent cultivated lands, occasionally some cattle stray into the reserve for grazing as well as for drinking water from the water holes inside the reserve. This results in the spread of communicable diseases to the free ranging wild animals. In 1977 a localised mild attack of foot-rot affecting Spotted Deer was found in the tourism zone of Bandipur Tiger Reserve. It has been thoroughly investigated by collecting samples from the affected live as well as dead specimens.

Area Details

Bandipur Tiger Reserve covering an area of 866 km^2 was established in Mysore District of Karnataka State in 1973-74. This Tiger Reserve is surrounded by the Nagarhole National Park in the North, Madhumalai Sanctuary in the South and the Wynad Sanctuary of Kerala State in the West. These multi-state conservation areas provide by far the largest habitat for Elephants in the South. The landscape is hilly, beset with rivers and gorges. The rainfall varies from 625 mm in the Eastern side to 1250 mm in the Western side. As a result of this variation there is a gradual transition in the vegetation from dry deciduous to moist mixed type.

With the launching of Tiger Project in the Reserve providing intensive protection, restorative management, translocation of villages and compensatory development programmes there has been a rapid

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Fig. 1

Foot-rot affected part of Spotted Deer

rejuvenation of habitat conditions. There is a steady rise in wildlife population and a concomitant wide ranging dispersal of animals ensuring efficient use of habitat.

There are about 140 villages situated all along the northern boundary of the Tiger Reserve starting from Moyar range to N. Begur range. The cattle and other livestock population is about 3 lakhs as per the census conducted by the National Dairy Development Board. All these cattle population to some extent depend on the nearby Tiger Reserve for grazing thereby exposing the park to transmitting infectious diseases to wildlife of the park.

Case History

During the last week of May, 1997 a few Spotted Deer were found limping, in the tourism zone in and around Bandipur tourist complex and nearby water holes. On observation it was found that two to three Deer of both sexes in each group were found to be limping. Such animals exhibited restlessness, dull, weak, and licking the swollen fetlock joints. They were found licking the limb which was suggestive of infection and maggot formation. There were a few deaths among the affected Deer.

In order to identify the causative

organism, it was decided to capture a few affected animals and to collect samples and get these analysed through the scientists from the Institute of Animal Health and Veterinary Biologicals, Bangalore.

Clinical Investigation

Detailed study of the Deer population near tourist complex premises and adjoining areas revealed that most of the affected Deer were adult does with few stags which were limping. The affected population was around 1% of the total population.

The team comprising of Forest personnel and Scientists were successful in capturing a few ailing animals. Close examination of the captured animals exhibited swollen fetlock and pastern joints with ulcerative necrosis in the interdigital spaces. The wounds were infected with maggots without any lesions on the mouth, suggestive of neither foot and mouth disease nor Rinderpest, partial swelling of pre-scapular lympt nodes was also noticed.

Samples consisting of blood smears, whole blood in E.D.T.A., serum, faecal pellets and swabs from leg lesions were collected for laboratory examinations. The affected animals were given treatment with antibiotics and supportive therapy, tagged and released back to the forests.

Necropsy Examinations

The investigative team was lucky to locate a fresh carcass of a Deer found dead during combing operation. Hence it was possible to make double check of the disease.

Examination of the carcass revealed that it was devoid of fat-depos and wounds were maggot infested and swollen on both forelimbs suppuration of tendon sheaths and bursa of the fetlock and pastern joints, sub-cutis was dehydrated, lungs congested with patchy areas of consolidation. Right diaphrammatic lobe contained a small abscess. The mucosa of bronchi appeared congested and luman had Nematodes, liver exhibited circumscribed necrotic areas on surface extending upto parenchyma. Few tape worms were also seen in the intestines, mucosa of intestines showing Catarrhal Enteritis, kidneys showed congested medulla and pale cortex. Samples were collected for laboratory examination.

Laboratory Examination Results

Peripheral blood smears collected from live animals showed presence of thelaria and babesia parasites in erythrocytes.

Fusobacteria (Foot-Rot) was isolated from foot lesions of affected animals.

Heart blood and impression smears collected during post-mortem examination showed presence of bipolar organisms morphologically similar to *Pasteurella* species, *Fusobacterium* species from foot lesions were also isolated.

Conclusion

Clinical findings and results of laboratory examinations of the samples collected form the affected animals in Project Tiger, Bandipur area was diagnosed as necrobacillosis caused by *Fusobacteria* (Foot Rot) which was later infected by *Pasteurella* species. This disease affecting wild angulates has not been reported earlier from this area.

Control Measures

Although Necrobacillosis is a bacterial disease successfully treated with administration of antibiotics, such proposition is not practicable in free living wild animals.

To control the spread of the disease following preventive measures were undertaken :

(1) To prevent contamination of water holes frequented by affected animals liberal application of bleaching powder all around the water holes was done.

(2) To improve the nutritional status of infected animals mineral mixture was applied to salt licks.

(3) Since the disease precipated only when continuity of skin was broken, measures were taken to remove sharp foreign bodies from the campus and adjoining areas.

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SUMMARY

Foot-Rot disease found among free living Spotted Deer (*Axis axis*) in Bandipur Tiger Reserve has been investigated for the first time. It is caused primarily due to *Fusobacteria* with secondary infection by *Pasteurella* species. Prophylactic measures are suggested for controlling the disease.

बांदीपुर परियोजना बाध संरक्षित क्षेत्र के मुक्त जीवी चीतलों (*एक्सिस-एक्सिस*) में खुरपका रोग का अन्वेषण तथा उसकी रोकथाम के उपाय

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सारांश

बांदीपुर बाध संरक्षित क्षेत्र में मुक्त फिरने वाली चीतलों (*एक्सिस-एक्सिस*) में पाए जाने वाले खुरपका रोग का यह पहली बार अन्वेषण हुआ है । यह रोग मुख्यतः *फ्यूसोबैक्टीरिया* के कारण होता है जिसके साथ घास चरने वाली जातियों से गौण संक्रमण मिल जाता है । इस रोग की रोकथाम के लिए निरोधी उपाय सुझाए गए हैं ।

Reference

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