

RABIES IN A CAPTIVE ELEPHANT

A.K. SHARMA, B. CHOUDHURY* AND K.P. SINGH**

Division of Pathology
Indian Veterinary Research Institute, Izatnagar-243 122 (UP)

Rabies is one of the oldest recorded infectious viral diseases affecting central nervous system of animals. All warm-blooded animals including man are susceptible. In India, among wild animals, rabies has been reported more frequently in carnivores both in captivity and under free living condition^{6,8,9,11}. The confirmed cases of rabies in herbivorous wild animals in India have been reported in a rhinoceros⁵ and two separate cases in elephant^{1,7}. The present communication puts on record a case of rabies in a captive female elephant.

Three adult female elephants were maintained in the Bijrani range of Corbett Tiger Reserve, Ram Nagar, Uttaranchal (India), for tourism and other works. The animals were kept in separate sheds and were not vaccinated against rabies. One of the elephants, approximately 35 years of age and weighing about three tons, suddenly started showing clinical manifestations of aggressive behaviour characterized by aimless walking and running after vehicles and head pressing against innate objects. The eyes were wide open with lachrimation. Gradually, the animal developed hind quarter paralysis with incoordinated movements. Drooling of saliva and paralysis of tongue were also noticed prior to the animal lying down in lateral recumbency. The muscular paralysis progressed from hind quarters to lips, ears and trunk. The animal died after three days of the onset of clinical manifestations.

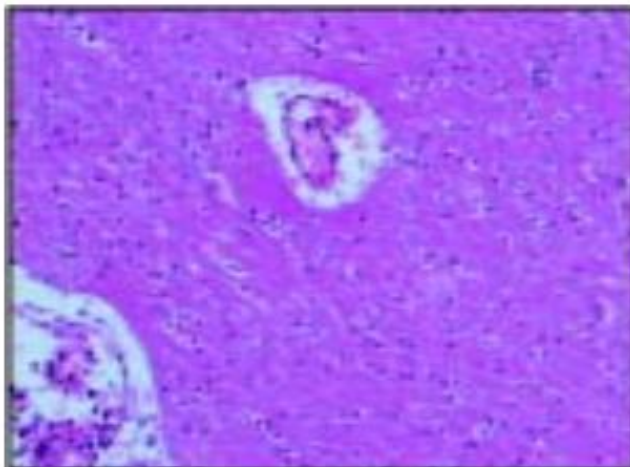


Fig. 1: Brain showing congestion of blood vessels and perivascular haemorrhage. HE x 100.

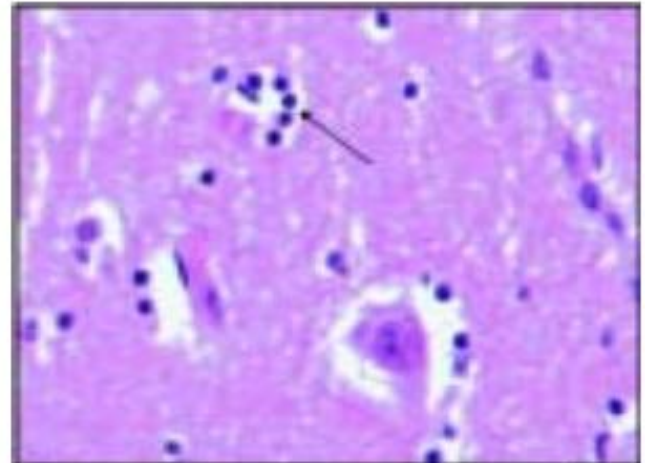


Fig. 2: Neuronal degeneration with increased perineuronal space, Negri body (arrow head) and satellitosis (arrow). HE x 400.

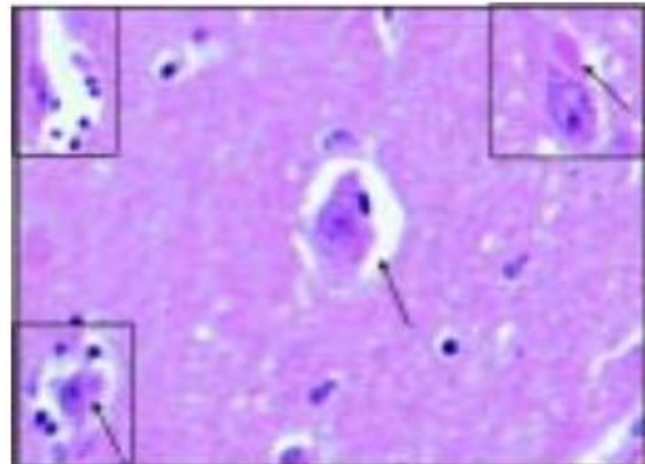


Fig. 3: Increased perineuronal space and presence of various shapes of Negri bodies in the neurons (arrow). HE x 400.

Detailed necropsy was conducted. No external injury was noticed. Internally all the thoraco-abdominal organs were apparently normal. Few nematode parasites were seen in the intestinal lumen. In cranial cavity, brain and meninges revealed congestion of blood vessels. The brain was normal in consistency and anatomical features. No abnormal quantity of fluid was present in the ventricular spaces. Representative pieces from various portions of the brain were collected and fixed in 10% formol saline. The tissues were processed to obtain 4-5 μ thick paraffin embedded sections and stained with

*Veterinary Surgeon, Wildlife Trust of India, MVS Unit Kalagarh, Corbett Tiger Reserve, Uttaranchal; **Senior Scientist, CADRAD, IVRI, Izatnagar.

haematoxylin and eosin for histological examination. Duplicate brain sections were stained by Seller's staining method⁴ and also processed for immunofluorescent staining by direct FAT, employing FITC- conjugated antirabies antibodies³.

Histologically, significant changes were noticed in brain which were characterized by engorgement of blood vessels in meninges and in brain substance with widened perivascular spaces and occasional extravasation of erythrocytes in the Virchow-Robin space (Fig.1). The neuronal changes included variable degree of degeneration with increased perineuronal spaces and satellitosis (Fig.2). Good number of neurons in hippocampus revealed presence of variable sized, spherical to elliptical or oval eosinophilic intracytoplasmic inclusion bodies (Fig.3) which were confirmed by Seller's stain as Negri bodies. The immunofluorescent staining also revealed the presence of rabies virus antigen in the cytoplasm of neurons. Based on these findings, the case was diagnosed as rabies.

Rabies is transmitted mostly by rabid animal through bite. In the present case, neither the bite marks nor the history of previous bites were traced out. Foxes and jackals, considered to be the permanent carriers of rabies virus², however were reported to have been visiting the elephant sheds and chances of these animals passing on the infection to the elephant cannot be ruled out. The average incubation period for rabies usually varies from 2-12 weeks and may go rarely up to 6 months¹⁰. The present case was confirmed based on the presence of typical Negri bodies in the neurons and other characteristic lesions of rabies. There is a need to keep the precious animals like elephant fully protected from stray carnivores.

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