International Journal of scientific research and management (IJSRM)
||Volume||4||Issue||12||Pages||4941-4943||2016||
Website: www.ijsrm.in ISSN (e): 2321-3418

Tuberculosis in captive sloth bear (*Melursus urcinus*)

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Abstract

A carcass of 10 year old male Sloth Bear (*Melursus ursinus*) from Maharaj Bag Zoo, Nagpur was brought for a post mortem examination with the history of illness since 15 days and no response to the treatment. The postmortem examination revealed pale mucous membrane, hide bound condition and dehydration. Both the lungs revealed presence of large numbers of caseative nodules of various sizes with enlarged and calcified mediastinal lymphnodes. The impression smears prepared from the caseative nodules of lung showed abundant acid fast tubercular bacilli. Histopathological examination of lungs revealed areas of typical granulomatus reaction with caseasation and aggregation of chronic inflammatory cells and sever thickening of inter alveolar septa due to deposition of fibrin, inflammatory cells, and erythrocytes.

Key words: Captive, Sloth bear, Tuberculosis,

Introduction

Tuberculosis is a re-emerging infectious, contagious disease of zoonotic importance caused by *Mycobacterium tuberculosis* complex. It has wide host range including elephants, llamas, deer, antelope, sheep, binturongs, lesser pandas, giraffe, wild sheep, mouse deer (Sen Gupta, 1974), sloth bear (Ferar *et al.*,2012, Mehrotra *et al.*, 1999) . Besides this, it is found affecting carnivores, primates, perissodactylids, marsupials, rodents, amphibians (Arora, 1994) and birds in captivity (Rao *et al.*, 1982).Though there are evidences of tuberculosis in captive animals in our country, limited cases are reported from central India which limits to understand the status of persistence and distribution of tuberculosis in captive animals maintained in a diversified environment throughout India. The present communication is dealing with the occurrence of tuberculosis in captive Sloth bear from central India.

Methodology

A carcass of 10 year old male Sloth Bear (*Melursus ursinus*) from Maharaj Bag Zoo, Nagpur was brought for a post mortem examination at Department of veterinary Pathology, Nagpur Veterinary College, Nagpur with the history of illness since 15 days and no response to the treatment. Detailed necropsy examination was carried out and impression smears were prepared from caseative nodules from lung and stained by Ziehl nelson for demonstration of acid fast bacilli. All the affected organs were collected in 10% formal saline for histopathological examination. After fixation, tissues were cut into small sections with thickness of 2-3mm and embedded in the paraffin by standard procedure. The paraffin embedded tissues was cut into 4- 5 µ thick sections and stained with haematoxylin and eosin as per conventional procedure.

Results and discussion

The postmortem examination revealed pale mucous membrane, hide bound condition and dehydration. Lesions were confined to the organs of respiratory system with oozing of exudate from trachea. The gross lesions on lungs were featured by the presence of large numbers of caseative nodules of varying sizes

distributed throughout the parenchyma. Mediastinal lymph node showed enlargement and revealed calcified pus. All other organs showed moderate to severe degree of congestion.

Mehrotra *et al*., (1999) have reported micro and macro abscess throughout viscera in a sloth bear that died at Jaipur zoo. Sreeniwas Gowda *et al*., (1983) also reported tuberculosis in sloth bear with similar lesions on various visceral organs. Fefar *et al.,* (2012) observed the caseative nodules in the lung, peritoneal surface of diaphragm, peritoneum and spleen. They also observed caseative mass in mesenteric lymph node in the tuberculosis infected sloth bear. The impression smears prepared from the caseative nodules of lung showed abundant presence of short stumpy acid fast tubercular bacilli that resemble *Mycobacterium tuberculosis.* Histopathological examination of lungs revealed areas of typical granulomatus reaction with caseasation and aggregation of chronic inflammatory cells and sever thickening of inter alveolar septa due to deposition of fibrin, inflammatory cells, and erythrocytes which correlates with earlier findings by Bhat *et al.,* (2005), Fefar *et al.,* (2012), Harish *et al.,* (2002) and Rishikesavan *et al*., (2010).The diseased condition in the Sloth bear was confirmed to be Tuberculosis based on the history, clinical signs, gross findings, impression smears and histopathological findings.

In recent time, it is becoming a threat in the conservation of captive animals because of their exposure and their close contact with infected human, animals and environment. With this aspect there is urgent need to detect or identify the affected animals by systematic investigation of Tubeculosis by modern molecular diagnostic techniques.

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DOI: 10.18535/ijsrm/v4i12.05

Captions of the figures:

1. Fig. 1: Tuberculous nodules in lung parenchyma.
2. Fig. 2: Presence of abundant acid fast bacilli in Impression smear from tubercle
3. Fig. 3: Granulomatus lesion in lung. H&E ×200.
4. Fig. 3: Bronchus filled with exudates along with thickened inter-alveolar septa