Pulmonary Tuberculosis in a Captive Sambar (*Rusa unicolor*) - A Case Report
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Introduction
Tuberculosis (TB) is one of the important ancient diseases which is responsible to cause high morbidity and mortality in animal and human. It has wide host range which includes elephants, lamas, deer, urial, tapirs, antelopes, sheep, binturongs, lesser pandas (Liston and Soparkar, 1924), giraffe (Rai and Chandrasekharan, 1958), wild sheep, mouse deer (Sen Gupta, 1974), black buck, sambar, chital (Singh et al., 1981), gaur (Rao, 1989), barking deer, hog deer, mithun (Chakraborthy et al., 1993) and captive Nilgai (Priya et al., 2014). Cervid TB caused by *Mycobacterium bovis* has been recognized in captive and free-living wild deer. In deer, infection is by inhalation or ingestion, with the bulk of the lesions found in retropharyngeal lymph nodes. One of the main risk factors for tuberculosis infection is overcrowding, which increases the opportunity for a single infected animal to infect multiple animals. The present paper reports a case of tuberculosis in captive Sambar in Gujarat state.

Details of Case study
A nine year-old male sambar in captivity was died with the history of respiratory disturbance, chronic anorexia and not responding to treatment. Tissue samples were received by the Department of Veterinary Pathology from Zoo officials for confirmation of the cause of death. The tissue samples of different organs were processed and stained by routine H & E stain and ZN stain.

Result and Discussion
The post mortem examination revealed variable sized granulomatous nodules in both lungs as well as in mediastinal lymphnodes. The nodules were variable in size, hard in consistency and whitish to creamish in colour. The section of lung and mediastinal lymph node revealed typical multifocal granulomatous lesions with caseation and calcification surrounded by chronic inflammatory cells (Fig 1 & 2). ZN staining of lung section revealed presence of many acid fast bacilli (Fig. 3).

Pulmonary form of tuberculosis was diagnosed on the basis of gross, histopathological lesions and demonstration of acid fast organism in the impression smears. Verma et al., (2012) & Priya et al., (2014) also reported generalized tuberculosis in nilgai on the basis of gross and histopathological lesions. In India, bovine type of bacilli was reported by Dutta, (1954) in nilgai and observed tubercle lesions in lung. Kumar et al., (2010) also reported 23.8% positive samples for *Mycobacterium avium* subspecies

Fig 1. Presence of typical caseative necrosis and calcification surrounded by chronic inflammatory cells (H&E Stain X 60)

Fig 2. Presence of langerhan's giant cells in typical granulomatous reaction (H&E Stain X 240)

paratuberculosis out of 42 fecal samples from nilgai.

Conclusion
The impact of tuberculosis in wild animal populations especially small wild captive ungulates may not restricted to be on that species directly, but may also have economic significance when the wild animal species act as reservoir of infection for domestic animals. Surveillance and monitoring of wildlife

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diseases is important as incidence of tuberculosis has increased in the zoo animals. The human intervention is urgent necessity to routine screening of captive wild animal and justifiable in order to protect native population of domestic as well as wild animals from acquiring such emerging diseases.

References


Fig 3. Presence of acid fast bacilli in lung parenchyma (ZN Stain X 1040)