A case report of generalized tuberculosis in a captive Nilgai (*Boselaphus tragocamelus*)

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Introduction

Tuberculosis is a chronic infectious disease of man and animals caused by acid fast bacilli of Genus Mycobacterium. 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 nilgai (Fox, 1923). Beside this it also affect carnivores, primates, perissodactylids, marsupials, rodents, reptiles, amphibians (Arora, 1994) and birds in captivity (Rao *et al*., 1982). It is a very important zoonotic disease of veterinarian and public health significance. It has been observed that the incidence of tuberculosis is comparatively higher in captivity then in free living animals (Rao *et al*., 1982). The present paper reports a case of tuberculosis in captive nilgai in Gujarat state.

Methods

The Department of Pathology, Veterinary College, Anand has received whole lung, liver and kidney of a nilgai from a zoo for the histopathological diagnosis. The gross lesions of these organs were recorded and impression smear was prepared from the caseative nodules of lung and stain by Ziehl and Neelson for demonstration of acid fast bacilli. Tissues from lung, mediastinal lymph node, liver and kidney were collected in neutral buffer formalin for detail histopathological examination. The paraffin embedded tissues were also stained by Z.N. stain for demonstration of acid fast bacilli.

Result and Discussion

The gross examination of lung revealed variable sized multiple caseative nodules embedded in the parenchyma as well as slightly elevated from the surface (Fig.1). The mediastinal lymph nodes were enlarged, nodular and hard in consistency. The tissues of liver and kidney also revealed scattered milliary nodules embedded in parenchyma.

Fig. 1. Lung showing variable sized multiple caseative nodules embedded in the parenchyma

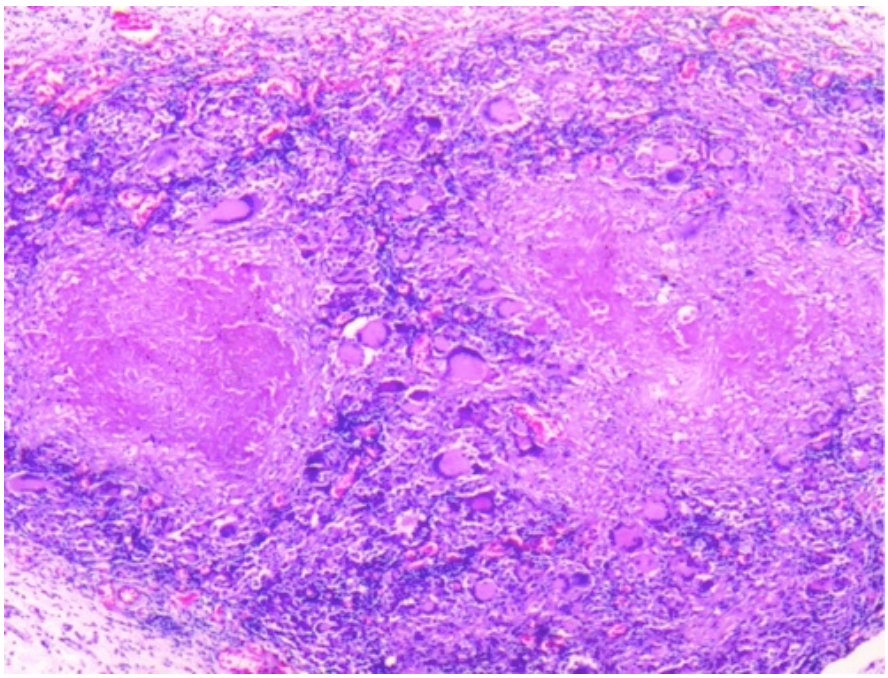

Fig. 2. Section of lung showing granulomas with caseative necrosis, surrounded by macrophage, epithelioid cells and giant cells. (H & E X120)

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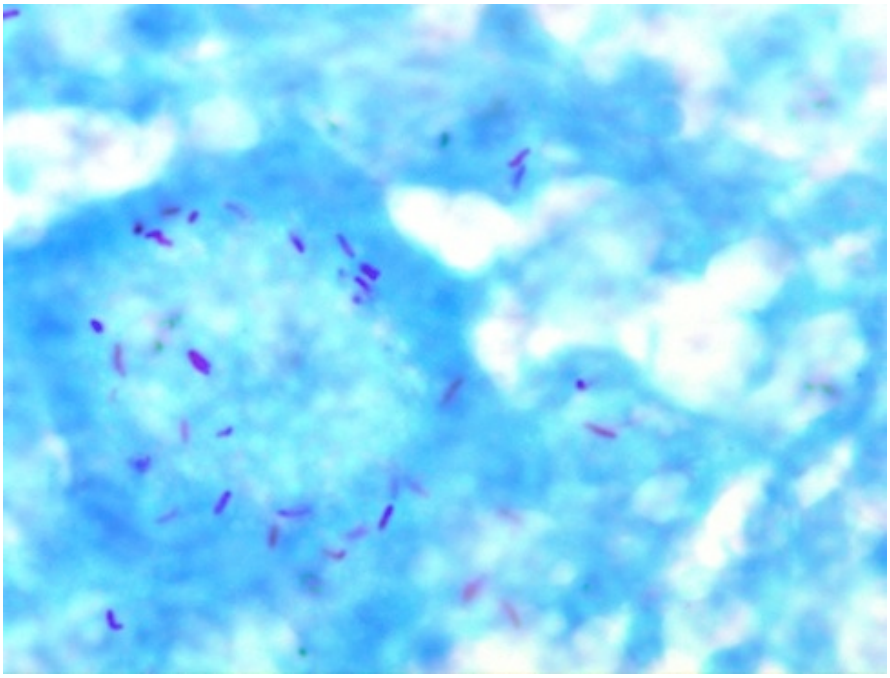

Fig. 3. Section of lung stained by Z N stain, showing presence of acid fast bacilli. (Z N X 1200)

Histopathological examination of lung tissue revealed variable sized granulomas with caseative necrosis surrounded by chronic inflammatory cells which include macrophages, epithelioid and giant cells (Fig.2). At few places, epithelioid cells were seen in process of fusion. The microscopic granuloma did not reveal clear fibrous connective tissue capsule. Similar lesions were also reported by Verma *et al*., (2012) in a nilgai. The sections from liver and kidney revealed very small sized scattered granulomas with necrosis and infiltration of chronic inflammatory cells. Impression smears and tissue sections from lung, liver and kidney stained by Z.N. stain revealed enormous clear short stumpy acid fast bacilli (Fig. 3).

Generalized 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) also reported generalized tuberculosis in nilgai caused by *Mycobacterium fortuitum*. 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 paratuberculosis out of 42 fecal samples from nilgai.

Conclusion

In recent years, the incidence of tuberculosis has increased in the zoo animals, which may be due to close confinement of many wild species at a place (Rao *et al*., 1982). Easy and high frequency of spread of organisms from animal to human draws more attention regarding zoonotic importance. With this aspect there is urgent need of regular investigation of this disease in captive and free ranging wild animals.

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