

INCIDENCE AND PATHOLOGY OF PULMONARY TUBERCULOSIS IN CATTLE[#]

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ABSTRACT

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A total number of 895 specimens of respiratory system of cattle were examined irrespective of age, sex and breeds. Out of these, 380 specimens of lungs showed gross lesions were examined histopathologically. Pulmonary tuberculosis was recorded in 11 (2.89 per cent) cases. Grossly, the lungs were consolidated and studded with greyish white nodules. The cut surface of the lung revealed typical circumscribed lesions filled with yellowish white, chalky, foul smelling caseous mass. Microscopically, the lungs showed granulomatous lesions.

Key words: Cattle, lungs, tuberculosis

Introduction

Bovine tuberculosis is caused mostly by the *Mycobacterium bovis*. *Mycobacterium bovis* is transmitted by inhalation of aerosol, by ingestion or through break in the skin. The mediastinal lymph nodes are most commonly affected in TB confirmed animals. Pulmonary tuberculosis is characterized by the development of granulomas where bacteria have localized. The granulomas are usually yellowish and either caseous, caseo-calcareous or calcified and often encapsulated. In the lungs, the lesions are multiple coalescing foci of caseous necrosis surrounded by thin pale fibrous tissue capsule.

Materials and Methods

In the present study, a total number of 895 specimens of respiratory system of cattle were examined irrespective of age, sex and breeds. Out of these 380 specimens of lungs showed gross lesions were examined histopathologically. The samples were preserved in 10% formal saline and processed mechanically for paraffin embedding by acetone benzene technique (Lillie, 1965). Sections of 4-6 micron thickness were cut and stained with haematoxylin and eosin method.

Results and Discussion

Pulmonary tuberculosis was observed in 11 (2.89%) cases. Grossly, the lungs were found consolidated and studded with greyish white nodules, mostly distributed in the diaphragmatic lobes. The size of nodules varied from a pin head to the pigeon egg. In most of the cases, the nodules were sessile while in two cases they were found to be pedunculated. In some cases the nodules were soft whereas in others these were hard, giving a pearly appearance. The mediastinal lymphnode were significantly enlarged, firm and difficult to cut. The cut surface of the lung revealed typical circumscribed lesions filled with yellowish white, chalky, foul smelling caseous mass. Some nodules were hard to cut and gritty sound on cutting indicated calcification and a few cases showed cavitation. These findings are similar to those described by Vyas *et al.* (1985), Gupta *et al.* (2010) and Egeh *et al.* (2013).

Microscopically, granulomatous lesions typical of tuberculosis were evident in all the cases. The granulomas depicted caseation occasionally with calcified centre surrounded by epithelioid cells and langhans type of giant cells with a narrow zone of lymphocytes encased in fibrous tissue capsule. Early granulomas with or without

caseation having infiltration of macrophages and giant cells. The old tuberculous nodules showed a central mass of caseous material with calcification and surrounded by a large number of epithelioid cells, lymphocytes and a few langhans type of giant cells at the periphery. The whole lesion was surrounded by a thick layer of fibrous tissue capsule (Fig.1). These findings corroborated with those of Sharma *et al.* (1985), Gupta *et al.* (2010) and Mondal *et al.* (2014).

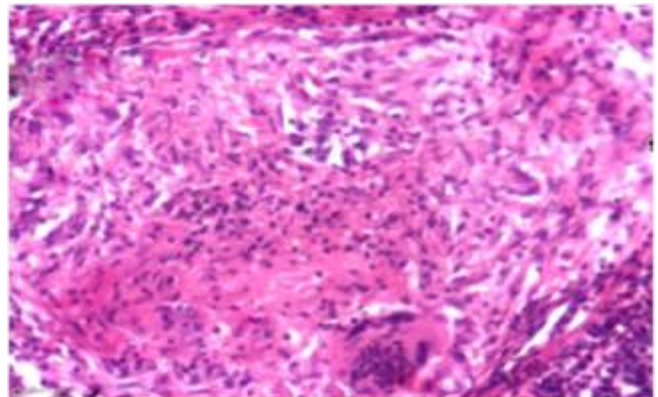


Fig.1: Lung showing tuberculosis in which central necrotic area surrounded by epithelioid cells and giant cells. (H&E, 100X.)

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