INCIDENCE AND PATHOLOGY OF BRONCHOPNEUMONIA IN CATTLE#

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ABSTRACT

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, examined histopathologically. Bronchopneumonia was recorded in 33 (8.68 per cent) cases. Grossly, affected lungs showed congestion, oedema and patchy areas of consolidation. On microscopically section revealed bronchiolitis, area of red and grey hepatization and alveolar lumina filled with cellular exudates, polymorphonuclear cells and mononuclear cells.

Key words: Cattle, lungs, bronchopneumonia

Introduction

Bronchopneumonia is the commonest type of pneumonia found in cattle and causes reduction in performance and growth of cattle. Primary infection starts as a bronchitis and bronchiolitis from where it may spread to the alveoli by flooding with exudates when there is occlusion of the bronchi by direct extension from bronchi and bronchioles to alveoli and by peribronchial pathway. In bronchopneumonia, the anterior and ventral parts of the lungs are more commonly affected because the bronchi to these parts take off vertically and so infection gravitates and respiratory movement of these parts is less due to limited rotatory action of anterior ribs.

Materials and Methods

In 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

Bronchopneumonia was recorded in 33(8.68 per cent) cases. Grossly, affected lobe had mosaic appearance due to patchy to diffuse areas of consolidation with intermingling normal, atelectatic and emphysematous lobules. The pleura over the affected portion was grey or greyish yellow.

Microscopically, the bronchiole and bronchiolar lumens were partially or completely obliterated with exudates comprising of polymorphonuclear leukocytes, mononuclear cells, desquamated epithelial cells, denuded bronchiolar cells and mucus (Fig.1). These findings concur well with those of Macrato *et al*. (1986) and Gagea *et al*. (2006).

In some areas organisation of peribronchial exudates in broad seams of granulation tissue caused bronchiectasis (Fig. 2). At places, pleural adhesions resulted due to organisation of exudates. Red hepatization was seen where the alveolar capillaries were tortuous and engorged with blood. The alveolar lumen was filled with serous or serofibrinous exudates containing a few erythrocytes, polymorphonuclear leukocytes and mononuclear cells. This is in conformity with the findings of Akbor *et al*. (2007), Fulton *et al*. (2009) and Rashid *et al*. (2013).

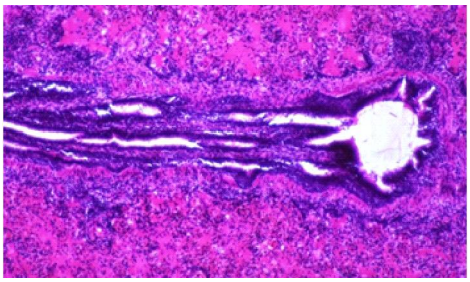

Fig.1: Microphotograph of lung showing bronchopneumonia in which bronchiolar lumens were filled with exudates, polymorphonuclear cells, mononuclear cells, denuded bronchiolar epithelial cells (H&E, 100X)

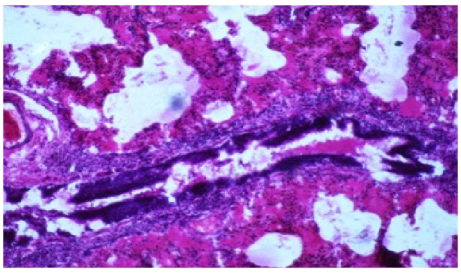

Fig.2: Microphotograph of lung showing bronchiectasis with peribronchial infiltrations and congestion (H&E, 100X)

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