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Occurrence and histopathology of pulmonary Adenomatosis in goat

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Abstract

The present investigation a total number of 630 specimens of lower respiratory tract of goats were examined irrespective of age, sex and breeds in Jaipur. Abnormalities were suspected in 363 specimens out of 630 specimens grossly. An overall occurrence of various pathological conditions of lower respiratory tract of goat in Jaipur were 57.61 per cent. Out of various other pathological conditions Pulmonary Adenomatosis/ Jaagsiekte was recorded 5 per cent (6 out of 363). In present case, the goat lung grossly lungs were seen enlarged and severally firm in consistency showed multifocal nodular areas and the tissue sample was collected in 10% neutral buffered formalin. These were further processed for histopathological examination.

Keywords: Adenomatosis, tumour, occurrence, Goat

Introduction

Pulmonary adenocarcinoma (OPA) in the small ruminants caused by retrovirus and sheep is the main target species infected and the disease is well reported in sheep worldwide. goats occasionally showed the lesions of this disease. Reports of the neoplastic conditions in the goats are very few and it is reported that incidence of neoplasms in goats range from 0.8 to 7.6% of the total recorded tumours in domestic animals. The diagnosis is possible during necropsy and on histopathological evaluation by observing characteristics neoplastic transformation of the alveolar and bronchiolar secretory epithelial cells. The aim of the present study was to monitor the different pathological affections present in the lungs of goats.

Material and Method

The study was conducted from March, 2019 to December, 2019 at slaughter houses and meat outlets of Jaipur. The tissue specimens were also collected from the carcasses of goats submitted to the department of Veterinary Pathology, College of post graduate institute of veterinary education and research (PGIVER), Jaipur for post mortem examination. Sampling was done from the affected lung and 0.5 cm thick lung tissues were collected in 10% NBF. For histopathological processing, the tissue samples were given overnight washing in tap water and dehydrated in increasing grades of ethyl alcohol, cleared in xylene and embedded in paraffin. From paraffin embedded tissue blocks, 4-5µm thick tissue sections were cut on clean, grease free glass slides and haematoxylin and eosin staining was done. Then sections were examined under the light microscope for histopathological evaluation of tissue.

Result and Discussion

Microscopically, the affected part of lung was showed fibrous thickening of alveolar septa and the lining epithelium of the alveoli becomes cuboidal in shape. Some bronchiolar epithelial cells and alveoli showed hyperplastic changes leading to papillary projection into the lumina. Cuboidal or columnar epithelial cells were involved to nodular formation. Serous exudate and macrophages were found in alveolar spaces. Exudate was found in bronchi and bronchioles. In some sections showed epithelial metaplasia with acini formation and alveolar lumina lined by cuboidal epithelial containing variable no. of macrophages with fibrous thickening of alveolar septa. And bronchial epithelial metaplasia forming new papillary projections in lumen with involve in nodule formation and proliferating acini formation.

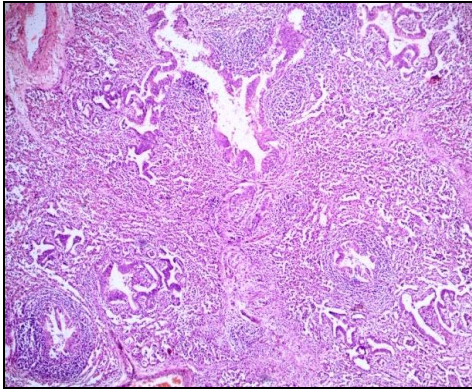


Fig 1: Microphotograph of pulmonary adenomatosis showing epithelial metaplasia with acini formation and alveolar lumina lined by cuboidal epithelial cells containing variable numbers of macrophages with fibrous thickening of alveolar septa. H&E 40X.

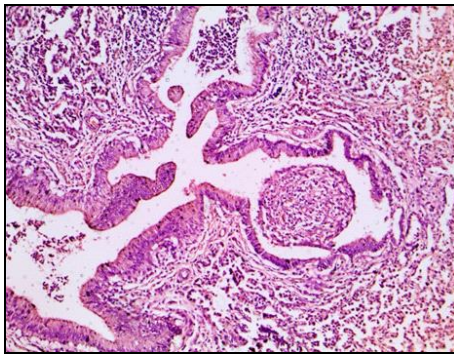


Fig 2: Microphotograph of pulmonary adenomatosis showing bronchial epithelial metaplasia forming new papillary projections in the lumen with involvement in nodule formation and proliferating acini formation. H&E 100X.

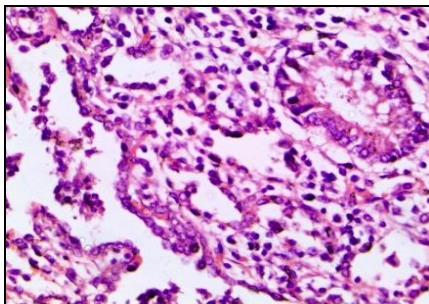


Fig 3: Another field of higher magnification of pulmonary adenomatosis showing epithelial metaplasia with acini formation, thickening of alveolar septa, H&E 400X.

Conclusion

From the present study, it can be concluded that goats are susceptible to JSRV infection, although reports of pulmonary adenocarcinoma in goat are very rare. The susceptibility of goats to JSRV infection could be due to rearing of goats mostly along with sheep. Further, it may be possible that the JSRV circulating in goat population differ from the one circulating in sheep, but to confirm that whole genome sequencing of the JSRV genome from goat needs to be done.

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