

Spontaneous case of bronchiolo-alveolar carcinoma in a sheep

P. Ramesh Kumar, Ram Kumar[†], G.G. Sonawane and O.P. Paliwal

Division of Pathology
Indian Veterinary Research Institute
Izatnagar-243 122 (UP)

Ramesh Kumar P, Kumar Ram, Sonawane GG and Paliwal OP (2006). Spontaneous case of Bronchiolo-alveolar carcinoma in a sheep. *Indian J. Vet. Pathol.*, 30(2): 71-72.

Primary pulmonary tumours are less frequently reported than metastatic tumours of lungs in domestic animals^{4,6}. The primary neoplasms of lungs in dog, pigs, cattle and buffalo have been documented^{1,3,5,6} but rarely recorded in sheep^{2,7}. The present communication describes the pathological alterations in spontaneously occurring bronchiolo-alveolar carcinoma (BAC) in a sheep.

A total of 35 lung specimens in 10% formalin were received from Central Sheep and Wool Research Institute, Avikanagar (Rajasthan) during the period from Sept., 2004 to Feb., 2005 for pathological examination. Materials were processed by conventional histological method and sections of 4-5 μ thickness were prepared from paraffin blocks. The tissue sections were stained with haematoxylin and eosin (H & E). A case of BAC, occurring spontaneously (0.57%), in sheep was encountered on histopathological examination. Grossly, the hard nodules were present in lung parenchyma towards periphery of right diaphragmatic lobe. Microscopically, the bronchiolar and alveolar epithelial cells varied in size and shape and were of cuboidal or columnar types (Fig.1). The proliferating cells were multi-layered and attached to the conspicuous basement membrane. At places proliferated cells projected frequently in the alveolar lumen in form of papillary ingrowths and as epithelial cell nests (Fig.2). In confluent hyperplastic lesions, the interstitium was prominently thickened owing to proliferation of connective tissue and moderately infiltrated with mononuclear cells mostly macrophages and a few lymphocytes. The juxtapositioned alveoli were occasionally filled with atypical cells lying freely in the lumen. The neoplastic cells appeared enlarged with deeply stained variable sized hyperchromatic nuclei; a few of them were loosely attached to the alveolar wall. The overcrowding of proliferated epithelial cells in the pulmonary parenchyma lent support to the opinion of forming complex branched papillae as expressed by earlier worker⁸. The distribution of cancerous growth within the lung tissue at many places might have been determined by its character of multifocal origin.

Although the histological observations recorded in the bronchiolo-alveolar carcinoma were in agreement with the findings of previous worker^{2,7}, but the histological features did not always commensurate with specific histogenic

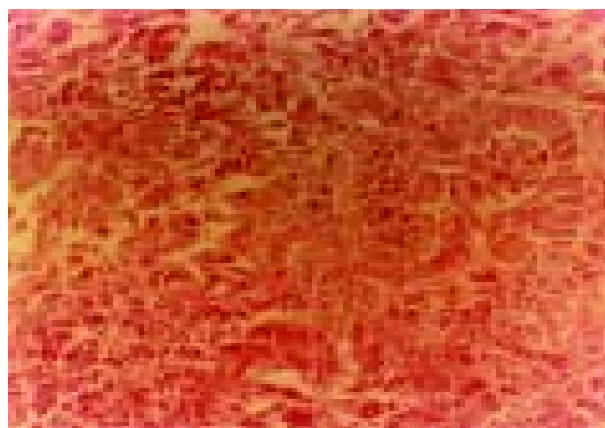


Fig. 1: Bronchiolo-alveolar carcinoma: Cuboidal to columnar epithelial cells proliferation in lung parenchyma. H & E X 160.

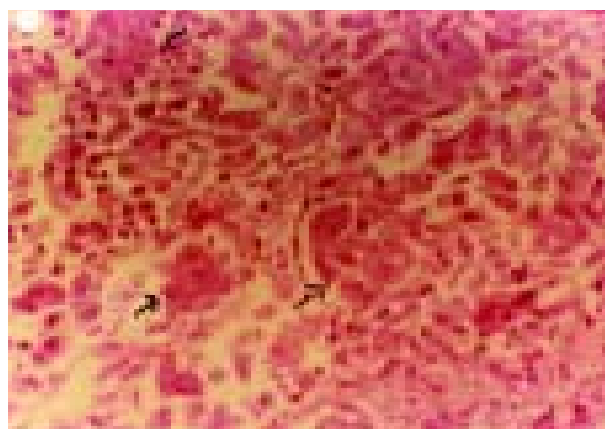


Fig. 2: Bronchiolo-alveolar carcinoma : Proliferation of variable sized epithelial cells with nuclear atypia and presence of cell nests (arrow). H & E X 400.

process, which would depend upon the arrangement of proliferative cells and not to the origin from where it arised (alveolar or bronchial lining epithelium).

□□□□□□□□□□□□□□□□

Authors are thankful to the Head, Division of Animal Health and Director, CSWRI, Avikanagar for providing morbid materials and Director, IVRI for extending the facilities.

□□□□□□□□□□

1. Anderson LS and Sandison RT (1968). Pulmonary tumours found in a British abattoir survey: Primary carcinoma in

[†]Corresponding Author

- cattle and secondary neoplasms in cattle, sheep and pigs. *British J. Cancer*, **22**:47-57.
2. Charan K, Pawaiya RVS and Jain UK (1996). Bronchioalveolar hyperplasia, progenitor of bronchioloalveolar carcinoma in sheep. *Indian J. Anim. Sci.*, **66**(9): 904-906.
 3. Charan K, Pawaiya RVS and Katiyar RC (1996). Primary bronchiolo alveolar adenocarcinoma in a bull. *Vet. Rec.*, **138**: 163-168.
 4. Jones TC, Hunt RD and Kind MW (1997). *Veterinary Pathology* 6th ed. Williams and Wilkins, Awerly Company, p.971.
 5. Kharole MU, Gill BS, Gupta PP and Singh B (1975). Bronchiogenic carcinoma in Indian water buffalo (*Babulus bubalis*). *Vet. Pathol.*, **12**: 462-463.
 6. Multon JE (1989). Tumours of respiratory system. In: *Tumours in Domestic Animals*. 3rd ed. Chapter 7, University of California Press, Barkeley, Los Angeles, London, p.325.
 7. Pawaiya RVS and Bhagwan PSK (2000). Primary bronchioloalveolar carcinoma in suckling lamb : A case report. *Indian J. Vet. Pathol.*, **24**: 113-114.
 8. Sandford SE and Bundza A (1982). Multicentric bronchioloalveolar neoplasm in a steer. *Vet. Pathol.*, **19**: 95-97.