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Study of gross and histopathological condition in bronchia of pigs

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Abstract

In the present study a total of 384 specimens of lungs of pig were investigated for gross and histopathological condition in bronchia of pigs. During this period, specimens of bronchia of pig, suspected for pathological condition was examined irrespective of age, sex and breeds. Out of these specimens, 39 bronchopneumonia, 5 broncho interstitial pneumonia, 2 bronchitis, 3 bronchiectasis, 2 bronchostenosis conditions were found grossly. These were further processed for histopathological examination to find various types of pathological conditions.

Keywords: Pig, lungs, bronchopneumonia, bronchitis, bronchiectasis, bronchostenosis

Introduction

In India the current goal for pig industry is to produce high quality lean meat at low cost which will play an important role in improving socio-economic status of pig rearing farmers (Anubratadas and Bujarbaruah, 2005) ^[1]. Respiratory diseases are major health problems in growing swine throughout the world including India. A wide range of pneumonic pathological conditions are common in lungs of pig such as bronchointerstitial pneumonia, bronchopneumonia, bronchitis and bronchiectasis (Gidey *et al.*, 2014) ^[6]. In Rajasthan, so far very little efforts have been made to study the occurrence of various pathological conditions in lungs of pigs. Therefore, it becomes pertinent to study the lungs affections in pigs.

Material and Methods

The materials for the present study consisted of tissue samples of lungs collected from various slaughter houses and from private piggery farms located in and around Bikaner district of Rajasthan.

During slaughter, the samples were thoroughly examined grossly for alterations in morphology, in shape, size, colour, consistency, location and present of cyst, tumor and abscess etc. lesions in individual part of lungs.

Tissue pieces from portions of lungs were collected in 10% buffered formalin for histopathological examination. The samples were processing by routine paraffin embedding using acetone and benzene technique (Lillie, 1965) ^[8] and sections of 4-5 micron thickness were cut and stained by Harris Hematoxylin and Eosin method (Luna, 1968) ^[9]. These were further proceed for histopathological examination. The slide containing sections were air dried and kept in cool place until staining. As far as possible, results were recorded by gross observations and microphotographs.

Results and Discussion

A total number of 385 specimens of lungs of pig were collected from various slaughter houses and private piggery farms. Out of these 39 cases revealed bronchopneumonia (24.68%) of the total affected lungs. Grossly, the affected lungs revealed the patchy to diffuse area of consolidation in apical, cardiac and anterior parts of the diaphragmatic lobes (fig.1), which is an agreement with the finding of Rao *et al.*, (2001) ^[10]. Microscopically, the lumen of the bronchi and bronchioles were obliterated partially and completely with exudates comprising of polymorphonuclears, mononuclear's and denuded bronchiolar cells and mucous along with emphysema and hemorrhage (fig. 2). However, a higher incidence of 36.62%, were recorded by Bhat *et al.*, (2016) ^[2]. Comparatively lower incidence of 20% was recorded by Dosan *et al.*, (2007) ^[5].

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Because the incidence of lesions depends on various factors such as the difference in environmental conditions, managemental practices and health status of the different age group of flocks.

Bronchointerstitial pneumonia was noticed in 5 (3.16%) cases of the total affected lungs. Grossly, the lungs were consolidated throughout in a diffuse lobular pattern. The lungs were heavy, edematous, reddened and failed to collapse. Microscopically, the bronchiolar epithelium was desquamated and in the lumen an influx of neutrophils was noticed (Fig.3). Higher incidence (8.33%) was reported by Lavanya *et al.*, (2011) [7].

Bronchitis was observed in 2 (1.26%) cases of the total affected lungs. It was characterized by the infiltration of reactive cells in and around the bronchiolar walls and polyp's proliferation, extending into the lumen of bronchiole, leading to obliteration, along with microabscess and infiltration of polymorphonuclear and mononuclear cells. (Fig.4). A higher incidence of 9.8% was reported by Cappuccio *et al.*, (2018) [4] respectively.

Bronchiectasis was in 3 (1.89%) cases of the total affected lungs. The bronchial tubes of lungs are permanently damaged and enlarged. On microscopic examination, bronchiectasis having narrowing of bronchial lumen and these structures were seen to consist of a dense hyaline proteinaceous material within the lumina of bronchiectatic bronchi along with congestion, microabscess and severe infiltration of polymorphonuclear and mononuclear cells (Fig.5). Comparatively lower incidence of 0.41% was recorded by Buri (2017) [3].

Bronchostenosis was recorded in 2 (1.26%) cases of the total affected lungs. On microscopic examination, bronchostenosis having spasmodic contraction of the walls of the bronchi in which narrowing of bronchial lumen occurs along with atelectasis, congestion and infiltration of polymorphonuclear and mononuclear cells (Fig. 6). Comparatively lower incidence of 0.41% was recorded by Buri (2017) [3].

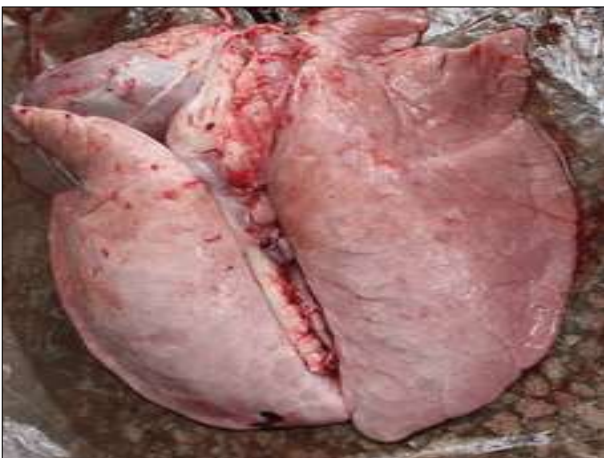


Fig 1: Gross photograph of lung showing Bronchopneumonia

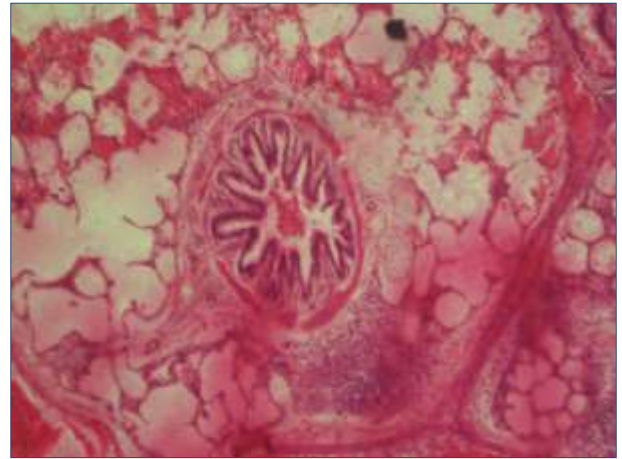


Fig. 2 Microphotograph showing bronchopneumonia having Bronchitis H& E. 200X.

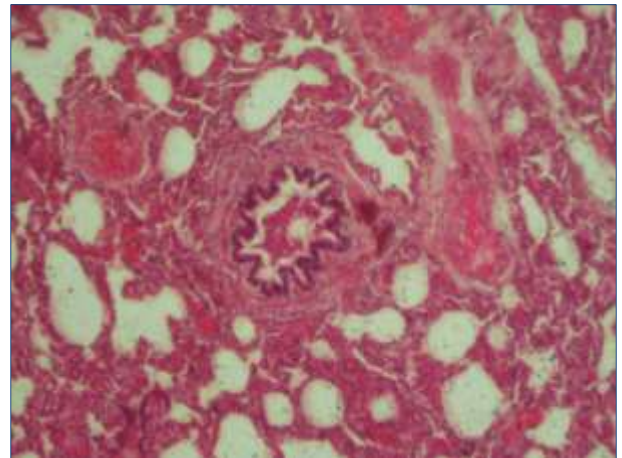


Fig 3: Microphotograph of lungs showing interstitial pneumonia H& E. 100X.

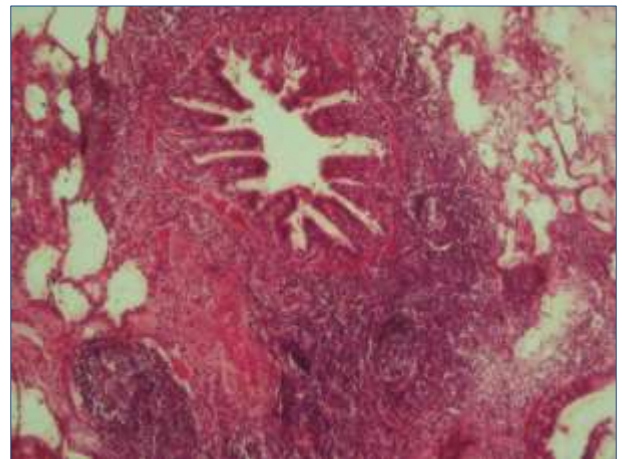


Fig 4: Micro photograph of lungs showing bronchitis H& E 200X.

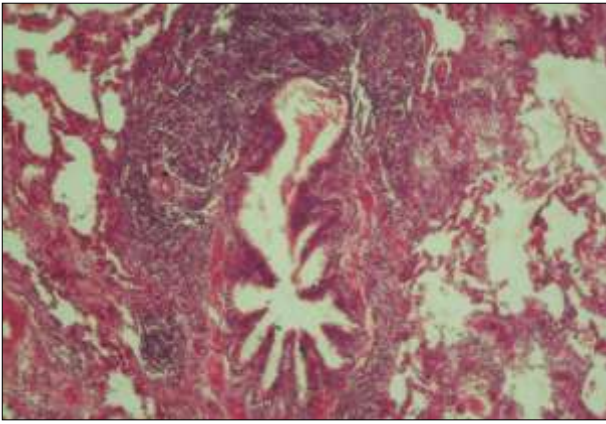


Fig 5: Microphotograph having bronchiectasis H& E. 200X.

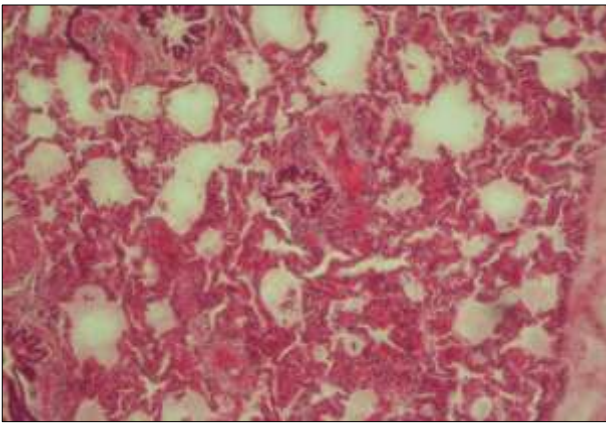


Fig 6: Microphotograph having bronchostenosis H& E. 100X.

Conclusion

The present investigation had been concluded that the bronchopneumonia, bronchointerstitial pneumonia, bronchitis, bronchostenosis, bronchiectasis were demonstrated with various pathological conditions encountered in the present investigation. Almost all the gross and microscopic observations on various lungs affections were encountered in the present study where in close conformity with the findings of earlier workers reported elsewhere. Detailed histopathological changes in each of lungs ailments in pig were observed critically and documented in the course of the present study.

Acknowledgement

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References

1. Anubrata das, Bujarbarush KM. Pig for meat production. *Ind. J animal sci.* 2005;75(12):448-452.
2. Bhat P, Singh ND, Leishangthem GD, Kaur A, Mahajan V, Banga HS, Brar RS. Histopathological and immunohistochemical approaches for the diagnosis of Pasteurellosis in swine population of Punjab. *Vet. World;* c2016. EISSN: 2231-0916
3. Buri. Occurrence and pathology of various conditions of respiratory system in sheep, M.V.Sc thesis, R.A.J.U.V.A.S, Bikaner; c2017.
4. Cappuccio JA, Dibarbora M, Bessone FA, Olivera VS, Lozada I, Alustiza FE, Quiroga A, Perez EM, Zielinski

- GC, Perfumo CJ, Pereda AJ. Evaluation of pig pneumonia at slaughter using polymerase chain reaction and histopathology in Argentina. *Journal of Swine Health and Production.* 2018 Nov 1;26(6):304-8.
5. Dosen R, Prodanov J, Milanov D, Stojanov I, Pusic I. The bacterial infections of respiratory tract of Swine. *Biotech. Anim. Husbandry.* 2007;23(5-6):237-243.
6. Gidey HS, Nigatu S, Debebe D. Major causes of organ and carcass condemnation in swine slaughtered at Addis Ababa Municipal Abattoir. *African J. Basic & Appl. Sci.* 2014;6(3):76-81.
7. Lavanya K, Ramadevi L, Srilatha CH. Pneumonia in pigs. A pathomorphological study. *Indian j. vet. Pathol.* 2011;35(2):206-208.
8. Lillie RD. *Histopathological technique and practical histochemistry.* Mc-Gh London. Lipatov, S.A., Kwon, Y.K., Sarmiento, V.L., Lager, M.K., Spackman, E., Suarez, D.L., Swayne, D.E. Domestic Pigs Have Low Susceptibility to H5N1 Highly Pathogenic Avian Influenza Viruses *PLoS Pathog.* 1965;4(7):e1000102
9. Luna LG. *Manual of Histological staining methods of the Armed Forces Institute of Pathology,* 3rd Edn. McGraw Hill Book Co., New York; c1968.
10. Rao AN, Paliwal OP, Sharma AK, Kumar R. Mortality in piglets: a pathomorphological study. *Indian J. Vet. Pathol.* 2001;25(1&2):44-48.