



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2022; SP-11(7): 3020-3023  
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[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: xx-05-2022  
Accepted: xx-06-2022

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## Various type of Bronchopneumonia conditions in Lungs of Pigs at Bikaner Region

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### Abstract

In the present investigation a total of 384 specimens of lungs of pig were investigated for bronchopneumonia. During this period, specimens of lungs of pig, suspected for bronchopneumonia was examined irrespective of age, sex and breeds in Bikaner, Rajasthan. Out of these specimens, 39 bronchopneumonia conditions were found grossly. These were further processed for histopathological examination to find various types of pathological conditions.

**Keywords:** Pig, lungs, bronchopneumonia, histopathological examination, Bikaner, Rajasthan

### 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. 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 Broncho interstitial pneumonia, bronchopneumonia, hemorrhagic pneumonia, interstitial pneumonia, Suppurative pneumonia, catarrhal pneumonia (Gidey *et al.*, 2014) [5]. 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. However, A higher incidence of 72.5%, 71.7% and 36.62%, were recorded by Sriraman and Sastry (1977) [13], Rajao *et al.*, (2013) [10] Bhat *et al.*, (2016) [2] respectively. Comparatively lower incidence of 21%, 11.98%, and 20% were recorded by Greast *et al.*, (1997) [6], Rao *et al.*, (2002) [12], Dosan *et al.*, (2007) respectively. Because the incidence of lesions depends on various factors such as the difference in environmental conditions, manage mental practices and health status of the different age group of flocks. Grossly, the affected lungs revealed the patchy to diffuse area of consolidation in apical, cardiac and anterior parts of the diaphragmatic lobes. One or many lobules were affected

which were red, firm and sank when put in water (fig.1), which is an agreement with the finding of Rao *et al.*, (2001) [11].

Microscopically, the bronchitis was seen as the primary lesion. 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). The above findings are in concurrence with the observations of Sriraman and Shastry.

In some cases, severe congestion of the alveolar capillaries and accumulation of serous fluid containing few erythrocytes, polymorphonuclears, mononuclear, in the alveolar lumen was seen in the areas showing red hepatization (Fig.3). The above findings are in concurrence with the observations of Rao *et al.*, (2001) [11].

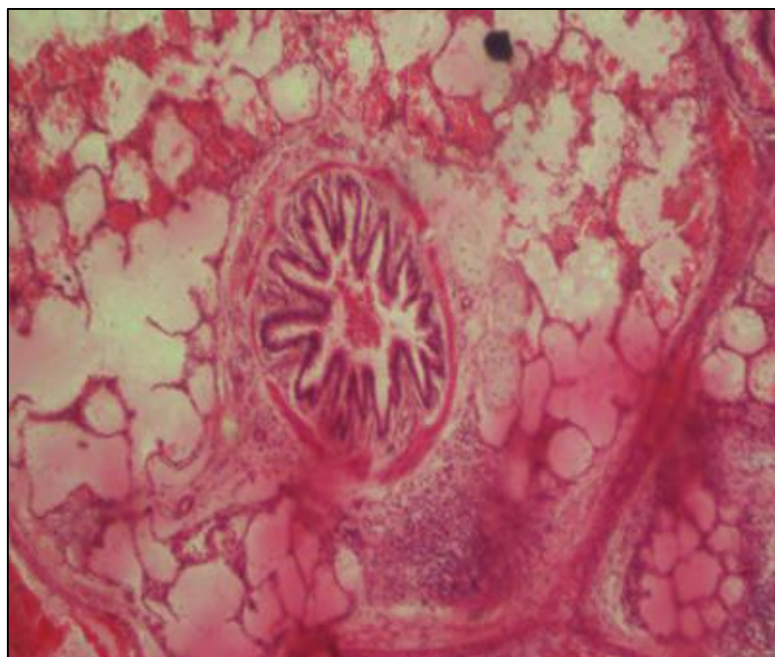
In some cases, with chronic bronchopneumonia the bronchiolar Lumina were obliterated by polyps projecting from the Submucosa. The polyps appeared to be composed of fibro-elastic granulation tissues covered with a single attenuated layer of squamous epithelium cells (fig. 4). These similar findings were observed previously by Rao *et al.*, (2001) [11].

In some cases, organization of peribronchial exudate resulted in stretching of bronchiolar folds causing bronchiectasis (Fig 5). These similar findings were reported previously by Bhattacharya *et al.*, (1972) [3].

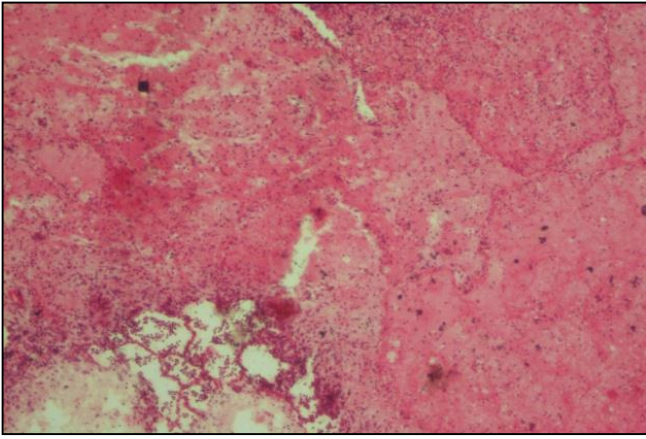
In few cases, severe suppuration and bronchogenic multiple abscessation were also seen (fig.6). Previous reports indicated that similar lesions were described under this type of bronchopneumonia by Lavanya *et al.*, (2011) [7].



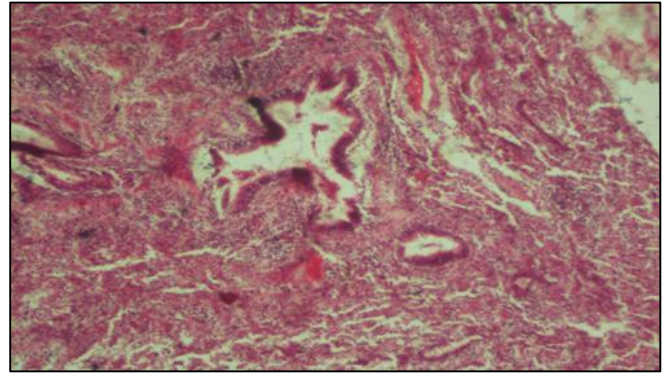
**Fig 1:** Gross photograph of lung showing Bronchopneumonia



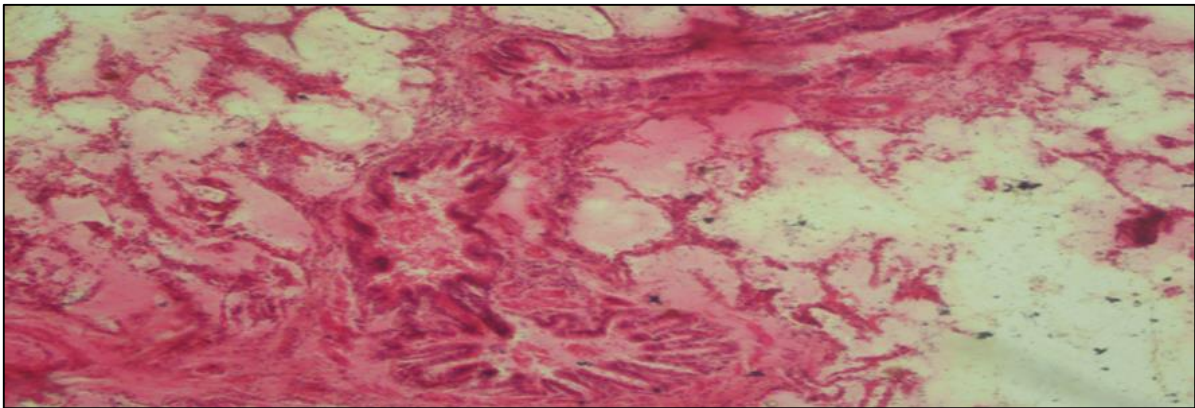
**Fig 2:** Microphotograph showing bronchopneumonia Bronchopneumonia having Bronchitis H & E. 200X



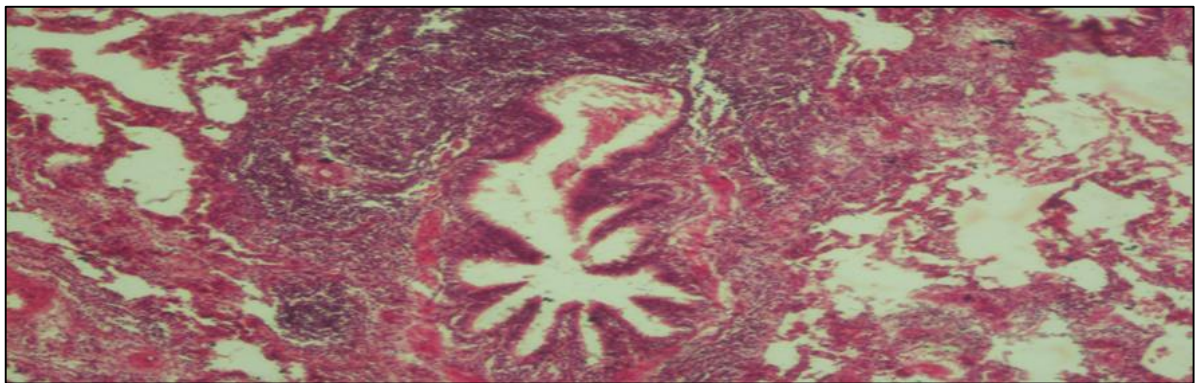
**Fig 3:** Microphotograph of lungs showing Red hepatization H&E. 200X



**Fig 4:** Microphotograph of lungs showing chronic Bronchopneumonia H & E. 200X



**Fig 5:** Microphotograph having organization of peribronchial exudate causing bronchiectasis H&E. 200X



**Fig 6:** Microphotograph of lungs showing bronchopneumonia having severe suppuration and per bronchial multiple abscessation and severe infiltration of polymorphonuclears and mononuclear cells. H&E. 200X

### Conclusion

The present investigation had been concluded that the bronchopneumonia 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

The authors acknowledge the necessary supports and facilities provided by the Dean College of veterinary and animal

sciences and head of department veterinary pathology, Bikaner to carry out the present work.

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