Plant Archives Vol. 19 No. 2, 2019 pp. 2556-2560 **e-ISSN:2581-6063 (online), ISSN:0972-5210**

POST MORTEM FEATURES OF GOAT PNEUMONIA IN NORTHERN OF DIYALA PROVINCE, IRAQ

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Abstract

A total of 93 slaughtered in different places in the north of Diyala province. The lung lesions present in 40 cases (43%). The animals with weak body condition showed a high incidence of infection. Lungs were inspected and examined, it is determined 40 affected lung cases and were collected for pathological examination. The gross appearance of the lungs showed many types of the lesions (a) lung hepatization 15%, (b) congestion and hemorrhage 10%, (c) hemorrhage 20%, (d) emphysema 25%, (e) congestion 20%, (f) abscess 10%. In histopathology, the lung lesion was classified into five categorized (a) interstitial pneumonia 10%. (b) fibrinous bronchopneumonia 20%, (c) bronchopneumonia 30%, (d) purulent pneumonia 25%, hemorrhagic pneumonia 15%.

Keywords: Gross, pathology, pneumonia, Goats, Histopathology, Diyala, Livestock, interstitial, Fibrinous, acute, chronic.

Introduction

Lung considers vital organ in the body and this organ exposed to many disease factors that reach to it through the inhalation from the environment and or from the blood and this factor may be infectious or non-infectious agents and all these lead to pneumonia (Alametal., 2001; Ferduasi *et al.,* 2008). The contaminated pastures with many organisms and enter by it through in haling lead to pneumonia and large numbers of infected gout with signs of pneumonia get to veterinary college or hospital for their treatment (Rahman *et al.,* 1976). The pulmonary inflammation considers important situations in sheep and goats, particularly lambs and kids, which causes economic losses in meat, milk, increase costs of treatment, high morbidity and mortality rates (Wikse and Baker., 1996). Pneumonia is the most important disease in Iraq and more common in livestock arounded the country, the respiratory disease causes more economical losses in sheep and goats in Iraq due to many causes nutrition, microorganisms (bacteria, virus, fungi and parasites), decrease immunity in animals and stress (AL sultan., 1976). *Pasteurella* is the primary causes of pneumonia that lead to decrease in weight and death about 10-25% of infected goat and may be reach to the 40% in another area. Also fungi cause goat pneumonia and play important role in the presence of pulmonary lesions (Buxton and Fraser., 1977). Others microorganisms *Streptococucoccus pyogenes, E, coli and Klebsella pneumonia* causes pleuro pneumonia (Carter., 1986). Pneumonia causes economic losses because of reduced weight gain, condemnation, wool production from sub-clinical goats, stock direct losses on the farm, carcasses downgrading at slaughter and high costs of treatment (Radostits *et al.,* 2002). There are more studies on the economic losses of pneumonia in sheep and goats; first study revealed any differ in a time of weaning lead to moderate pneumonia and loss of weight of carcass by 450g (Kirton *et al.,* 1976). The present study aims to determine the pathological condition (gross and histopathology) in the gouts lungs slaughtered in different places in northern of Diyala province.

Materials and Method

Samples collected from slaughtered places in the north of Diyala province and examined with carefully. Observed the affected lung tissue, take a small part of it and preserved in Buffer natural formalin (10%) at least 18-24 hours for preserved tissue samples. After that, the fixed samples dehydrated in ethyl-alcohol in ascending

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Table 1: show prevalence of screened sheep to the affected sheep.

Region	Total sheep numbers	Affected sheep numbers	Percentage prevalence
North of Diyala province	93	40	43%

concentration, then cleared in xylene and impregnated, embedded in paraffin wax. Cut the section in microtome (6) µm, processed, sectioned and stained it with routine stain Hematoxylin and easing stain (Luna, 1968).

Results

Generally, a total of ninety-three lungs of the goat was examined in northern of Diyala province. The prevalence of affection was 43% (40/93) Table 1.

Gross the goat lung showed different lesions Table 2 classified into five types: (a) lung hepatization 15%, (b) congestion and hemorrhage 10%, (c) hemorrhage 20%, (d) emphysema 25%, (e) congestion 20%, (f) abscess 10% (Fig. 1, 2 and 3). Histopathological changes revealed five categorized: (a) interstitial pneumonia 10%. (b) Fibrinsbroncho pneumonia 20%, (c) broncho pneumonia 30%, (d) purulent pneumonia 25%, hemorrhagic pneumonia 15% Table 3.

Fig. 1: Congestion (→) and Hemorrhage (⟶) of lung.

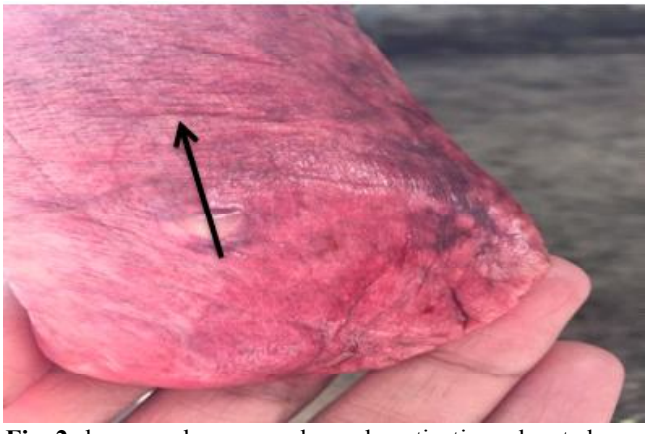

Fig. 2: lung emphysema and gray hepatization, elevated area and pale color.

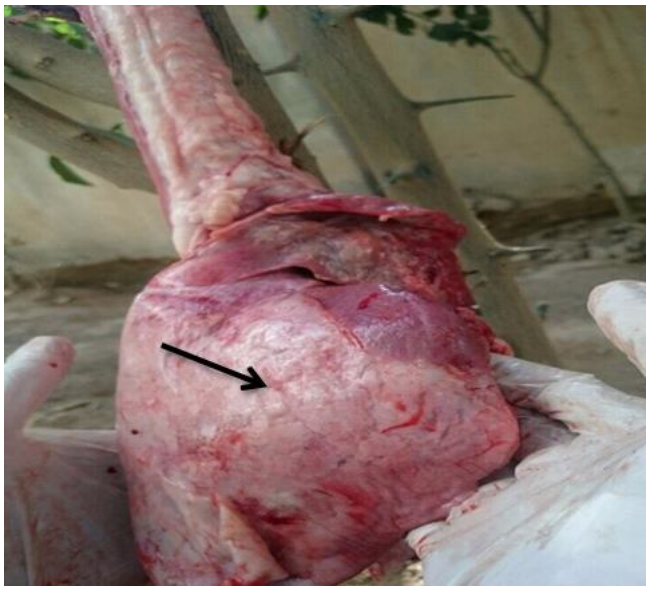

Fig. 3: showed fibrin on the external surface of the lung.

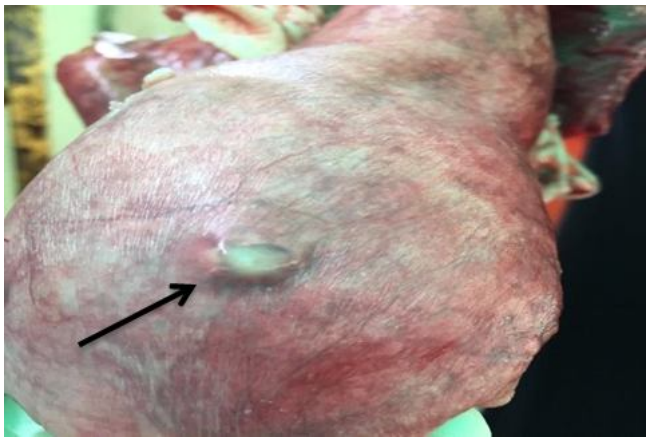

Fig. 4: lung abscess elevated above the lung surface.

Table 2: Gross appearance of lung lesions.

Number	Gross lesions	Lungs affected numbers	Percentage of affected lungs
1	Hemorrhage & congestion	4	10%
2	Emphysema	10	25%
3	Hemorrhage	8	20%
4	Congestion	8	20%
5	Hepatization	6	15%
6	Gross lesions	4	10%
Total numbers = 40cases			

Histopathology

The broncho pneumonia were manifested by the presence of exudate in the pulmonary alveoli, hemorrhage, blood vessel congestion and bronchial lymphoid tissue hyperplasia Fig. 5.

The purulent pneumonia revealed presence of

Table 3: Types of lung pneumonia observed in goats.

Number	Pneumonic types	Lungs affected numbers	Percentage of affected lungs
1	Interstitial		
	pneumonia	4	10%
2	Fibrinous		
	pneumonia	10	25%
3	Broncho		
	pneumonia	8	20%
4	Purulent		
	pneumonia	8	20%
5	Hemorrhagic		
	pneumonia	6	15%

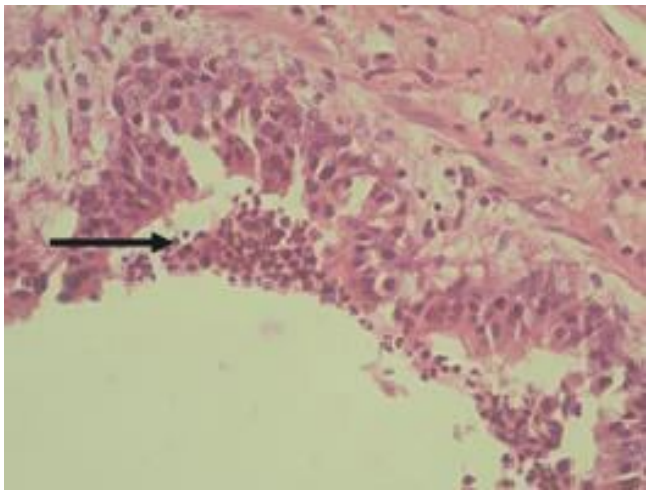

Fig. 5: showed presence of neutrophils in the alveolar lumen and in bronchiole wall (H &E; 40X).

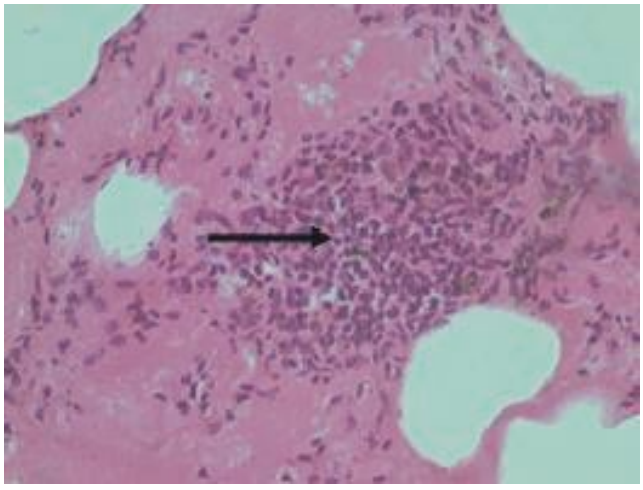

Fig. 6: showed inflammatory cells in the alveolar lumen and in tissue (H&E; 40X).

inflammatory cells specially neutrophils in bronchioles lumen and alveoli and some cases show increases of erythrocytes in lung alveoli, in addition to that there is inflammatory cell infiltration of neutrophils and fewer leukocytes Fig. 6.

While the fibrinous pneumonia were showed fibrin

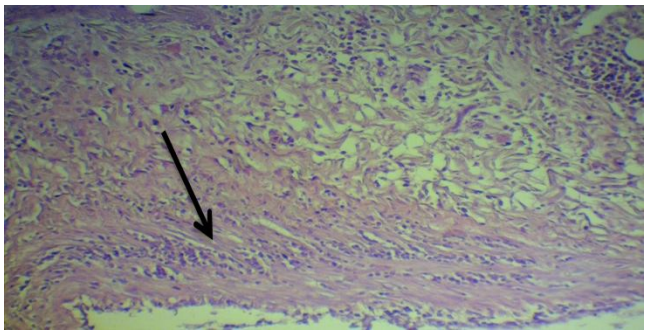

Fig. 7: showed deposition of fibrin in the pulmonary tissue and a rounded bronchiole (H&E; 10X).

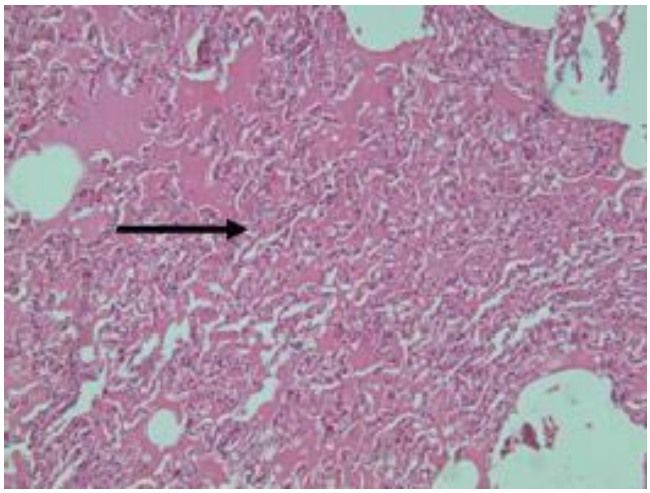

Fig. 8: showed presence of hemorrhage in alveoli (H&E; 10X).

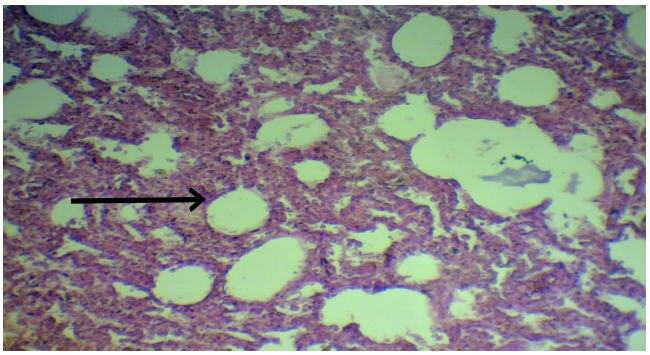

Fig. 9: showed thickening of the alveolar walls by inflammatory cells (neutrophils), (H&E; 40X).

in tissue and many neutrophils in the pulmonary alveoli, endothelial damage characterized by parenchymal consolidation, lymphoid tissue hyper plasia and desquamation of bronchial epithelium Fig. 7. The hemorrhagic pneumonia characterized by hemorrhage in alveoli, bronchiole and inter- alveolar septa Fig. 8.

Interstitial pneumonia showed thickening of inter-alveolar septa which result from the fibrous connective tissue proliferation and accumulation of macrophages, hemorrhage in the alveoli, and a rounded bronchi, there are reactive cells, congestion of blood vessels which severe and there are inflammatory cells in the bronchial

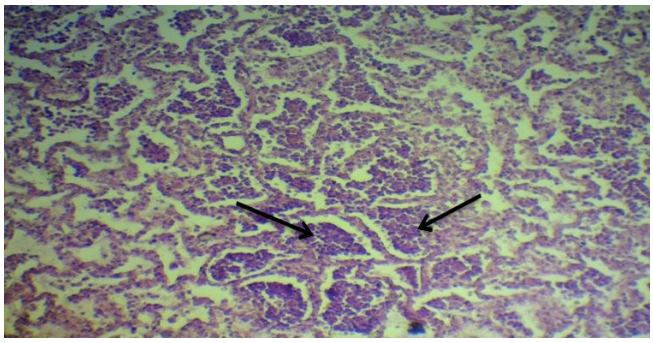

Fig. 10: showed pulmonary abscess characterized by presence of neutrophils and few mononuclear inflammatory cells in pulmonary tissue(H&E;40X).

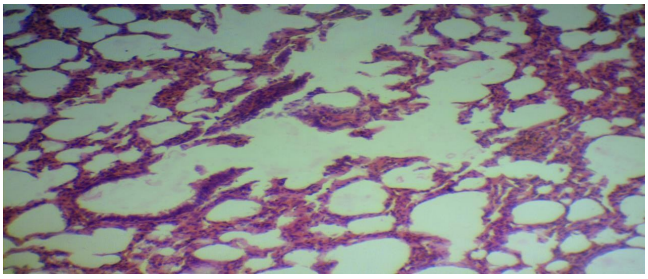

Fig. 11: showed emphysema which characterized by rupture of alveolar wall (H&E; 40X).

lumen Fig. 9.

Pulmonary abscess showed presences of inflammatory cells specially neutrophils and few mononuclear cells in the pulmonary tissue Fig. 10.

The pulmonary emphysema revealed distended of alveoli and opening each one to another due to alveolar walls rupture and the alveolar wall atrophic and very thin Fig. 11.

Discussion

At current present was conducted on a goat which slaughtered in the north of Diyala province to detect the pathological lesions in this region, this study showed the percentage of infected lungs was recorded 36% in goats, while in the other study, the researchers reported the incidence of gross lesions about 35.5% & 55.8% respectively (Almedia *et al.,* 1986); (Kaya and Ergains., 1991). Other researchers mentioned the gross appearance of lung lesion were 58.33 & 6.66 (Ferdausi *et al.,* 2008); (Alam *et al.,* 2001). While Ugochukwu (1985) recorded gross lesions in about 75% in goats. This variation due to calculated causes as total number of examined goat. The gross appearance of the lung showed many lesions lung hepatization 15%, congestion and hemorrhage 10%, hemorrhage 20%, emphysema 25%, congestion 20% and abscess 10%. Abscess and pus in pulmonary tissue observed by Jubb *et al.,* (1993). In this study, the broncho pneumonia recorded high prevalence 30%, followed by purulent pneumonia 25%, fibrinous pneumonia 20%, hemorrhagic pneumonia 15% and finally interstitial pneumonia 10%. Ferdausi *et al.,* (2008) mentioned his histopathological study and reported broncho pneumonia 3.35%, hemorrhagic pneumonia 3.31%, purulent pneumonia 4% and pulmonary abscess 1%. This variation belongs to the calculating factors of the goats. Jones *et al.,* (1997) and Cruickshank, *et al.,* (1975) described the broncho pneumonia and hemorrhagic pneumonia same in this study. The gross lesions of the lungs characterized by inflammation, hepatization with consolidation and fibrins pleura (Nicholas *et al.,* 2004; Oie, 2008). There is fibrinous pneumonia with fibrosis, purulent exudates in pleural lesions and this manifested by the pneumonia, poor resolution and this lesion were recorded by Wesonga *et al.,* (2004). The gross lesions constricted to an apical and middle lobe of the lung, but in other animals the caudal lobe was included and this finding was also made by Nicholas *et al*., (2004) and Oie, (2008).

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