BACTERIOLOGICAL AND PATHOLOGICAL STUDIES ON SOME LUNG AFFECTIONS OF CAMELS AT KALUOBIA GOVERNORATE

Aly, A. A.; Soliman, A. S.* and Gobran, R. A.**

Pathology Department, Animal Health Research Institute, Dokki

*Banha Branch, Animal Health Research Institute, Dokki

**Bacteriology Department, Animal Health Research Institute, Dokki

ABSTRACT

This study was carried out on 30 lung samples and bronchial lymph nodes of camels slaughtered at Kaluobia abattoir during a period of three months (between September 2003 and January 2004). Pneumonia was recorded in 21 samples (70%) and 9 samples (30%) were apparently normal. The isolated microorganisms were Staph. aureus, Diplococcus pneumonia, Klebsilla pneumonia, E. coli, Pseduomonas aerugnosa, Actiomyces pyogens and Pasteurella species. The antibiotic sensitivity test for isolated microorganisms revealed that Gentamycin 30 g and ampicillin 10 g were the most sensitive antibiotic of choice. The major post-mortem lesions represented by variable degree of congestion and focal areas of consolidation (hepatization). The histopathological examination revealed variable degree of bronchitis, bronchial hyperplasia and haemorrhage in the lung. Where the bronchial lymph node showed lymphocytic depletion in the lymphoid follicle.

In conclusion, the bacteriological examination and the histopathological alteration recorded together for diagnosis of lung infection.

INTRODUCTION

Lung affection is an important disease in farm animals. Several outbreaks of pneumonia have been recorded from various parts of the world **(Jubs and Kennedy, 1985)**. Analysis of the literature reveled that, there are few reports dealing with the study of pathological and bacteriological affections of the lung from camels **(Nabiha et al., 1981)**.

Economic less to the camel industry result from pneumocntrits which can be reached to 40% according to **(Schwartz and Dioli, 1992)**. A study on lung affection of camels (Camelus dromedarius) were reported by **(Mahmoud et al., 1988)** they noticed congestion and catarrhal bron-

chitis in 7 cases of camels in Assiut Governorate, the microorganism isolated were Klebsiella, Pseudomonas aeruginosa, Staphylococous aureus, Actinomyces pyogens and E. coli. Thabet (1994) studied microbial affections of lung of clinically healthy and respiratory infected camels, the main isolates were Staphylococcus aureus, Diplococcus pneumonia, E. coli, Pseudomonas aeruginosa, Klebsilla pneumona and Pasteurella spp. **(Ababakr et al., 2001)** reported the incidence of bacterial infection in young camels with reference to E. coli.

MATERIALS AND METHODS

Thirty lung samples and its bronchial lymph nodes were collected from different camels slaughtered at El- Kaluobia Government abattoir, 21 samples showed gross lesions of pneumonia and 9 samples were apparently normal.

The samples for bacteriological studies were collected separately in sterile plastic ice bags and transported with minimum of delay to the laboratory for bacteriological.

Bacteriological examination:

The collected samples were cultured into nutrient broth at 37°C for 24 h and then sub- cultured iuto the following (Difico) nutrient agar, 5% sheep blood agar, MacConkey agar, SS agar and XLD agar then biochemical testes were carried (indole productiou, methyl red, voges-proskaur, citrate, urease and sugar fermentation tests for identification of E. coli, Klebsilla pneumoniae and Pseudomonas aeruginosa.

Coagulase test, DNase test and haemolysis in addition to catalase and oxidase tests for identification of Staph. aureus.

The obtained isolates were identified according to **Bally and Scott (1974); Rutckshank et al., (1975) and Quinn et al., (1994).**

Antibiotic sensitivity tests:

The sensitivity of bacterial isolates against different antibiotic were done by using antibiotic disks (Biomerieux), erythromyeine (15 µg), garamycin (30 µg), kanamycin (30 µg), neomycin (30 µg), oxytetracycline (10 µg), spictinomycin (10 g), chloramphenicol (30 µg) and ampicillin (10µg).

Pathological study:

Post-mortum examination was carried out on the slaughtered camels. Specimens were taken from lung and bronchial nodes the tissue samples were fixed in 10% neutral formaline, proceed routinely and sectioned at 4- 54 thiek, then stained with Haematoxin and Eaosin and examined microscopically **(Drury and Wallington, 1980)**.

RESULTS

The results of bacteriological examination of 30 lung at bronchial lymph nodes samples showed correlation between the isolated microorganism with the pathological finding. Bacteriological examination as showed in table (1) revealed that the main isolates from lungs were Staph. aureus (16.1%), Diplococcus pneumonia (13.3%), Klebsilla pneumonia (10), E. coli (16.1), Pseudomonas aeruginosa (105), Actinomyces pyogens (6.7) and Pasteurella species (3.3). While incase bronchial lymph nodes as showed in table (2) revealed the main isolates were Staph. aureus (13.3%), Diplococcous pneumonia (10%), Klebsilla pneumonia (10%), E. coli (13.3%) and Pseudomonas aeruginosa (6.7%). Antiblotie sensitivily test for isolated microorganisms as showed in table (3) revealed that Gentamycin 30 µg and ampicillin 10 µg were the most sensitive antibiotic of choice for most isolated microorganisms.

Postmortem examination of the slaughtered camel showed varying degree of pathological lesion in the lungs and represented by congestion, focal area of consolidation (red and gray hepatization). Where the lymph nodes exhibited congestion, swelling and hamrrhages in cut surface. The histopathological examination in most cases of lung showed lobar pneumonia, interstitial pneumonia and bronchopneumonia. In some cases variable degree of pneumonia (red and gray hepatization), filling of bronchial lumen with necrotic debris and inflammatory cells were observed (Fig. 1). Moreover, the bronchioles showing epithelial hyperplasia and shiding of epithelium associated with inflammatory cells (Fig., 2), some eases of lung showing bronchitis, congestion and red hepatization (Fig. 3). Some cases of lung showing haemorrhages and perivascular odemea and mild leucocytic infiltration (Fig. 4). Concerning the bronchial lymph node showing variable degree of lymphoeytic depletion were seen in lymphoid follicles in addition to mononuclear cell infiltration in the periphery of the follicles (Fig. 5).

DISCUSSION

This current study deals with lung affection observed in camels slaughtered in Kaluobia Abattoirs during a period of three month between September 2003 and January 2004. Staph. aurus,

E. coli, Diplococcus pneumonia, Pseudomonas aeruginosa, Kebsilla pneumonia were the important pathogens isolated from the examined lung and bronchial lymph node as recorded in table (1) and table (2). These results agreed with numerous authors who reported that these bacteria were isolated from camels in different parts of the world **(Mahmoud et al., 1988; Rana et al., 1993; Thabet, 1995 and Abubakr et al. 2001)**. It was clear that the respiratory of ract of apparently normal animal act as a reservoir for many species and types of microorganism these microorganisms reached the nasal cavity either through inhalation or during drinking. Stress factors such as unhygienic environmental and climatic conditions play a role in the on set of pneumonia **(Buxton and Fraser, 1997)** such factors would lower the resistance of the lung tissue and the existing organism most probable would get the upper hand. Antimicrobial sensitivity test revealed that garamycin 30 µg and ampicillin were the most sensitive antibiotic of choice these result agreed with **Fowler (1998)**.

Concerning of post-mortem examination of the lung of slaughtered camels revealed varying degree of congestion, red and gray hepatization these finding similar obtained by **Mahmoud et al. (1988)**.

The histopathological observation of affected lung showed lobar pneumonia, bronchopneumonia, bronchitis manifested by filling of bronchial lumen with necrotic debris, bronchial hyperplasia, haemoorhage and perivasculr odema and the lymph node showing lymphocytic depletion, theses above observation recorded by **Nothelfer et al. (1994); Chauhan et al., (1987) and Wernery and Ruger Kaaden (2002).** The pathological alteration observed in lung and bronchial lymph node may be attributed to the powerful endotoxin elaborated by E. coli and Staph.

Table (1): The isolated microorganism of both apparently normal and pneumonic lungs of camels.

Isolated microorganisms	Isolates from apparently normal lungs		Isolates from pneumonic lungs		Total No. of isolates	
	No.	%	No.	%	No.	%
Staph. aureus	2	22.2	3	14.3	5	16.6
Diplococcus pneumonia	1	11.1	3	14.3	4	13.3
Klebsilla pneumonia	1	11.1	2	9.5	3	10.0
E. coli	2	22.2	3	14.3	5	16.6
Pseudomonas aeruginosa	1	11.1	2	9.5	3	10.0
Pasteurilla Spp.	-	-	1	4.8	1	3.30
Actinomyces pyogens	-	-	2	9.5	2	2.66
Total	7	77.7	16	76.2	23	76.4

The percentage was calculated according to apparently normal lung (9) and pneumonic lung (21).

Table (2) : The isolated microorganism of both apparently normal and pneumonic Bronchial lymph nodes of camels

Isolated microorganisms	Isolates from apparently normal lungs		Isolates from pneumonic lungs		Total No. of isolates	
	No.	%	No.	%	No.	%
Staph. aureus	1	11.1	3	14.3	4	13.3
Diplococcus pneumonia	-	-	3	14.3	3	10.0
Klebsilla pneumonia	1	11.1	2	9.2	3	10.0
E. coli	1	11.1	3	14.3	4	13.3
Pseudomonas aeruginosa	-	-	2	9.20	2	6.70
Total	3	33.33	13	61.3	16	53.3

The percentage was calculated according to apparently normal lung (9) and pneumonic lung (21).

Table (3) : Antibiogram of the isolated microorganisms.

Isolates	Erythromycin 15 µg	Chloramphenicol 30 µg	Kanamycin 30 µg	Neomycin 30 µg	Garamycin 30 µg	Oxytetracycline 30 µg	Ampicillin 10 µg	Spectinomycin 20 µg
Staph. aureus	+++	-	+	-	+++	+++	+++	-
Diplococcus pneumonia	++	-	-	-	++	+++	+++	+++
Klebsilla pneumonia	-	-	+++	-	+++	-	-	-
E. coli	-	-	+++	+	+++	-	-	-
Pseudomonas aureginosa	-	-	+	+	+++	-	+	-
Pasteurella Spp	-	-	-	-	+++	++	+++	-
Actinomyces pyogens	+++	-	-	-	+++	++	+++	-

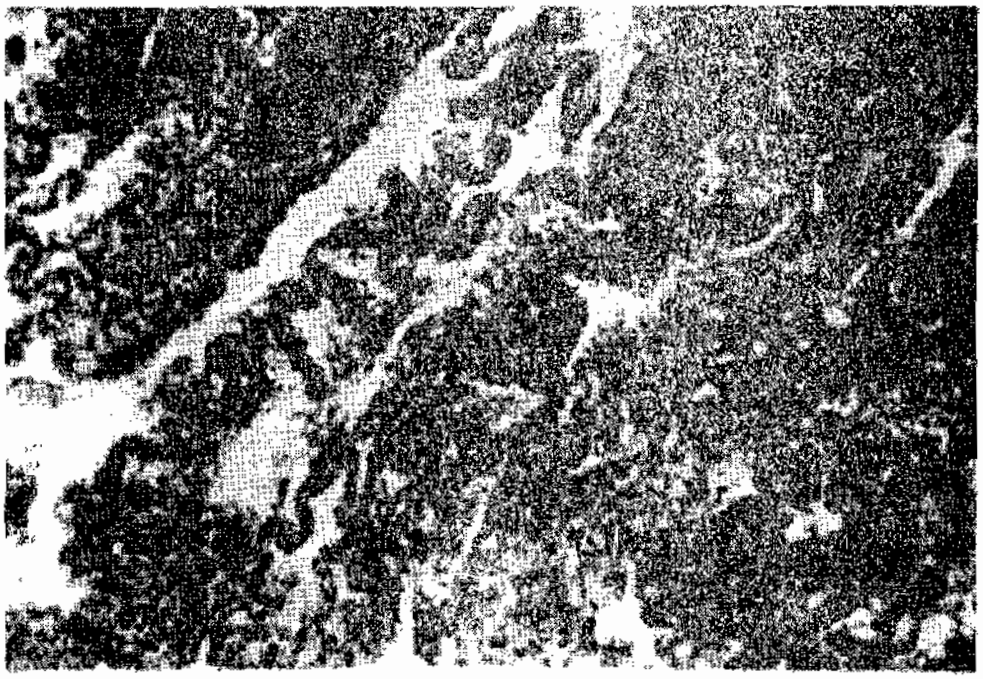

Fig (1) : Lung showing variable degree of pneumonia (red and gray hepatization), filling of bronchial lumen with necrotic debris and inflammatory cells were observed (H and E X 250).

Fig (2) : Lung showing bronchial hyperplasia and sliding of epithelium associated with inflammatory cells (H and E X 200).

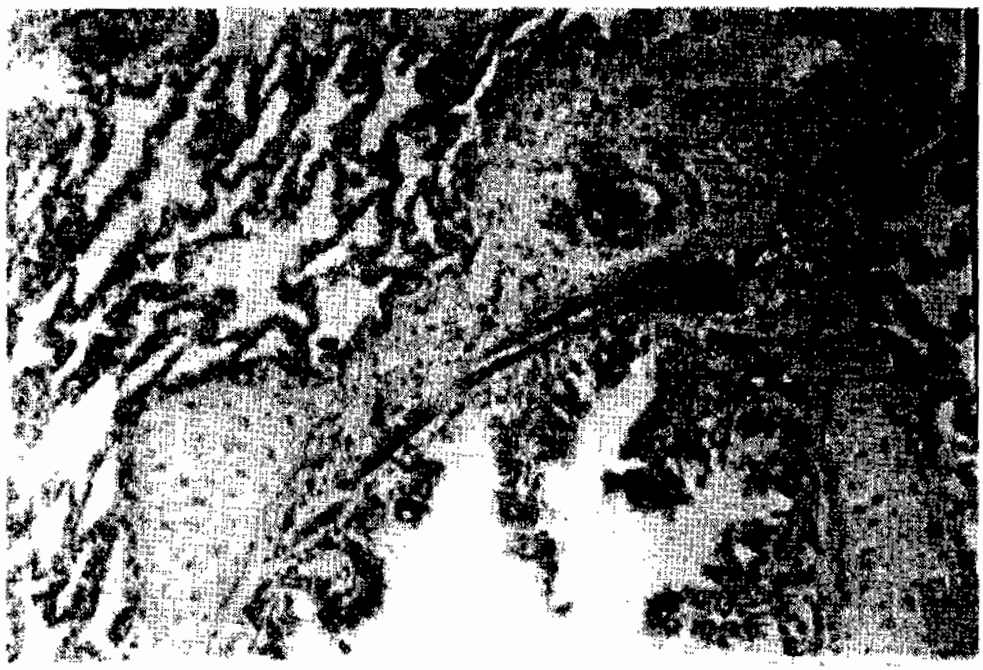

Fig (3) : Lung showing bronchitis, congestion and red hepatization (H and E X 250).

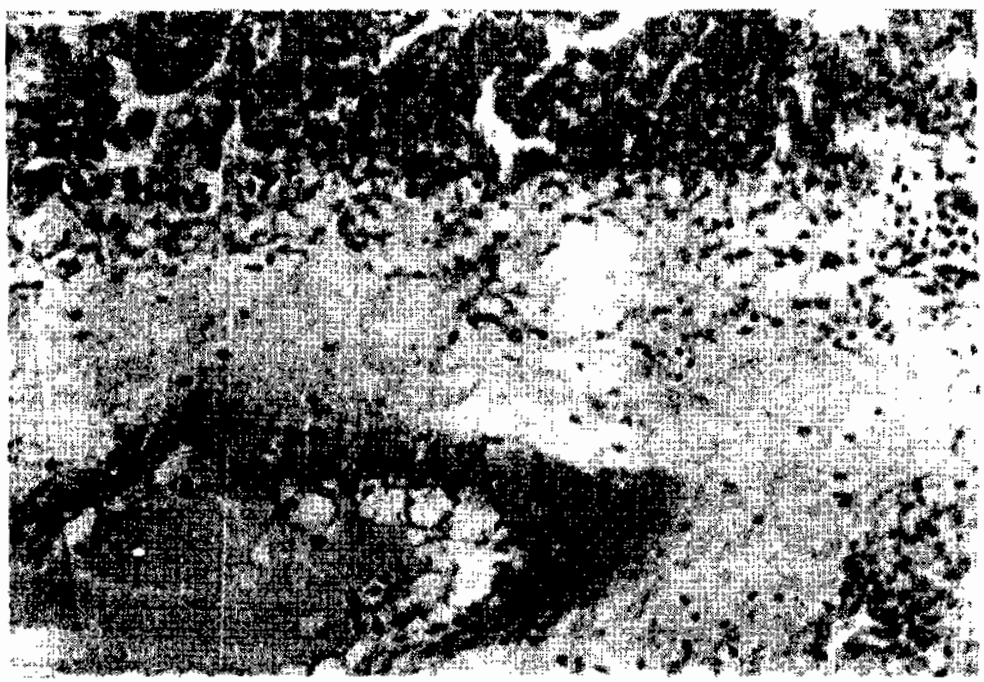

Fig (4) : Lung showing haemorrhages and perivascular odemea and mild leucocytic infiltration (H and E X 250).

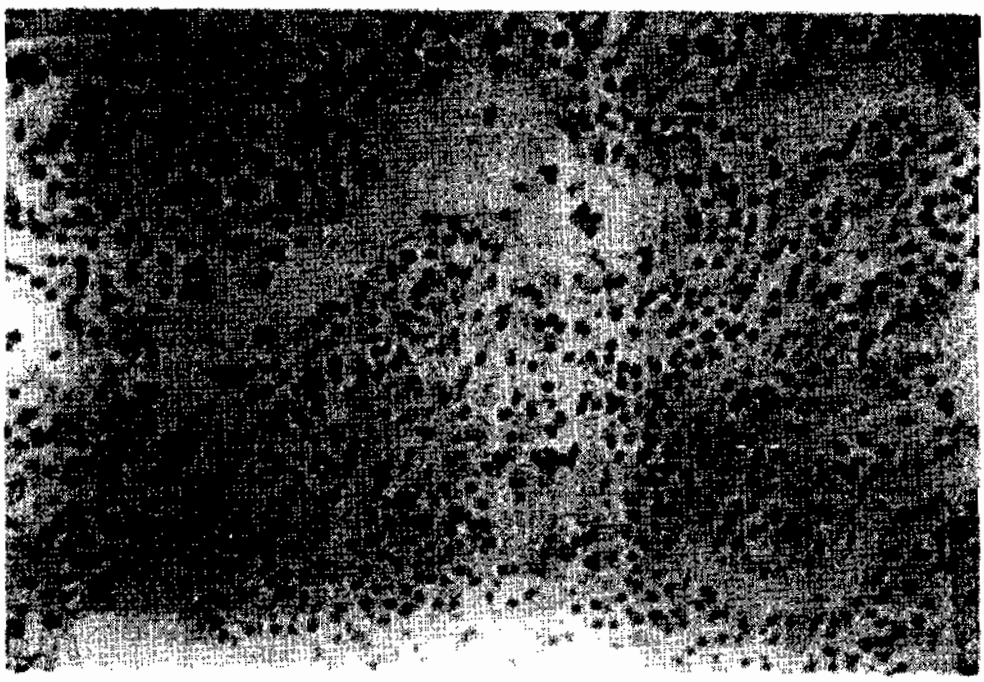

Fig (5) : Bronchial lymph node showing lymphocytic depletion were seen in lymphoid follicles in addition to mononuclear cell infiltration in the periphery of the follicles (H and E X 250).

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الملخص العربى

دراسات بكتريولوچية وباثولوچية على بعض إصابات الرئة بمحافظة القليوبية

المشتركون فى البحث

عباس على على ، عبدالحفيظ السيد سليمان* ، رأفت عبدالله جبران**

قسم الباثولوچيا - معهد بحوث صحة الحيوان - الدقى

معمل فرعى بنها - معهد بحوث صحة الحيوان - الدقى*

قسم البكتريولوچى - معهد بحوث صحة الحيوان - الدقى**

تم إجراء هذه الدراسة على عدد ٣٠ رئة وغدة ليمفاوية فى الجمال بمجازر محافظة القليوبية فى الفترة من سبتمبر ٢٠٠٣ حتى يناير ٢٠٠٤ وكانت من نتائج الدراسة وجود عدد ٢١ حالة يظهر عليها آثار إلتهابات رئوية وكان هناك عدد ٩ حالات لم تظهر عليها أعراض تنفسية وبالفحص البكتريولوچى تم عزل الميكروب العنقودى ودبلوكوكس نيمونى وكلبسيلانيمونى وسيدوموناس ايرجنوسا واكتينوميسس بيوجين وعترات من الباستريلا وتم عمل اختبار الحساسية للميكروبات المعزولة ووجد أن الچينتاميسين والأمبيسيلين هما أكثر المضادات الحيوية تأثيراً على الميكروبات وبإجراء الصفة التشريحية وجد أن الرئة بها درجات مختلفة من الالتهابات مما أدى إلى زيادة سمك جدار الحويصلات الهوائية وكذلك وجد نقص فى عدد خلايا الجريبات الليمفاوية مع ارتشاح خلايا وحيدة الخلية.