

A ETIOLOGICAL STUDY ON SOME FORMS OF BOVINE PULMONARY IN AL-NASSIRIYA AND AL-BASRAH CITIES LESIONS

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ABSTRACT

In this study , it was aimed to isolate some Bacteria from some pulmonary lesions of various pathological conditions occurring in the lungs of cows. For this aims ,samples of the investigation were obtained through the examination of a total of (660)cows ranging from 3 to 10 years of age were examined for lungs affection during the period from November 2006 to July 2007 .Out of these samples ,(148) lung ,constituting (22.4%)suspected for abnormalities were selected .

The encountered pulmonary lesions which found in our study were (148) cases (22.4%), included 11 various type of pulmonary lesions associated with bacterial isolation. *Escherichia coli* being the most frequently isolated organism and the number of it's isolates was (68), constituting (34.9%) of the overall number of isolates.

The various bacterial isolates with different pulmonary lesions are mentioned and it's significance is discussed.

INTRODUCTION

The cows is predominant domestic animals for milk and meat production in Iraq , And play an important role in the rural economy of various countries . The disease of the respiratory system , either acute or chronic cause debility and death leading to great economic loss. This loss can be minimized by prevention and treatment of the disease affecting the respiratory system (Akbor *et al*,2007), few workers have been performed on some aspects of cattle diseases (Radositits *et al*,2002;Jensen *et al*,1976).

Pneumonia is known to occur as either a primary or secondary condition, some workers regarded pneumonia and other pulmonary lesions have always been problem for the livestock owner and veterinarian because of the unsatisfactory knowledge of its cause ,mode of dissemination and treatment (Jubb *et al*,1997;Banerje,1998;Gill and Sing ,1977; Shigidi,1973).

Cows are subjected to sever climate stresses withoutdist-inction in summer or winter time ,hence its respiratory diseases should get a good deal of attention Therefore, the present investigation was undertaken to define the bacterial associated with various pulmonary lesions encountered in cows slaughtered for meat production in the abattoir of Basra and Nassirya .

MATERIALS AND METHODS

Collection of Samples

A total of (266) samples were collected from cows after slaughter from two slaughterhouses ,southern Iraq, namely Basra and Nassirya through the examination of total of (860) lungs , during the period from November 2006 to July 2007.After slaughter, gross tissue changes were observed and recorded carefully by observation in naked eye .Furthermore, specimens were collected in 10% buffered neutral formalin for histopathology.

Histopathology

The tissue specimens were trimmed accurately and fixed for 24hrs more. To remove the fixative , the tissues were kept in unceasing tap water for overnight ,the tissues were dehydrated in ascending grades of alcohol. The tissues were cleared by two changes in chloroform. The tissues were embedded and molded in paraffin wax. Paraffin containing blocks containing tissue pieces were made using template. The tissues were sectioned with a rotary microtome at 5µm thickness, after that the sections were allowed to spread on warm water bath(45c°),and taken on oil –and grease – free glass slide . The slides containing sections were air dried and kept in cool place until staini-ng , the sectioned tissues were deparaffinized in three changes of xylene . Then the tissues were rehydrated through descending grades of alcohol, the sections were stained with Harris hematoxyline and eosin. Eventually the sections were mounted with cover slip using DPX and dried the histopathological sections mode and examined according to manual of histopathological of special technique by(Luna,1968).

Bacteriological examination

For bacteriological studies ,pieces of affected lungs were taken specially the lungs examined are signed with a hot spatula over the outer surface of the organ ,then open-ing was then made on the signed area swab was inserted into the opening, rubbed thoroughly rotating the area lesion and translated to a tube containing sterile nutrient broth ,the directly smeared on culture media (blood agar ,MacConky agar and trypticase soy broth),and incubated for 48hrs ,after that the bacterial colonies were purified and ultimately the culture isolates were identified by their morphological, cultural and biochemical characters as described by (Carter,1984; Alber,1980).

RESULTS

Various types of bacteria were isolated ,a total of bacteria were representing 10 differently bacteria genus (table 1). *Escherichia coli* being the most frequently isolate organism ,the number of *E. coli* isolates was(68),constituting (34.9%)of the overall number of isolates ,followed by *Staphylococcus aureus* ,the number of its isolates was(41),constituting (21.2%),and after that *Pasturella Mulocida* ,the number of its isolates was 25, constituting (12.8%).

Other numeral of organisms was isolated from different cases as sporadic form except *Staphylococcus Spp* isolated together with *Pseudomonas aerogenosa* and *Proteus Vulgaris*. The association of various types of bacteria and their numbers with various types of pulmonary lesions (pathology of the pulmonary lesions were to be reported elsewhere)was represented in(table 2). It was found that the most of the

bacteria isolates were obtained from cases of acute and chronic interstitial pneumonia, *E.coli* was isolated from 48 cases of interstitial pneumonia and this number constituted (70,5%) of the total digit of isolates of this organism .Among these affected lungs we obtained 11 various types of pulmonary lesions were represented in table (3).

DISCUSSION

During this study, a total of (660) lung of cows ,were examined ,we encountered (148) affected lungs ,among these affected lungs we found 11 various pulmonary lesions, constituting (22.4%).The prevalence of lng affection could be explained on the basis of climatic stresses to which cows are exposed through its habitat which predisposes the animal to respiratory distresses (Omer,1966; Shigidi,1973).

In this study the following organisms are the most commonly associated isolates caused pneumonia namely, *Escherichia coli*, *Pasturella multocida* ,*Staphylococcus aureus* and (λ ,B) *hemolytic streptococci*. These organisms were isolates from similar type lesion in cows previously (Bhular,1985; Radositis,2002; Callier,1964).Cases of chronic suppurative pneumonia were associated with; *S.Pyogenes* , *S. Aureus*, *E.coli*, (λ ,B) *hemolytic streptococci* ,*cory.pyogenes* and *Past.Mltocida* . These organisms were isolated from similar type lesions In cows before(Ponranko,1938;Carter,1984),these organisms are also isolated from lungs of normal cattle(Collier and rossow,1964).Hence, these organisms could be or not related to the lesion and most probably they are just transient organisms.

Cases of interstitial pneumonia were mostly associated with *E.coli* ,these organisms isolated from cases of inflammation of the respiratory system in cattle and buffaloes (Gill and singh,1977, sandh et al,1989). It is also mentioned (Jubb and Kennedy ,1997) that interstitial pneumonia could accompany colibacillosis .We don't think that organisms isolated are responsible or associated with cuffing and granuomatous pneumonia. When on the other hand the organism *S. Aureus* could have been responsible for the secondary suppurative response encountered with some of the cases , neither from cases of chronic pneumonia nor from most cases of proliferative pneumonia .Both types of pneumonia had a viral a etiology especially when knowing that serological tests revealed that infection of sheep and cattle with Para influenza type – 3 virus is quite common (Al-Darrajjy et al , 1982; Jubb and kennedy ,1997).

The last two type acute hemorrhagic pneumonia and acute necrotizing pneumonia were found in 2 and 1case respectively and the associated bacterial were *Pseudo. Aerogenosa* , *Staph.aures* ,(λ B)*hemolytic streptococci* and *Protes vulgaris* .These organisms were isolated from similar type lesion in animals before(Carter,1984; Radositis ,20002),there is other organisms also isolated from cases of cattle pneumonia which are not recorded at this our study but recorded by (Carter,1975).

The findings of this investigation we think will help the veterian to know the nature and type of common pathological lesions of respiratory system and the organisms mostly associated with those lesions in cattle .

Table 1:- Bacterial isolates from naturally – occurring pulmonary lesions in cows.

Type of isolates	No. of isolates	Percentage
<i>Escherichia coli</i>	68	34.9
<i>Staphylococcus anurans</i>	41	21.20
<i>Pasturella multocida</i>	25	12.8
<i>A,b-hemolytic Streptococci</i>	20	10.25
<i>Pseudomonas aeruginosa</i>	16	8.2
<i>Proteus vulgaris</i>	10	
<i>Streptococcus pyogenes</i>	8	4.1
<i>Staphylococcus epidermidis</i>	5	2.5
<i>Corynebacterium progenies</i>	1	0.5
<i>Klebsilla pneumonia</i>	1	0.5
	195	99.8

Table 3:- Types of naturally – occurring pulmonary lesions in cows.

Types of pulmonary Lesions	No. of cases	percentage
Acute interstitial pneumonia	40	27.02
Chronic interstitial pneumonia	28	18.9
Fibrinous pneumonia	21	14.18
Fibrinopurulent pneumonia	16	10.8
Chronic suppurative pneumonia	12	8.1
Chronic suppurative broncho-Pneumonia	10	6.7
Lymphoid pneumonia	7	4.72
Chronic granulomatous pneumonia	7	4.72
Chronic pneumonia	4	2.7
Acute hemorrhagic pneumonia	2	1.3
Acute necrotizing pneumonia	1	0.6
	148	99.9

دراسة وبائية لبعض أشكال الإصابات الرئوية للأبقار في محافظتي ذي قار والبصرة

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تضمنت هذه الدراسة محاوله لتحديد بعض المسببات الجرثومية للآفات الرئوية في الأبقار لحالات مرضية مختلفة تحدث تلقائيا في رئات الأبقار، جنوب العراق. لهذا الغرض تم إجراء مسح على رئات الأبقار المذبوحة في المجازر الجنوبية (البصرة و الناصرية). ومن خلال الفحص لما مجموعه (660) بقرة تتراوح أعمارها من 3-10 سنة بدت ظاهريا سليمة لمدة عشرة أشهر للفترة من تشرين الأول 2006 إلى تموز 2007 ومن تلك الرئات المفحوصة تم الحصول على (148) رئة مصابة ونسبة (22.4%) وكان سببها جرثومي . عزلت المسببات الجرثومية من أفات رئوية مختلفة لهذا الحيوان (الأبقار) ، وكانت اغلب العزولات الجرثومية المرتبطة بتلك الحالات الاشرشيا القولونية حيث بلغ عدد عزولاتها (68) التي شكلت (34,9%) من العدد الكلي للعزولات الجرثومية البالغة (195) عزله . تم ذكر المسببات الجرثومية المعزولة من الآفات الرئوية المختلفة وتشخيصها ومناقشة أهميتها بالنسبة لهذا الحيوان (الأبقار).

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