

## ETIOLOGICAL STUDY OF SOME PULMONARY LESIONS IN BUFFALOES IN SOUTHERN OF IRAQ

Mahdi Murshed Thweni

Basrah Veterinary Hospital, Ministry of Agriculture, Iraq.  
(Received 12 October 2005, Accepted 13 April 2006)

**Keywords:** Lesion, Parasitic infection, Tape worm.

### ABSTRACT

The present study is an attempt to determine the Etiology (Bacterial & Parasitic) of Buffaloes Pulmonary Lesions. For this purpose samples of (105) affected lungs were collected from abattoirs of the cities in southern part of Iraq named (Basra, Amara, Nassirya and the Qurna).

Samples of the investigation were obtained through the examination of a total of (917) lung apparently healthy buffaloes examined in six months period from 1st of October 1989 to end of March 1990.

Among the encountered Pulmonary Lesions, (68) cases (64.76%) were associated with bacterial isolation and from (6) cases (5.71%) no etiology identified.

The various bacterial isolates associate with different pulmonary lesions are mentioned and it's significance is discussed. Pulmonary parasitic infection were encountered in (31) cases (29.5%) of all types of lung affection observed among which one case (3.2%) was caused by Dict. viviparous and one case of migration of liver flukes (*Fasciola gigantica*) twenty nine (93.2%) due to larval of the tape worm (*Echinococcus granulosus*).

### INTRODUCTION

In spite of the economic importance of Buffaloes, knowledge about it's disease and parasitic disease.

(1), studied the pathology of pneumonia and associated pulmonary disease of cattle and Buffaloes.

(2), studied the prevalence and pathology of pneumonia in Buffaloes, with special reference to mycoplasma and Chlamydia infection.

(3), studied pneumonia in Buffaloes- A pathological study.

This investigation is an attempt to determine the bacterial agents parasites associated with various pulmonary lesions encountered in Buffaloes.

### MATERIALS AND METHODS

A total of (105) lung with gross lesions was collected from abattoirs of the cities in southern part of Iraq namely Basra, Amara, Nassirya & Qurna) through the examination of total of (1917) lungs and twenty samples of healthy buffaloes lung were brought to bacteriological examination as control group.

For bacteriological studies, pieces of affected lungs were taken especially the lungs examined are signed with a hot spatula over the outer surface of the organ then opening was than made on the signed area swab was inserted into the opening, rubbed thoroughly rotating the area lesions and translated to a tube containing sterile nutrient broth which transferred to

laboratory then directly smear on culture media (blood agar, macconky agar & trypticus borth) and incubated for 24-48 hr's- then the bacterial colonies were purified and finally the culture isolates were identified by their morphological, cultural and biochemical characters as described by (4);(5).

For the parasitological studies lungs were examined carefully for grossly visible hydrated cysts and for those cysts worm embedded in the parenchyma and the airways.

## RESULTS

Various types of bacteria were isolated, a total of bacteria isolate were representing (12) differently bacteria genus (table.1).

Bulk of the organism isolate were gram negative bacteria, the most commonly isolate bacteria were (*Escherichia coli*). The number of *Escherichia coli* isolation was 28, constituting (24.77%) of the over all number of isolates followed by *pseudomonas aeruginosa* the number of it's isolate was (16), constituting (14.15%) and after that *pasturella multocida*, the number of it's isolate was (15), constituting (13.27%).

Other number of organisms was isolated from different cases as sporadic from except *citrobacter spp* isolated together with *Klebsiella pneumonia* and *pseudomonas aeruginosa*.

The associated of various types of bacteria and their numbers with various types of pulmonary lesions (pathology of the pulmonary lesions is to be reported else where) is represented in (table.2).

Only from six cases of pulmonary lesions no bacterial isolates which constituting (5.71%), from all types of lungs affection the observed bacterial isolates from (20) apparently normal lung (control group) was negative in fifteen and in five lungs-staph. *Epidermidis* constituted the most frequent isolate.

The pulmonary involvement by the types of parasites which that diagnosed in this investigation recorded one case (3.2%) of pneumonia lung caused by *Diet .viviparus* and miscellaneous parasitic lesions were concluded, one case of migration of liver fluke (*F.gigantica*) and twenty nine cases due to the larval stage of tape worm (*E.granulosus*) (table.4).

Fertility rate of hydrated cyst was 34.55 and the incidence rate among male and female buffaloes was (4 case 0.74%, 25 case 6.6%) respectively (table.5).

Table (1) : bacterial isolates from naturally – occurring pulmonary lesion in buffaloes .

Types of bacteria	No.of isolates	Percentage
<i>Escherichia Coli</i>	28	24.77
<i>Pseudomonas aeruginosa</i>	16	14.15
<i>Pasturella multocida</i>	15	13.27
<i>Staph. coccus aureus</i>	12	10.61
<i>Klebsiella pneumonia</i>	11	9.73
<i>A. b hemolytic streptococci</i>	9	7.96
<i>Goryme bacterium pyogenous</i>	7	6.19
<i>Anthraxoid</i>	5	4.42
<i>Proteus vulgaris</i>	4	3.53
<i>Staph. Epidermidis</i>	2	1.76
<i>Past. Hemolytica</i>	1	0.88
<i>Citrobacter spp.</i>	1	0.88
<i>Bordetella bronchoseptica</i>	1	0.88
<i>Neosseria cutarhalis</i>	1	0.88
	113	99.41%

**Table (2) : type of naturally – occurring pulmonary lesion in buffalo & associated bacterial isolates .**

Type of pulmonary lesion	No. Of cases	Percentage	Bacterial isolate & it's number
Fibrinous pneumonia & fibrino suppurative pneumonia	28	41.17	Past. Multocida (13) , E. coli (8) a,b – hemolytica stel to coccus (6).Pseudo-aeruginosa (4) . s. pyogenus (5) proteus vulgarus (4) , staph – aureus . anthracoid (1), staph – epidermides neisseria catarrhalis (1)
Interstitial pneumonia	15	22.58	E. coli (9) . pseudo. Aeruginosa (6) klebsiella pneumonia (5) , c. pyogenes (1) cotrobacter(1) staph- aureus (1) pasturella hemolytica(1) , staph – epidermidis(1) past-nultocida(1)
Supportive bronchopneumonia	15	22.58	E.coli(7). Pseudo. Aeruginosa(3) proteus vulgarus(3) . c.pyogenus(1)a,b – hemolytica streptococcus(2) , kl-pneumonia(2) staph – aureus (4) , past-Multocida(1)
Chronic granulomatous pneumonia	3	4.41	E. coli (1) , staph –aureus(1) a,b-hemolyrca strep to cocci (1)
chronix pneumonia	3	4.41	E. coli(2) , kl- pneumonia(2) . authracoid(1) . past-miltocida(1)
Productive pneumonia	3	4.41	E. coli (1) . kl- pneumonia (2) past-mutocida (2)
A cute necrotizing pneumonia	1	1.47	Pseudomonas aeruginosa (1)
	68	101%	

**Table (3) : type of bacterial isolates from buffalo lung apparently ( control group )**

Type of bacteria isolates	No. of Isolates	Percentage
<i>Staphlococcus epidermidis</i>	3	37.5
<i>anthracoid</i>	2	25
<i>Staphlococcus aureus</i>	1	12.5
<i>Diphtheroid</i>	1	12.5
<i>Neisseria catarralis</i>	1	12.5
	8	100%

**Table (4) : diagnosed parasites from naturally – occurring pulmonary lesions in buffaloes**

	Type of parasites	No. of parasite	Percentage from parasitic infection	Percentage from all type of study cases
1	<i>Lungs worms</i> <i>Dictyocaulus viviparus</i>	1	3.2	0.9
2	<i>Miscellaneous lung affection</i> <i>A- hydatid cysts</i> <i>B- liver flukes</i>	29	93.5	27.6
3	<i>Fasciola gigantica</i>	1	3.2	0.95
		31	99.9%	29.5

**Table (5) :- rate of infection , sterile and fertility of hydate cysts innaturally occurring pulmonary lesions in buffaloes of male & female**

	Sex	No. of buffaloes exam	No. of lung affection	Percents of infection	Fertility from lung infection	Sterility from lung infection
1	Male	540	4	0.74	50	50
2	Female	377	25	6.6	32	68
3	Total number	917	29	3.16	34.5	65.5

## DISCUSSION

In this study a total of (917) buffalo a lung were examined. We found (105) of buffaloes affected lungs, among these affected lungs we obtained 3 various pulmonary lesions namely 68 cases of bacterial pneumonia, 31 case of parasitic affection and 6 case no aetiology was identified from cases of fibrinous and fibrino suppurative pneumonia the following organism were isolated:

Pasturella multocida, E.coli ( $\alpha, \beta$ ) hemolytic streptococci c.pyogenous, staph . aureous and proteus vulgaris, and the first one was the first one was the most commonly associated isolate caused the type of pneumonia.

These organisms were isolated from similar type lesion in buffaloes before (6);(3);(7);(8) cases of interstitial pneumonia were associated with pseudo. Aerioginosa: Kl. pneumonia, C.pyogenous, Citrobacte, staph.aureous, past.

hemolytic, bordetella bordetella bronchoseptica, staph epidermis. Cases of this type of pneumonia were also commonly associated with E.coli and these organism *Le* were isolated from similar type lesion in buffaloes previously (8) and added the basic type response to E.coli. It is interstitial pneumonia, but considered by others the commonly microorgaism case of pneumonia in buffaloes (7).

Cases of suppurative bronchopneumonia were mostly associated with E.coli, staph. C.pyogenous, proteus vulgaris, ( $\alpha, \beta$ ) hemolytic streptococci, pseudo. aerioginosa, these organisms are also isolated from buffaloes normal lung & pneumonia in buffalo.

Cases of chronic granulomatous pneumonia were observed in three types; actionomyeotic granulomatous, diffuse granulomatous multigranulomatous pneumonia & every type of them was observed in one case while the bacterial isolates which associated with the second type & the third type: staph. aureous, (a.B) hemolytic streptococci & E.coli.

Cases of chronic pneumonia most of associated of these type were the following:

Kl. pneumonia, E.coli, past. multocide.

The six type of pneumonia was reproductive type pneumonia the bacterial isolate with type of pneumonia one isolate to E.coli & two isolate for every of Kl. pneumonia and pseudo. aerioginosa.

The last type (seven type) acute necrotizing pneumonia is one case & the associated bacterial was pseudo. aerioginosa.

There is other organism also isolated from cases of buffaloes pneumonia which not recorded at our this study but recorded by (9); (7); (6) the organism are bact-alcaligena. salmonella & C.equi.

Pulmonary parasitic infection were encountered in (31) cases (24.54%).

The type of parasitic which associated with this type of pneumonia D.viviparus recorded in one case in Iraq which it is recorded in other countries (10); (11).

Miscellaneous parasitic lesions are concluded:

Cases constituting (7.6%) from all study cases with fertility (34.5%) (table.5) comparing our findings to previous studies in Iraq (12); (13) showed lower of results.

One case of migration of liver fluke (F. Gigantica).

The occurrence of this lesion considered accidental also it's happen at lung by different migration way.

This type also recorded in Indian buffaloes lungs by (14); (15) & its also recorded in other's type of animals in Iraq. (16); (17).

### دراسة وبائية لبعض مسببات الجرثومية والطفيلية للآفات الرئوية في الجاموس مهدي مرشد ثويني

مديرية المستشفى البيطري في البصرة، وزارة الزراعة، العراق.

#### الخلاصة

تتضمن الدراسة محاولة لتحديد بعض مسببات (الجرثومية و الطفيلية) للآفات الرئوية في الجاموس. ولهذا الغرض تم إجراء مسح على رئات الجاموس المذبوحة في المجازر الجنوبية وهي (البصرة، العمارة، الناصرية، القرنة). ومن خلال الفحص لما مجموعه (٩١٧) رئة بدت ظاهرياً سليمة ولمدة ستة أشهر للفترة من تشرين الأول ١٩٨٩ الى آذار ١٩٩٥ تم الحصول على (١٠٥) عينة رئة مصابة.

ومن بين تلك الآفات الرئوية التي شخّصت كانت (٦٨) حالة سببها بكتيري وشكلت نسبة (٦٤,٧%). بينما لم يتم معرفة السبب في (٦) ستة حالات وهذه شكلت (٥,٧١%). وعزلت المسببات البكتيرية من آفات رئوية مختلفة تم ذكرها وتشخيصها ومناقشة أهميتها بالنسبة لهذا الحيوان (الجاموس).

الخمج الرئوي الطفيلي سجل في (٣١) حالة أي بنسبة (٢٩,٥%) من جميع الإصابات الرئة التي تم تسجيلها. كما سجلت أصابة رئوية واحدة بديدان من نوع (Dict.viviparus).

كذلك حالة واحدة لحلزون الكبد من نوع (Fasciola gigantica) و (٢٩) حالة ونسبة (٩٣,٢%) من مجموع الإصابات الطفيلية لرئة الجاموس ببرقة الديدان الشريطية (الأكياس العذرية) (H. Granulosa)

## REFERENCES

1. Dwivedi , J.N ( 1961 ) . studies of the pathology of pnbeumonia and assoxiated pulmonary disease of cattle and buffaloes agria – uniu . J. res , 12,239-240.
2. sood , N.K;(1985) . studies on the prevalence and pathology of pneumonia in buffaloes with special reference to mycoplasma and Chlamydia infection . indian J. vet . path . 9Dh-105.
3. rather, B.S and dingh , N.P. (1970) . pneumonix in buffaloes.
4. Albert , B;William , J.H, and joseph , P.T (1980) . manual of clinical microbiology
5. . American society for microbiology . Washington, D.C 3<sup>rd</sup> .edition .
6. Carter , G.R : diagnostic in veterinary microbiology , 2<sup>nd</sup> . edition , charbs. C. Thomas .publisher spring field , 1975.
7. Singh , N.B and malk , B.S.(1968) . microflora of respiratory tract of buffaloes .I isolation of bacterial agnts . und . vet .J. 45,565-571.
8. Al , aboudi, A-R; hamed , D.A and allow , A-J (1989) occurrence of f. gigantic in mosul Iraq f. ver . sci. 2(1-2)
9. Sandy , K.s .; soo , N and Bupta , P.P (1986) . A note on bacteriological examination of pneumonic lungs of buffaloes ( short communication ) . actaveterinanan ( Beo grad ) . 36 (23) : 167-170.
10. Singh , N.B (1982) corynebacterim equi ad acoustic agents of pneumonia in buffalo calves ind. Vet.j . 59:662.
11. Jain , S.K an banelyodhyay , A .C. (1969) . a note on his to pathological aservation in the lung of buffaloes calves associated wigh lung worm (niet . viviparous ) .
12. Soliman, Kr. And Zeki , H- (1962) Anote on an out break parasitic bronvhitis in young buffaloes in tgypt U.A.V.A.P.prae . ist . A. vet . congr. Cario . 1960 :277-285.
13. Mahmuoud , S-S , and Al- janabi , B.M. (1981) incidence of lyatid disease in food animals in mosule . Iraq Ind. F. of parasitology . 5(10):59-60.
14. Benyan , A.K. and Mahdi , N.K. (1987) pulmonary hydatidicossisin in man and his livestock in southerniraq . Saudi , medical . J 8(4):403-406.
15. Giss.B.S and Singh , B. (1977a) studies on the incidence of research . Punjab . agricultural university . 15(4): 505- 508.

16. Dwivedi , J.N. and Singh , G.M . (1965) . the accrues of *F. gigentica* in the lungs of Indian buffaloes ( *bosbubalis* ) : ind – vet . J . 42:662-663+Pilale .
17. Al.Jabbori , K.H (1984) : pathological study of some type of foats pneumonia in Iraq . A thesis . Baghdad university college . vet . med .