

قسم : طب الحيوان وأمراض الدواجن - كلية الطب البيطري - جامعة أسيوط .  
رئيس القسم : أ.د / ابراهيم محمد حسن سكر .

دراسات عن حدوث الالتهاب الشعبي الرئوي في عجول التسمين

الجاموس في أسيوط مصر

١- دراسات اكلينيكية وميكروبيولوجية

على السباعى ، حمدى ابراهيم ، عوض ابراهيم ، هوفمان ، أحمد عامر

أجرى البحث في منطقة أسيوط - على عدد واحد وأربعون رأساً من عجول التسمين الجاموس وقد أجريت الفحوص الاكلينيكية وكانت العلامات المرضية في صورة كحة وافرازات مخاطية من الأنف ودرجات متفاوتة من الحمى وارتفاع درجات الحرارة .

ولقد أجرى كذلك الفحص السيرولوجى ( فى معامل مدينة جيسن بالمانيا الغربية ) وكانت عينات السرم المفحوصة تحتوى اجسام مناعه للأمراض الآتية .

١- التهاب الأنف والقصبه الهوائية المعدى فى الأبقار ( I B R )

٢- مرض البارانفلونزا نوع ٣ ( P I 3 )

٣- مرض التهاب الأغشية المخاطية ( M D )

وإدى الاختبار البكتريولوجى الى عزل ميكروب الباستيرلا مالوتسيديا P. MULTOCIDIA من

الافرازات المخاطية وعينات الفحص المرضى وكانت نتائج فحص صورة الدم تتراوح ما بين ارتفاع

فى عدد كرات الدم البيضاء ونقص فى البعض الاخر عن معدلها الطبيعى .

عولجت جميع العجول المريضة - بمركب الكلور مفيكول - واعطى للبعض الاخر كطريقة وقائية .



INVESTIGATION ON AN OUTBREAK OF ENZOOTIC BRONCHPNEUMONIA  
IN FATTENING BUFFALOE CALVES IN ASSIUT, A.R.E.

1- CLINICAL, MICROBIOLOGICAL AND HAEMATOLOGICAL STUDIES

(With 5 Tables)

By

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(Received at 14/12/1982)

SUMMARY

Forty one buffaloe calves were used in this investigation. Clinical examinations were carried out, the diseased calves showed dyspnoic respiration, nasal discharge, coughing and moderate fever. Serological examination was done, Infectious Bovine Rhinotracheitis (IBR), Para-influenza type 3 (PI) and Mucosal Disease (MD) titer was present.

Bacteriological studies were carried out, *Pasteurella Multocida* was isolated. In some diseased calves a marked leucopenia was present, in some other cases leucocytosis was observed. All examined herd was treated with chloramphenicol as prophylaxis and therapeutic purpose.

INTRODUCTION

Respiratory affection in fattening calves are widely spread throughout the world. These affections constitute a major cause of morbidity and mortality in feedlot cattle that resulted in valuable economic loss of cattle industry. Some epidemiological and economic studies as well as clinical observations on outbreaks of bovine respiratory diseases in different areas of the world were carried out (ANDERWS, *et al*, 1981).

Respiratory affections in cattle is a complex syndrome involving stress factors bacterial and viral infections. Viral causes which are incriminated in the incidence of enzootic pneumonia include para-influenza type 3 (PIRIE, 1981). Infection with infectious bovine rhinotracheitis (IBR) virus had been shown to predispose to bacterial pneumonia (LEHMKUHL and GOUAH, 1977). *Pasteurella multocida* and *haemorrhagica* are commonly isolated from cattle with respiratory diseases. Pneumonic pasteurellosis is described as an infectious disease of feedlot and nursing calves and lambs (ALLEY, 1975; GILMOUR, 1978; BRYSON, *et al*, 1979 and CHANDRASEKARAN and CHUNK, 1981). Acute fibrinous pneumonia was produced experimentally by inoculation of *pasteurella haemorrhagica* and parainfluenza virus (AL-DARRAG, *et al*, 1982).

A few reports on respiratory diseases in Egyptian fattening calves had been published. Earlier work on these outbreaks described the disease as Giant cell pneumonia (MOUSTAFA, *et al*, 1975). Similar outbreaks of bovine respiratory disease in Egyptian buffaloe calves had been reported by AL-ALLAWY, *et al*, (1978). The purpose of the present study was to determine the causative agent incriminated in the cause of an outbreak of respiratory disease among fattening buffaloe calves. Haematological picture following such affection was also investigated.

MATERIAL and METHODS

Forty-One buffaloe calves with an average body weight of 150 kg. each were involved in this study. Age of examined animals ranged between 9 - 12 months. Thirty One of the animals suffered from respiratory distress. The rest (10 calves) were apparently healthy and showed no abnormal respiratory manifestations. These animals served as control. Calves of both groups are housed together within an open fronted shed with an access to an outside yard. Barseem and hay with concentrated ration were freely available to the calves. Apparently diseased calves were isolated in separate ranch.

Following the onset of outbreak, diseased calves were examined clinically. Examination included measurement of body temperature, observation of respiratory and pulse rates, rhythm, type and quality. Respiratory system was fully examined clinically. Heart and rumen were also examined.

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Nasal swabs were taken from nasal discharges under complete aseptic measurements. Parts of liver, spleen, lungs, kidneys, hearts and related lymph nodes of dead calves were collected aseptically. All these samples were subjected to bacteriological and virological examinations. Blood serum samples were examined serologically for antibodies of infectious bovine rhinotracheitis (IBR), Para-influenza (PI) and Mucosal Diseases (MD) viruses. Anticoagulated blood samples were analysed for haematological picture.

## RESULTS

Elevated body temperature (38.5 - 39.5°C) was a constant findings. Animals were depressed, anorectic. Respiratory and pulse rates were accelerated. Respiration was completely abdominal. Mucopurulent nasal discharge accompanied some cases. Some animals exhibited mouth breathing with opening of the mouth with audible groan while mixed dyspnoea appeared in other individuals. Cough was not specially noticeable. Auscultation of the lower lung revealed either absence of normal respiratory sounds or the appearance of bronchial tones that are similar to normal bronch-vesicular sounds. Normal vesicular sounds were usually auscultated over the dorsal part of the lungs. Decreased ruminal activity with loose faeces were common. Pain was elicited in affected animals by deep percussion of the cranial ventral abdomen. Results of clinical examination of each diseased animals are present in table (1).

Depending on the severity of respiratory manifestations, the results of haematological examinations were divided into two groups. Another group included results of control, (table 2,3,4). Lowered values of total red cell count and hemoglobin concentrations was recorded in both diseased animals in comparison with control ones. Packed cell volume was variably affected. Neutrophilic leucocytosis was characteristic for diseased animals.

*Pasteurella multocida* was isolated from nasal swabs as well as from the organs of outopsied calves. Re-isolation of inoculated organisms from mice blood was carried out where prepared blood films showed bi-polar gram negative organism of *Pasteurella multocida*.

The result of serological study showed that, all tested samples were seropositive for Para-influenza type 3 (PI). In some of examined samples (11 serum samples were positive against infectious bovine rhinotracheitis (IBR). Antibody titer of Mucosal disease (MD) was detected in 20 serum samples. Table (5) showed the result of the serological study.

## DISCUSSION

Although the clinical signs were generally diagnostic in a herd outbreak, yet in our native breed water buffaloes herd, the disease is difficult to be diagnosed in a single animal or the firstly affected animal. In this outbreak, animals were admitted to the farm over a period of three weeks. Respiratory syndrome did not appear immediately after entry but within three weeks of admittance. This suggested that the respiratory disease was infectious and had a short incubation period. All buffalo calves had been transported to the farm and mixed with calves of similar age. It is likely that the stress of transport and mixed of the calves allowed the interchange of micro-organisms between animals. In the present outbreak 20 calves with severe respiratory disease died. The mortality rate was 10%. In other countries mortality rate in young calves, during outbreaks of respiratory disease caused by *Pasteurella* organisms, reached 1-10% (PIRIE, *et al.*, 1981), and up to 50% (REBHUM and FOX, 1981).

In the present outbreak, there are two main causative agents were responsible for the illness. The viral one identified as previously mentioned, Infectious Bovine Rhinotracheitis (IBR), Para-influenza type 3 (PI<sub>3</sub>) and Mucosal Disease (MD) viruses. The bacterial agent was *Pasteurella multocida*. This results were in agreement with those obtained by (PIRIE, *et al.*, 1981; LEHMKUHL and GOUGH, 1977 and AL-DARRAG, *et al.*, 1982).

The significant clinical signs were reduced appetite, pyrexia, tachypnoea, serous to mucopurulent nasal discharge, variable degree of coughing and dyspnoea. Auscultation findings accompanied the above mentioned signs. These observations support the findings previously described by many workers in such conditions (AL-ALLAWY, *et al.*, 1979; SANDERS, *et al.*, 1980 and PIRIE, *et al.*, 1981).

*ENZOOTIC BRONCHPNEUMONIA IN CALVES*

Results of haematological investigations revealed dropped number of total red count. Marked leucocytosis in individuals rather than leucopenia was prominent findings in examined samples. These observations were in agreement with some previous reports (INOBA, *et al*, 1970; SMITH, *et al*, 1975; AL-ALLAWY, 1979; and PIRIE, *et al*, 1981).

Leucocytosis in some animals and leucopenia in others referred to that the majority of acute respiratory outbreaks in fattening calves considered to be associated with respiratory syncytial virus that followed by secondary bacterial invaders. Such hypothesis was supported by observations of many workers (GIBBONS, *et al*, 1970; BRYSON, 1979 and PIRIE, 1981).

Sensitivity tests for bacterial isolates revealed that chloramphenicol was an antibiotic of choice. Intramuscular injection of diseased calves with 10 gm. per day, had a very effective therapeutic action. As prophylaxis measurements chloramphenicol also used.

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## ENZOOTIC BRONCHPNEUMONIA IN CALVES

Table (4): Haematological picture of apparently healthy calves.

	R.B.Cs. Mill/c.ml.	Hb g/L.	P.C.V. %	W.B.Cs. 1000/c.c.	W.B.Cs. differential count				
					Segm.	Hand.	Lymph.	Eios.	Bas.
X	3.43	200	35.4	13.7	33.00	--	52.78	-	-
S.E.	$\pm$ 0.23	$\pm$ 39.60	$\pm$ 2.83	$\pm$ 2.11	$\pm$ 12.49	--	$\pm$ 12.62	-	-
n	10	10	10	10	10	10	10	10	10

$\bar{X}$  = Mean  
 S.E. = Standard Error  
 n = Number of Examined animals

Table (5): Results of Serological Examination of Samples from all calves (41).

Serial Numbers	Md	IBR	PI <sub>3</sub>
1	1 : 80	-	1 : 80
2	1 : 10	-	1 : 160
3	1 : 40	-	1 : 640
4	1 : 10	-	1 : 320
5	1 : 10	-	1 : 80
6	1 : 160	-	1 : 80
7	1 : 10	-	1 : 160
8	1 : 40	1 : 4	1 : 160
9	1 : 10	-	1 : 40
10	1 : 10	-	1 : 80
11	1 : 10	1 : 4	1 : 40
12	1 : 40	-	1 : 160
13	1 : 40	-	1 : 80
14	1 : 10	-	1 : 80
15	1 : 10	-	1 : 80
16	1 : 20	-	1 : 320
17	1 : 640	-	1 : 320
18	1 : 10	-	1 : 80
19	1 : 10	-	1 : 80
20	1 : 10	1 : 4	1 : 10
21	1 : 10	-	1 : 10
22	1 : 10	-	1 : 160
23	1 : 20	-	1 : 160
24	1 : 10	-	1 : 160
25	1 : 20	-	1 : 80
26	1 : 10	-	1 : 640
27	1 : 10	-	1 : 40
28	1 : 10	-	1 : 40
29	1 : 640	-	-
30	1 : 10	1 : 4	-
31	1 : 10	-	1 : 80
32	1 : 10	-	1 : 80
33	1 : 20	-	1 : 80
34	1 : 40	-	1 : 80
35	1 : 40	-	1 : 20
36	1 : 10	1 : 16	1 : 320
37	1 : 10	-	1 : 320
38	1 : 20	1 : 16	1 : 160
39	1 : 10	1 : 16	1 : 160
40	1 : 640	1 : 4	1 : 80
41	1 : 10	1 : 4	1 : 160

