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CASEOUS LYMPHADENITIS OF SHEEP AT ASSIUT GOVERNORATE: DISEASE PREVALENCE, LESION DISTRIBUTION, AND BACTERIOLOGICAL

(With One Table)

BY

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مرض السل الكاذب فى الأغنام فى محافظة أسيوط
معدل الانتشار- أهم مناطق الاصابه - الفحص البكتريولوجى

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أجريت هذه الدراسة على عدد ١٠٠٠ نعجه (٨٠٠ من مزرعة الحواتكه و٢٠٠ من مناطق مختلفه من محافظة أسيوط) من عمر ٢-٦ سنه. من خلال الفحص الاكلينيكى وجد أن ٦٠ نعجه بها تضخم مصحوب بتكوين خراريج فى غدة او اكثر من الغدد الليمفاويه السطحيه كما وجد ٣٦ نعجه أخرى تعانى من حالات نحافه شديده. وتم عزل ميكروب الكورينى بكتريم سودوتيوبر كلوززبنسب ٩٨ر٣٪ من خراريج الغدد الليمفاويه السطحيه. كما وجد أن ٨٣٪ من الأغنام النحيفه بها خراريج داخليه وتم عزل ميكروب الكورينى بكتريم سودوتيوبركلوزز من ٩٣٪ من هذه الخراريج. كما لوحظ ان الغدد الليمفاويه الرئويه هى أكثر الأعضاء أصابة. وكذلك تم عزل ميكروبات السبحى والعنقودى والقولونى والكورينى بكتريم بيوجينز مصاحبه أو غير مصاحبه لميكروب الكورينى بكتريم سودوتيوبركلوزز.

SUMMARY

This study was carried out on 1000 ewes (800 from El-Hawatka Farm and 200 from different rural areas at Assiut Governorate) 2-6 years old. From clinical examination 60 ewes showed palpable enlargment of one or more superficial lymph nodes, and anthor 36 showed severe emaciation. C. psudotuberculosis was isolated from 98.3% of abscesses of external superficial lymph nodes. Internal abscesses were observed in 83% of necropsied sheeps with severe emacition, and C.psudotuberculosis was isolated form 93% of abscesses. Prescapular and bronchial lymph nodes and lung were most commonly effected organs. Other pyogenic agents such as Streptcocci, Staphylococci; E.coli and C. pyogens were also isolated, either in association or not with C.pusedotuberculosis.

Keywords: Caseous lymphadenitis of sheep at Assiut Governorate: Disease Prevalence, Lesion Distribution, and Bacteriological Isolation.

INTRODUCTION

Caseous lymphadenitis (CLS) is a chronic disease of sheep which is of considerable concern to sheep industry world wide. The disease is characterized by suppurative infection of either one or both lymph nodes and visceral organs. It's lesions consist of a centeral mass of thick and sometimes dry greenish-white necrotic material surrounded by a connective tissue capsule *(JENSEN, 1974)*. Corynebacterium Pseudotuber-culosis (C.ovis) is generally the specific cause of the CLA *(SMITH, 1966)*, although other species of becteria have on occasion been isolated from the affected internal lymph nodes e.g Staphylococci and Moraxella app *(RENSHAW et al., 1979)*. Pathogenesis of the disease apparently is related, in part to the organsim's capacity to produce exotoxin and pyogenic factors, to cause cell aggregation, and perhaps, to impose local physical restrictions on host anti-infections defense mechanisms due to the high exotoxin concentration *(BURREL, 1978)*.

Contamination of superficial skin wounds caused by Shearing, docking, casteration with the discharge of the rupture of lymph node, is considered the usual mode of transmission. Environmental contamination figures are important in the occurrence of CLA. The disease has an enzootic nature, C. pusdotuberculosis survives for long periods (up to 8 moths) in soil contaminted with pus (*AUGASTINE and RENSHAW, 1982*). Introduction of an abscessed animal into a herd free of the disease results in a high incidence of abscesses within the herd two to three years alter *(AYERS, 1977)*.

Prescapular lymph nodes are the most common site of superficial lesion development, and the lung are the most commonly involved visceral organ *(RUNNELS et al., 1967)*. After infection and spreed to local lymph node, the organsim moves to the lung and bronchial lymph nodes by heamatogenous and lymphogeneous routes. Dissemination of infection from the respiratory tract to other body systems occure and as the disease progress, there is an insidiously progressive debilitation. *JENSEN, (1974)*, reported that there are no specific clinical signs indicative of CLA in sheep affected with the visceral form of CLA.

The purpose in the present study was to determine the prevalence of CLA between sheep at Assiut Governorate, isolation of caustive agent(s), and investigation of the relationship between the chrinic debilitating condition of mature ewes and the viseral form of caseous lymphadinitis.

MATERIAL and METHODS

Animals:

A total of 1000 ewes 2-6 years were used in this study (800 from El-Hawatka Farm and 200 from different areas at Assiut Governorate). From clinical examination 60 ewes showed palpable enlargment of one or more

superficial lymph nodes (prescapular, submaxillary and in rare (1 case) supramammary lymph nodes), and ather 36 ewes showed chronic severe debilitating condition. These debilitating ewes didn't exhibit clinical signs considered indicative of a specific disease, and the examination of their feacal material indicated no problems with internal parasites.

Bacteriological samples and examinations:

Swabs from pus were taken from each enlarged superficial lymph node under complete aseptic conditions. Severly debilitating ewes were died or slaughtered. Abscess and other abnormal tissues were collected in sterile containers. Pus swabs were taken after sterilizing of the wall of the lesion by a heat spatula, incised by sterile scalpel, then the swabs were taken from the inside periphery of the lesion. The swabs were inoculated aseptically onto (Difeco) 5% blood ager and MacConky ager. Plates were incubated in an aerobic system at 37°C and examined daily for growth. Isolated strains were identified, using standard procedures for propagation and identification *(CARTER, 1979).*

RESULTS

The results obtained from necropsies, and bacteriological examination of abscesses and abnormal tissues are summarized (Table 1). The abscesses usually contained a greenish-white exudate which is in most instances was firm, dry and had alaminated appearance when cut in cross section.

DISCUSSION

Results of the present study indicate that CLA is a disease affecting a considerable number 9.6% of mature sheep at Assiut Governorate. This incidance was less than that recorded by *(AMMAR,1983)* who found that the rate of CLA infection was 37%.83%,. Moreover *(BELONJE, 1951)* reported that the disease causes high mortility in lambs (up to 64.3%) while in adults and runs a very insidious course.

C. Psudotuberculosis was isolated from 98.3% (58/60) of abscesses of external superficial lymphnodes. Internal abscesses were observed in 83(30/36) of necropsied sheeps with severe emaciation, and C. psudotuberculosis was isolated from 93% of these abscesses. Other pyogenic agents such as streptcocci, staphylococci, E.coli. and C.pyogenns were also isolated, either in association or not with C.pusedotuberculosis, Table (1). Similar results were recorded by *JENSEN (1974) and RENSHAW et al. (1979).*

The visceral form was the most serious one of the CLA forms. *JENSEN (1974),* demonstrated that when visceral structures are involved, the viability of the animals compromised-espically when a significant portion(s) of a critic organs is inovlved. The infected sheep may be more susceptible to other infective agents, with the development of some meta-

bolic disease, unthriftiness and death may occur. In this study the most commonly effected internal organs were the bronchial lymph node 83.30% (25/30) and lung 63.30% (19/30) Table (1). *RUNNELS et al. (1967),* reported that the C. pseudotuberculosis move to the lung and bronchial lymph node by heamatogenous and lymphogenous routes. *JONES and HUNT (1983),* explained the spread of infection through respiratory airway may be due to rupture of lung absecess and migration of the infectious exudate to the air ways, thus resulting in new abscess site. Severe lung lesions diminish respiratory functional capacity, increase susceptibility to systemic disease. It has been reported that affected animal don't cope well with stress and when confirmed with secondary organisms, the infection often overcome their antifection defenses and death results *(MADDY, 1953).*

There has been some differences of opinions about the economic importance of caseous lymphadenitis to the sheep industry. In Egypt *AFIFI (1981)* estimated the economic losses to be 10-million Egyptian pounds every year, due to decrease in meat, milk, wool and offspring, besides once the disease become endemic, it is very difficult to eradicate because antibiotics are unable to penetrate the thick capsule of the abscess, the organsim can survive for long time in soil, no commercially available vaccines, and due to long incubation period *(AUGASTINE and RENSHAN, 1982).*

In conclusions results from the present study suggested that CLA has been- and continue to be-serious problem for sheep industries, and its visceral form may be an important causative factor in the severe emaciated condition of mature sheep (thin ewe syndrom) at Assiut Governorate. So strict control measures must be taken in consideration to eradicate the disease including, elimination of the source of infection, by isolation or culling all infected sheep. Lambing should be carried out in clean or fresh fields, all shearing tools should be dipped in strong disinfectant before use, younger age group should be shorn firstly, all efforts must also be taken to aviod contamminating dipping fliud.

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Loction of abscesses or abnormal tissue	Bacterial isolates									
	No	C.Psudotuberculosis No	%	Strep. Sp. No	%	Staph. Sp No.	%	C. pyogens No.	%	E.coli No.	%
I- Superficial lymphnodes	60	59	98.3	-	-	-	-	-	-	1	0.16
II- Sever debilitating sheep	36										
A- With internal abseces:											
. Bronchial lymphnode	30										
. Lung	25	23	92	1	4	3	12	-	-	-	-
. Liver	19	18	94.8	-	-	2	10.5	-	-	-	-
. Kidney	1	-	-	1	100	-	-	1	100	-	-
B-Without internal abscess:	3										
. Lung	3	-	-	2	66.6	2	66.6	1	33.3	1	33.3