

قسم الباثولوجيا
كلية الطب البيطري - جامعة أسيوط
رئيس القسم : أ.د/ حمدي عبدالعزيز سالم

دراسة باثولوجية لمرض السل الكاذب في الأغنام بمدينة أسيوط

محمد خيرى ، محمود عبدالظاهر

تم تشخيص ٦ حالات لمرض السل الكاذب في الأغنام من الحالات التي ترسل الي
قسم الباثولوجيا لاجراء الصفة التشريحية ، واعتمد التشخيص على التغيرات الباثولوجية
في الغدد الليمفاوية والرئة والطحال والكبد والمثانة وقد أعزى احتمال الوفاء للاصابة
• بهذا المرض

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**SOME PATHOLOGICAL STUDIES ON CASEOUS
LYMPHADENITIS OF SHEEP**
(In Assiut Governorate)
(With 8 Figures)

By
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(Received at 24/2/1986)

SUMMARY

Six cases of caseous lymphadenitis have been diagnosed histopathologically out of 55 sheep sent to the department of Vet. Pathology. Assiut University for post mortem examination. The lesions were advanced and involved several lymphnodes along with some of the internal organs like, lung, spleen, liver, kidney and urinary bladder. Apparently these lesions were the cause of death of the animals.

INTRODUCTION

Caseous lymphadenitis is chronic contagious disease of adult sheep and is characterized by unilateral enlargement and suppuration of lymph nodes and occasionally lung, spleen (JONES and HUNT, 1983). The disease causes extensive waste and major concern to the sheep industry. Economic losses result from unthriftiness and death of some sheep and from condemnation of the infected carcasses and parts of carcasses at slaughter. (JENSEN and SWIFT, 1982) stated that during 1967-1971 the united states yearly slaughtered and inspected an average of 10.7 million sheep; mostly lamb. Of these animals caseous lymphadenitis caused the condemnation of (0.13%) entire carcasses and (0.84%) parts of carcasses. The disease is caused by corynebacterium pseudotuberculosis and is commonly found in sheep raising areas where mature sheep are retained as breeding flocks (RUNNELS, *et al.* 1967). The occurrence of the disease also in goats, deer and rarely in human (JENSEN and SWIFT, 1982) add both economic importance and public health significance to the disease. The aim of the present work is to register the incidence of caseous lymphadenitis infection in sheep in Assiut, Egypt and to determine the extent and severity of its lesions. In addition macromorphological and histopathological findings of the disease in this area were described and discussed.

MATERIAL and METHODS

The materials consisted of 55 sheep which were submitted to the department of Vet. Pathology Faculty of Vet. Med. Assiut University for postmortem examination in the period from October 1984 to October 1986. The animals were adult sheep. They were dissected within half hour and routine postmortem examination was performed. Samples from the liver, kidney, lymph nodes, spleen, lung, urinary bladder, BVS. and brain were collected, fixed in 10% Neutral buffer formalin solution and processed for paraffin embedding. Sections of 6 micron thickness were

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stained by H & E and bacterial stains (crystal violet and alkaline blue stain) and examined.

RESULTS

Out of 55 cases of examined sheep in the department of Vet. Pathology; 6 sheep were found to be affected with caseous lymphadenitis.

I- Morphological findings:

The prescapular, bronchial and mediastinal lymph nodes were constantly affected. They were enlarged and showed a central mass of laminated caseative necrosis which usually reveals calcified centre. Large focal area of caseous necrosis with calcification was also observed in the lung and spleen. The liver and kidney were enlarged and congested. The urinary bladder showed petechial hemorrhages. No detectable gross pathological alteration could be observed in other organs.

II- Histopathological findings:

a- Lymph nodes.

The lymph nodes showed multiple focal areas of caseous necrosis which sometimes coalesce to form relatively large areas. (Fig. 1). These large area of caseous necrosis contain numerous numbers of cholesterol cleft. Tissue sections stained by crystal violet and alkaline blue stains reveals the presence of bacterial colonies in the necrotic areas (Fig. 2). These necrotic areas were surrounded by heavy zone of neutrophilic and lymphoid cell infiltration (Fig. 3). Sometimes the necrotic areas were surrounded by proliferating connective tissue which was heavily infiltrated by polymorphnuclear leucocytes. Not infrequently the necrotic areas showed dystrophic calcification. On the other hand some part of the affected lymph nodes showed only heavy infiltration with neutrophil cells (Fig. 4).

b- Spleen.

The lesions of the spleen were constantly observed in all cases examined. They were greatly resembling those in the lymphnodes but the caseous necrosis was extensive and extend to involve large areas. They showed numerous numbers of cholesterol cleft and bacterial colonies (Fig. 5). In addition; abundant population of macrophages cells laden with hemosiderin pigment were constantly observed (Fig. 6).

c- Lung.

Microscopical examination of the lung reveals more a bundant and extensive lesions. A Extremely large areas of caseous necrosis were observed which were surrounded by extensive C.T. proliferation. The latter was infiltrated by massive numbers of polymorph nuclear leucocytes (Fig. 7). Cholesterol cleft could be also detected in the necrotic areas together with dystrophic calcification and bacteria.

d- Liver.

The pathological changes of the liver were mild and consists of degenerative change of some parenchymal cells with neutrophilic cell infiltration of the portal triad. Accumulation of golden yellow pigment in the bile canaliculi and bile duct were observed in all affected cases.

e- Kidney.

Changes in this organ were only tubular degeneration with slight neutrophilic cell infiltration of the glomeruli and interstitial tissues.

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f- Urinary bladder.

The pathological alteration of this organ were severe and observed only in three cases. These consists of severe hemorrhage of the mucosa, submucosa and muscular layer together with heavy infiltration of neutrophil cells (Fig. 8).

DISCUSSION

Out of 55 dead sheep presented to the department of pathology for necropsy 6 cases of caseous lymphadenitis had been diagnosed pathologically (10.9%). HUNTER (1933) reported on a previous 6 years meat inspection records in Argentina; the percentage of infection among lambs was 0.578 while in old ewes it was 26.86. On a badly infected property in Australia; WOODRUFF and GREGORY (1929) examined several hundred sheep of different ages by palpation. Enlarged nodes were found in 5.8% of the yearling, 27% of the 2-year-olds, 39% of the 3 and 4 year olds and 30% of the 5 and 6 year old sheep. In our study, the lesions were extensive, severe and extend to involve several organs in all affected cases. Apparently they were the direct cause of death.

Cross lesions were observed in the prescapular, precural, popliteal, bronchial and mediastinal lymph nodes. While the lung, spleen, liver and kidneys may also contain infection; JENSEN and SWIFT (1982). The location of the gross findings in this study were in agreement with the former authors. However in our material; lesions of the lung and spleen were constant, while those of the liver and kidneys could only be detected microscopically.

Each lesion consists of a central mass of laminated caseative necrosis surrounded by a wall of connective tissue. In some cases the necrotic tissue was converted to green tenacious pus, contains discernible layers of recently added necrotic tissue. These lesions were considered pathognomonic for caseous lymphadenitis JENSEN and SWIFT (1982) and JONES and HUNT (1983); JUBB & KENNEDY (1985). Histopathologically, a wall of connective tissue surrounds the caseative necrosis. Colonies of bacteria are discernible in the necrotic tissue and in the lumina of capillaries in the wall of connective tissue. These results were in agreement with those described by MADLEIGH (1965), SEDDON (1965) and JENSEN and SWIFT (1982).

In this study in all affected cases the infection was generalized with involvement of a several vital organs. This fact together with the hemorrhagic cystitis observed in some cases indicated that the microorganism gained access to the blood. Hemosiderosis of the spleen observed in some cases may be due to extoxin and hemolysin librated by the causative microorganisms JENSEN and SWIFT (1982).

Cholesterol clefts were constantly observed in the necrotic areas of spleen and lungs. This was the first report about the association of cholesterol crystal with the necrotic process in this disease as there was no information from the available literature about this observation.

From this study we can conclude that caseous lymphadenitis was observed among some flock of sheep in Assiut City, Egypt. The incidence of infection was about 10.9% among dead sheep sent for post mortem examination in the department of Veterinary Pathology Assiut University. Diagnosis was based upon Macro and Micromorphological Findings. Lesions were extensive, severe and involved several organs.

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DESCRIPTION OF FIGURES

- Fig. (1):** Lymph node showing area of caseous necrosis (H&E. 16 x).
- Fig. (2):** Lymph node showing necrotic changes with bacterial colonies in the vicinity of necrotic areas (crystal violet, x 25 x).
- Fig. (3):** Lymph node showing necrotic area surrounded by lymphoid and neutrophil cells infiltration (H & E. 25 x).
- Fig. (4):** Some part of the affected lymph node showed only heavy infiltration of neutrophils (H & E, 25 x).
- Fig. (5):** Necrotic areas of the spleen showing cholestrol cleft and bacterial colonies. (Crystal violet, x 16).
- Fig. (6):** Macrophage cells filled with hemosiderin pigment in the spleen (H & E, 25 x).
- Fig. (7):** Lung showing caseous necrosis surrounded by proliferating C.T. infiltrated with neutrophils (H & E, 16 x).
- Fig. (8):** Urinary bladder showing hemorrhagic cystitis (H & E, 25 x).

MEMORANDUM

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The following information was obtained from the records of the Department of the Interior, Bureau of Land Management, regarding the land parcels described herein. The information was obtained from the records of the Department of the Interior, Bureau of Land Management, regarding the land parcels described herein. The information was obtained from the records of the Department of the Interior, Bureau of Land Management, regarding the land parcels described herein.

MEMORANDUM

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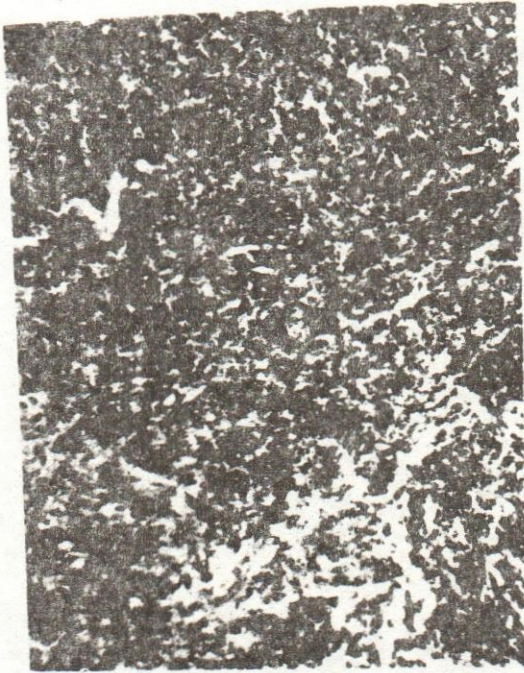


Fig. (5)



Fig. (6)

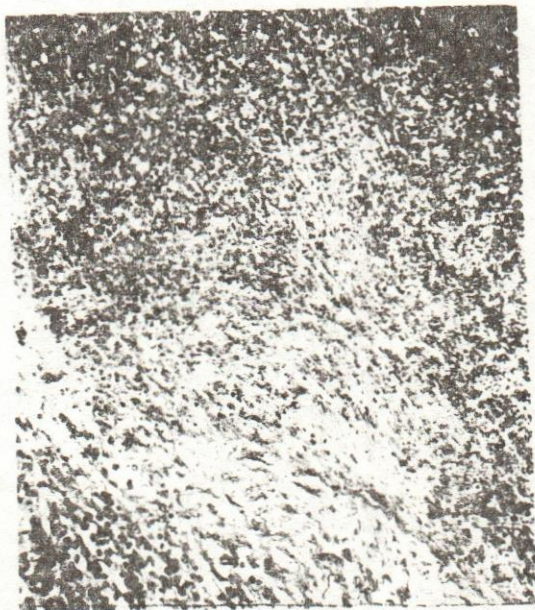
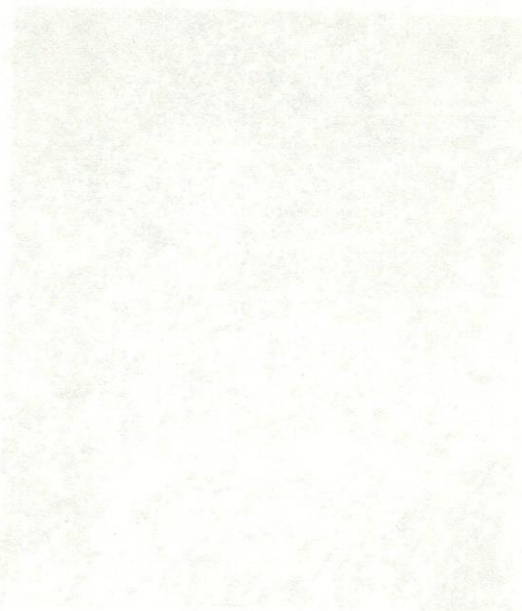
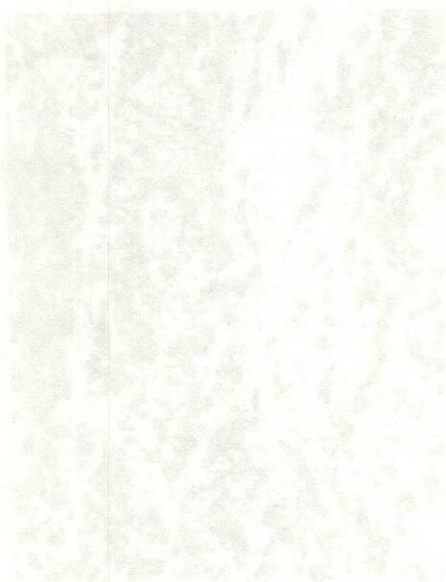
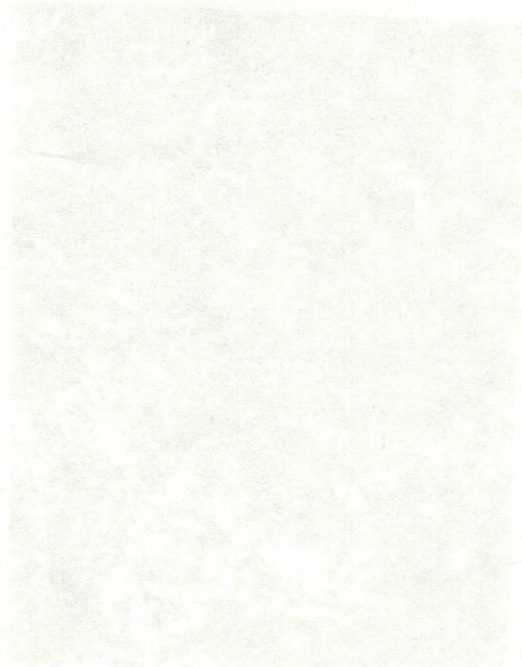


Fig. (7)



Fig. (8)



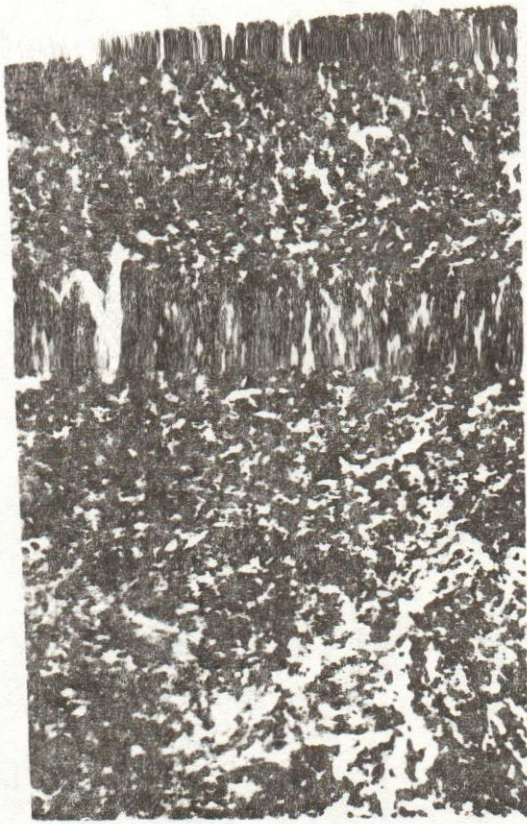


Fig. (5)

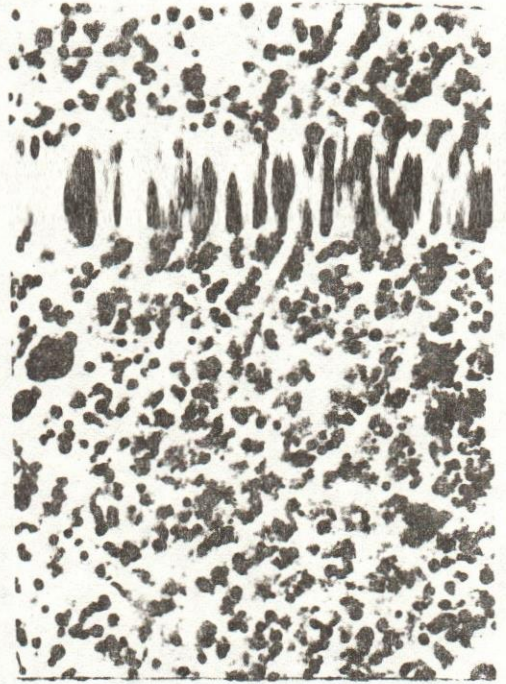


Fig. (6)



Fig. (7)



Fig. (8)