Clinicodiagnostic and pathological studies on cattle and buffaloes suffering from brucellosis and tuberculosis in Kafr El Sheikh Governorate

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SUMMARY
This study regarded the prevalence of Tuberculosis and brucellosis among cattle and buffaloes in Kafr El Sheikh governorate during the period from January 2005 to December 2007. The incidence of tuberculin test reactors among cows using the single intradermal cervical test 0.014%, 0.17 % and 0.088 during 2005, 2006 & 2007, respectively but in buffaloes they were 0.029% ,0.28%, and 0.0% during the same period, respectively.

Incidence of Brucella reactor cows using serological tests ( BA-PAT, RBPT, RivT ) were 0.37% , 0.27% and 0.20 % but in buffaloes were 0.38% ,0.60% and 0.11% during 2005, 2006 and 2007, respectively. Animal showed mixed infection with T.B and Brucella were recorded in 9 cattle and 1 bufaloe.

24 Milk & 45 Tissue specimens (lymph nodes, lung, liver and spleen) were taken for isolation of brucella from seropositive cattle and buffaloes where the Brucella isolation rates in cattle were 42.8% and 33.3% in milk and tissues while in buffaloes were 50.0% and 27.8% respectively. The isolated strains were identified as \textit{Brucella melitensis} biovar 3.

It was noticed that the activity of Nitric oxide and Lysozyme in cattle and buffaloes infected with brucellosis or/with tuberculosis alone was higher than those with mixed infection as a result of stress action of brucella and mycobacterium microorganisms on macrophage .

The gross and histopathological examinations revealed dissemination of granuloma with calcification in lung, lymph nodes, liver and spleen of cattle and buffaloes infected with tuberculosis and those infected with brucella spp. with steady progression in mixed infections. So, the histopathological technique could be a complementary tool to the other confirmative field and laboratory tests applied in the diagnosis as brucellosis and tuberculosis.
INTRODUCTION

Brucellosis remains one of the major zoonotic diseases worldwide. It affects many animal species and have an economic impact. Brucellosis causes abortion, retained placenta and impaired fertility in animals and poses a barrier on trade of animals and animal products and could seriously impair socioeconomic progress in the developing world (Luzzi et al., 1993 and Madkour, 1989).

Tuberculosis is a chronic necrotizing bacterial disease having a wide variety of manifestations and caused by an acid fast bacillus discovered by Robert Koch in 1882.

Tuberculosis has a wide dissemination through the body & causing tissue changes in many organs similar to those observed in brucellosis (Schlossberg, 1999).

Tuberculin (Purified protein Derivative) is the major method for diagnosis of tuberculosis. This intradermal test has an optimal accuracy in all situations. Currently, animal is diagnosed for tuberculosis by a skin test that includes a caudal fold, comparative cervical, single cervical, or double-strength cervical test. Other diagnostic methods such as serological assays has been investigated. (Acha and Szyfres, 1987 & Amadori et al., 2002).

The present study was carried out to determine the incidence of brucellosis and tuberculosis in cattle and buffaloes in KafrEl Shiekh governorate. Also to evaluate immune status of infected animals through demonstration of Nitric Oxide (NO) level and Lysozyme activity following infection with brucellosis and tuberculosis as indicators for the development of cell mediated immunity as well as correlate the results with the observed histopathological changes.

MATERIALS AND METHODS

Bovine tuberculosis & brucellosis are zoonotic diseases so, samples were collected & handled with all appropriate precautions.

I- Samples:

Samples were obtained from cattle & buffaloes belonging to different farms & aged 3-5 years as in table (1-6). The animals were classified as either brucella positive (defined by reactivity with serological tests BAPAT, RBPT & RIV. T) or TB positive (defined by delayed hypersensitivity to an intradermal injection of purified protein derivative), along with a disease free (defined by a negative for
skin test & serological tests) as control.

1- Blood serum samples (Alton et al., 1988).

2- Milk samples (24 individual milk samples) as shown in table (7) for brucella isolation trials (Alton et al., 1988).

3- Tissue specimens from L.N, lung, liver & spleen were taken from slaughtered serological reactor animals for isolation & identification of the causative agent.

II- Diagnosis of Brucellosis:

1- Serological tests.

a- Buffered acidified antigen test (BAPAT) according to (Anon, 1984).

b- Rose Bengal plate test (RBPT) according to (Morgan et al., 1969).

c- Rivanol test (RIV.T) according to (Anon, 1984). Abassya. The antigen was obtained for Veterinary Vaccine & Sera Institute, Abassya.

2- Bacteriological examination and typing of isolates were carried according to (Alton et al., 1988).

III- Diagnosis of tuberculosis:

Intradermal Allergic skin test:

The application and interpretation of tuberculin test was done as described by O’Reilly (1995). Single intradermal cervical test of mammalian purified portion derivative (PPD) tuberculin (Weybridge standard 2 mg/ml), which was obtained from veterinary serum & vaccine Research Institute, Abassia. This test was performed by the accredited veterinarians of the veterinary services at the investigated area.

IV- Immunological study:


2- Measurement of lysozyme activity by agarose gel cell lysis assay according to the method described by Schltz (1987).

V- Histopathological examinations:

Proper tissue samples from lung, L.N, spleen, and livers were obtained from (8) cows and (3) buffaloes infected with tuberculosis and (10) cows and (7) buffaloes infected with Brucella spp. as well as from (6) cattle and one buffalo with mixed infection. Samples were fixed in 10% neutral formalin. Representative portions of each specimen were embedded in paraffin and serially incised to 5 um sections which stained with hematoxylin and eosin (Bancroft et al., 1994). All section were examined by light microscopy and the de-
tected lesions were recorded.

VI- Statistical Analysis:

The obtained data were statistically analysed according to Petrie and Watson (1999).

RESULTS

Along three years (2005-2007), 10 cattle & buffaloes farms in Kafr EL- Shiekh were examined against tuberculosis & brucellosis. Table (1, 2, 3) illustrate the number of examined animals in different districts against tuberculosis using the single intradermal cervical test (SICT). The obtained results revealed that (20) out of (22122) cattle were positive to tuberculosis, while in buffaloes 11 cases out of 9613 animals were positive.

The cattle & buffaloes from the same farms were subjected to laboratory diagnosis against brucella spp. Infection. Sera samples from animals were taken and serologically examined using (BAPAT) as screen test (Tables 4 & 5). (61) out of (25122) cattle & (32) out of (9613) buffaloes were positive reactors. Further serological examination were performed using RBPT revealed that (57) out of (22122) cattle & (29) out of (9613) buffaloes were positive reactors (Tables, 4 & 5).

The obtained results were confirmatory by using test (RIVT) revealed (47) out of (22122) cattle & (25) out (9613) buffaloes were positive reactors (Tables, 4 & 5).

The mixed infection with tuberculosis and brucellosis during 2005-2007 was (9) cattle & one buffalos (Table, 6).

Further laboratory examination & trial for isolation of brucella were applied on sero reactive animals against brucella, (Table, 7).

In milk sample, (6) isolates out of (14) cattle & (5) isolates out of (10) buffaloes were recorded. Whereas, (9) isolates from tissue of (27) slaughtered cattle & (5) isolates from (18) slaughtered buffaloes were exhibited. All isolates were identified & typed as Brucella melitensis Biovar 3.

Reviewing the results of nitric oxide level & lysozyme activity were summarized in tables (8) & (9).

The mean level of Nitric oxide (umol/ ml) in cattle infected with brucellosis was (14.951) while in infected with tuberculosis was (10.645) but in cattle with mixed infection of brucellosis & tuberculosis was (6.776).

The mean level of Nitric oxide (umol- ml) in Buffaloes infected with brucellosis was (16.314) while in infected with tu-
berculosis was (10.873) but in buffaloe with mixed infection of brucellosis & tuberculosis was (5.45).

The result of lysozyme activity (umol/ml) in cattle infected with brucellosis was (14.04), while in those infected with tuberculosis was (10.772) but in cattle with mixed infection of brucellosis & tuberculosis was (9.014).

In Buffaloes, the result of lysozyme activity with brucellosis was (14.647), while in those infected with tuberculosis was (12.058) but in buffaloe with mixed infection of brucallosis & tuberculosis was (7.18).

The gross lesions consistent with tuberculous reactor animals were observed with recorded variations in the severity of the lesions between the individual animals. Tuberculous granulomas were yellowish and caseous, caseo-calcareous or calcified and often encapsulated. Granulomas are most often found in lymph nodes, lung, liver and spleen. Pulmonary lesions consisted of multifocal firm granulomas which ranged in size from 3 mm to 2 cm. Lesions were disseminated evenly through out lung lobes and in some cases, the tuberculous lesions were most numerous in the caudal lung lobes. Some lymph nodes were enlarged and firm where the cut serface contained multifocal areas of purulent materials as well as caseous necrosis.

In brucella reactor animals, the gross lesions were not observed except most of lymph nodes appeared to be edematous and enlarged.

Brucellosis and tuberculosis are granulomatous disease, where the microscopical picture observed in the present study proved this challenge.

The predominant lesions in cattle & buffaloes suffered from brucella were seen in lung and lymph nodes. Granuloma of immunological reaction consisting of central caseating material followed by accumulation of plasma, epithelioid, lymphocytes and langhan's giant cells were observed (fig 1). Lymphoid hyperplasia with dilation of germinal center were also, noticed in some lymph nodes (fig. 2).

Tuberculous granuloma was observed in the examined animals infected with mycobacterium. In lungs, a complex array of immune activation and cellular migration were noticed, where macrophages, epithelioid, lymphocytes and langhans giant cells were aggregated and surrounding a centrally caseous material (figs 3, 4, 5).

Calcification frequently occurred in some caseated areas (figs, 6, 7, 8.). In some cases, fi-
brosis (sclerosis) developed in capsular pattern or replaced the granulation tissue (fig 9). The granulomatous reaction expanded & invaded the bronchial wall & protruded into the lumen (fig. 10, 11). Also, the reaction invading the pulmonary vasculature leading to destruction of their walls with thrombus formation (fig. 12). Sequestration associated with vasculitis & thrombosis were also, observed (fig., 13).

In lymph nodes, histocytic granuloma was observed specially in medullary sinuses (fig 14, 15). The granuloma may be diffused with infiltration of foreign body giant cells (fig 16), & melanosis (fig., 17). Oedema with lymphocytic depletion were noticed within the lymphoid follicle (fig. 18, 19). Bacterial bacilli, also, seen in medullary sinuses (fig 20). Vasculitis as a result of invasion of the granulomatous reaction (fig., 21) as well as extensive haemorrhage and excessive number of hemosidrin laden macrophages were observed (fig 22).

The granulomatous reaction was also, observed in splenic sinuses (figs 23, 24). In liver, calcified as well as capsulated granuloma were noticed (figs 25, 26). The tubercle nodules surrounded by layers of foreign body & langhans giant cells (fig 27). Cavitations as a result of tissue necrosis were filled with caseated materials & haemorrhage (fig 28). Vasculitis & invasion of the wall of blood vessels by granuloma were observed. (fig 29, 30).

Table (1): Total examined cattle and buffaloes against T.B using single intradermal cervical test (SICT) (2005)

<table>
<thead>
<tr>
<th>City</th>
<th>Cattle Examined</th>
<th>Cattle Positive</th>
<th>Buffaloes Examined</th>
<th>Buffaloes Positive</th>
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<td></td>
<td></td>
</tr>
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<td>Sidy Salem</td>
<td>953</td>
<td>230</td>
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<td>2</td>
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<td></td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
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<td></td>
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<tr>
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<td>225</td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>Baltim</td>
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<tr>
<td>Total</td>
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<td>% of positive</td>
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Table (2): Total examined cattle and buffaloes against T.B using single intradermal cervical test (SICT) (2006).

<table>
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<th>Cattle</th>
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<th>Buffaloes</th>
</tr>
</thead>
<tbody>
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<td>Examined</td>
<td>Positive</td>
<td>Examined</td>
</tr>
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<td>379</td>
</tr>
<tr>
<td>Biala</td>
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<td>-</td>
<td>225</td>
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<tr>
<td>El Hamool</td>
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<tr>
<td>Baltim</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
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<td>2895</td>
</tr>
<tr>
<td>% of positive</td>
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<td>0.28%</td>
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Table (3): Total examined cattle and buffaloes against T.B using the single intradermal cervical test (SICT) (2007).

<table>
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<th>Cattle</th>
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<th>Buffaloes</th>
</tr>
</thead>
<tbody>
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<td>Examined</td>
<td>Positive</td>
<td>Examined</td>
</tr>
<tr>
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<td>420</td>
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<tr>
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<td>Kallin</td>
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<td>293</td>
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<tr>
<td>El Hamool</td>
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<td>400</td>
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<tr>
<td>Total</td>
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<td>3823</td>
</tr>
<tr>
<td>% of positive</td>
<td>0.088 %</td>
<td>0.0 %</td>
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Table (6): Total animals with mixed infection of T.B and brucellosis during 2005-2007.

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
<th></th>
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<tbody>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fowa</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>Kallin</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sidy Salem</td>
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<td>0</td>
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<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
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<td>1</td>
<td>5</td>
<td>0</td>
<td>3</td>
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Table (7): Results of bacteriological isolation of brucella from serological reactor animals (2005-2007).

<table>
<thead>
<tr>
<th>Locality</th>
<th>Cattle</th>
<th>Buffaloes</th>
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<tr>
<td></td>
<td>Milk</td>
<td>Tissues</td>
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<tr>
<td></td>
<td>Tested</td>
<td>+ve</td>
</tr>
<tr>
<td>Kafer El. Sheikh</td>
<td>5 2</td>
<td>13 4</td>
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<tr>
<td>Sidy Salem</td>
<td>1 0</td>
<td>3 1</td>
</tr>
<tr>
<td>El Ryiad</td>
<td>1 1</td>
<td>1 1</td>
</tr>
<tr>
<td>Desuk</td>
<td>1 0</td>
<td>1 0</td>
</tr>
<tr>
<td>Fowa</td>
<td>2 1</td>
<td>3 1</td>
</tr>
<tr>
<td>Metoubass</td>
<td>1 0</td>
<td>2 1</td>
</tr>
<tr>
<td>Kallin</td>
<td>2 2</td>
<td>3 0</td>
</tr>
<tr>
<td>Biala</td>
<td>1 0</td>
<td>1 0</td>
</tr>
<tr>
<td>EL. Hamool</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td>Baltin</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td>Total</td>
<td>14 6</td>
<td>27 8</td>
</tr>
<tr>
<td>Percentage</td>
<td>42.8%</td>
<td>33.3%</td>
</tr>
</tbody>
</table>
Fig. (1): Lung of brucella infected animals showing granulomatous reaction containing plasma, Epithelioid cells, lymphocytes and langhans giant cells engulfing tissue debris (H & E x 400).

Fig. (2): Lymph node of brucella infected animals showing lymphoid hyperplasia (H & E x 100).

Fig. (3): Lung showing granulomatous reaction (giant cell ingulfinfected cells), (H & E x 400).

Fig. (4): Lung of brucella infected animals showing tubercle nodules forming of central area of caseous necrosis surrounded by numerous numbers of langhans giant cells (H & E x 100).
Fig. (5): Lung of brucella infected animals showing giant cells within tubercle nodule (H & E x 400).

Fig. (6): Lung of brucella infected animals showing old tubercle formed of central area of caseation and calcification, surrounded by epitheloid cells and giant cells (H & E x 200).

Fig. (7): Lung of brucella infected animals showing old tubercle nodule (H & E x 200).

Fig. (8): Lung of brucella infected animals showing old tubercle nodule (note giant cell may be at stage of cleaning the calcification) (H & E x 200).
Fig. (9): Lung showing numerous capsulated granulomatous reaction (H & E x 100).
Fig. (10): Lung showing granulomatous reaction invading the bronchial wall and lumen (H & E x 400).
Fig. (11): Lung showing invasion of the granulomatous reaction into the bronchial wall (H & E x 100).
Fig. (12): Lung showing invasion of pulmonary vasculature with granuloma and thrombous formation (H & E x 200).
Fig. (13): Lung sequestration associated with vasculitis and thrombosis (H & E x 400).

Fig. (14): Lymph node showing histocytic granuloma (H & E x 200).

Fig. (15): Lymph node showing granulomatous reaction and oedema in the medullary sinuses (H & E x 200).

Fig. (16): Lymph node showing tubercle nodule (note langhans & foreign body giant cells) (H & E x 100).
Fig. (17): Lymph node showing diffuse granulomatous reaction associated with melanosis (H & E x 200).
Fig. (18): Lymph node showing oedema and lymphocytic depletion within the lymphoid follicle (H & E x 200).
Fig. (19): Lymph node showing oedema and granulomatous reaction within the medullary sinuses (H & E x 100).
Fig. (20): Lymph node showing numerous bacterial bacilli within the medullary sinuses (H & E x 400).
Fig. (21): Lymph node showing vasculitis caused by invasion of granulomatous reaction in and around the blood vessels (H & E x 400).
Fig. (22): Lymph node showing extensive hemorrhage and numerous number of haemosidrin laden macrophage (H & E x 200).
Fig. (23): Spleen showing diffuse granulomatous reaction (H & E x 200).
Fig. (24): Spleen showing tuberculous granulomatous reaction within the splenic sinuses (H & E x 200).
Fig. (25): Liver showing calcified granulomas (H & E x 100).
Fig. (26): Liver showing capsulated granuloma (H & E x 100).
Fig. (27): Liver showing tuberculous nodules (note foreign body and Langerhans giant cells), (H & E x 100).
Fig. (28): Liver showing cavitation filled with necrotic materials and haemorrhage (H & E x 100).
Fig. (29): Liver showing vasculitis (H & E x 100).
Fig. (30): Liver showing destruction of central vein as a result of granulomatous invasion (H & E x 200).
DISCUSSION

Bovine brucellosis is a world-wide re-emerging zoonosis. Brucella melitensis in cattle has emerged as an important problem in Middle East countries. The presence of one or more positive reactors on the first herd test is a reliable indicator of the presence of infection. (Radostitis et al., 2000).

Diagnosis of brucellosis primarily by using BAPAT and RBPT which were widely applied for identification of infected herds in the United States and other countries. Despite some of their drawbacks, the two serological tests have been used in successful eradication schemes. Additionally, these tests can be used as an initial screen to identify exposed or infected herds.

Tables (4) & (5) showed that the prevalence of brucellosis in ten examined farms at Kafr El-Sheikh was very low and not exceeded than 0.37% in cattle and 0.60% in buffaloes.

The results in Tables (4, 5) declared sensitivity of BAPAT rather than other used tests. The higher percent of reactors detected by BAPAT was similar to that recorded previously by Farid et al., (1995); Montasser et al., (2001); Khoudair, (2000) and Khoudair, (2004).

Results of confirmation as shown in tables (8 & 9) revealed that, the results of confirmatory tests showed detection of large number of positive reactors by RIVT. In the peak of infection, IgG especially IgG1 was dominate (Wright and Nielsen., 1990). The results obtained by RIV is due to precipitation of immunoglobulin IgM in the techniques of both tests, this was in harmony to that obtained by Montasser (1999) Montasser et al. (1999) and Khoudair (2004).

Table (7) expresses the results of bacteriological isolation from milk and tissues of brucella serological reactors animals. A total of 25 isolates of brucella organisms has been confirmed in this study (11 isolates from Milk sample of cattle and buffaloes and 14 isolates from Tissue specimens). All the brucella isolates were identified as Brucella melitensis biovar 3. These findings were similar to that obtained by previous workers (Sayour, 1995; Anwar, 1999; Montasser et al., 2001; Khoudair, 2000 and Khoudair, 2004).

In Tables (1, 2 & 3) the current results recorded the prevalence of Tuberculosis among cattle in Kafr El-Sheikh during 2005 by using single intradermal cervical test (SICT) revealed that the incidence was recorded (0.014%), during 2006 the incidence was recorded (0.17%). The higher incidence was recorded in Desuk fol-
lowed by Sidy Salem, lastly during 2007 the incidence was recorded (0.088%) the higher incidence was recorded in Metoubass, followed by Sidy Salem then Fowa.

The prevalence of Tuberculosis among buffaloes during 2005 was (0.029%) and the higher incidence was recorded in Desuk followed by Kallin. During 2006 the incidence was recorded (0.28%) and the higher incidence was in Sidy Salem, lastly during 2007 the incidence was recorded (0.0%).

During this study, it was found that a total number of (10) animals (9 cattle and 1 buffalo) harboured as mixed infection. The overall Prevalence of infection have been reported previously by Palmer et al. (1999) and Zanella et al. (2008).

In the present study, the nitric oxide level and lysozyme activity were measured in cattle and buffaloes infected with brucellosis or tuberculosis or with mixed infection by both pathogens (tables 8 and 9).

It was quite clear that there was a significant difference (P <0.001) between the level of nitric oxide in healthy buffaloes and the others which were infected with brucellosis or tuberculosis or with mixed infection with brucellosis and tuberculosis.

Such results were supported by the finding of Wang, et al. (2001) whom reported that Nitric oxide (NO), which produced by the iNOS protein, is known as a defense mechanism against various pathogens and apoptotic inducer of cells.

The results of lysosome activity demonstrated in tables 8 and 9 proved that there was a significant difference (P<0.001) between the level of lysozyme in Infected and Healthy animals.

It was noticed that the activity of Nitric oxide and Lysozyme activity in cattle and buffaloes infected with brucellosis or with tuberculosis alone was higher than that with mixed infection (brucellosis and tuberculosis) as brucella and mycobacterium microorganisms act as stress on macrophage.

The gross lesions which were observed in brucella reactor animals were parallel to those observed in camel reactor serological positive with brucella in Kenya (Palling et al., 1988).

The distribution and character of gross lesions observed in tuberculous reactor animals were similar to those reported for naturally infected tailed-deer (Schmitt et al., 1997 and Palmer et al., 1999). Also, they were agreed with the prevalence of lesions in infected
cattle with tuberculosis in Ethiopia (Ameni et al., 2007) and in wild-life animals in France (Zanella et al., 2008).

Brucellosis & tuberculosis are granulomatous disease, where the predominant lesions observed in cattle & buffaloes suffering from the brucella were granulomatous reaction in lung & lymph nodes.

Similar observations were recorded by Ewalt (1997) and perez et al. (1998) who observed multifocal granuloma as well as bronchopneumonia in cattle naturally infected with brucella. Also, Park et al. (2007) & Theegarten et al (2008) showed disseminated nodules in lung & liver of human affected with brucellosis. Lymph nodes cellular hyperplasia was also, noticed in Bison and ram vaccinated with brucella (Olsen et al., 1997 and Munoz et al., 2008).

Tuberculous granuloma was observed in the examined lung, lymph nodes, spleen & liver. The tissue damage & caseous necrosis observed is initiated by a tissue damage delayed hypersensitivity & are related to the effect of cytotoxic T. cells & natural killer cells, anoxia produced by the thrombosis & vasculitis & also, to the effect of toxic cells & bacillary product (Schlossberg, 1999 and Palmer et al., 2007).

The microscopical lesions observed in cattle & buffaloes which suffered from mixed infection with mycobacterium & brucella showed steady progression in the glaucomatous reaction as a result of obvious stress on the immune system. Similar reaction observed in cattle & deer suffered from T. B. infection (Zenella et al., 2008 ) & in camel of brucella reactor & infected with T.B. (Palling et al., 1988).

From the present study, we concluded that brucellosis & tuberculosis cause a great stress on the immune system of cattle and buffaloes in addition to cause greet loss of infected animals and their offspring & leading to great economic losses.

The isolated Brucella melitensis in the present work may affect the spinal cord of infected animals & human leading to paralysis as recorded by Colmenero et al. (2008).

From the zoonotic point of view, brucella can shed in the milk and also tuberculosis can transmit to man through consuming of slaughtered animals and during the contact in the slaughter house. So, we must direct our effort towards the vaccination of young animals against tuberculosis & brucellosis to protect animals & human.
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دراسة تشخيصية وباثولوجية عن إصابة الأبقار والجاموس بالبروسيلالسل

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الهيئة العامة للخدمات البيطرية - مديرية الطب البيطرى كفر الشيخ

المتخصصر العربي

أجريت هذه الدراسة بهدف تحديد نسبة الإصابة بالسل والبروسيلالألبَقَار والجاموس

بمحافظة كفر الشيخ في الفترة من يناير 2005 إلى ديسمبر 2007. تراوحت نسبة

الإصابة بالسل في الأبقار باستخدام التيرجريفرين من 0.14% إلى 0.88% بينما

وصلت في الجاموس من 0.17% إلى 0.8% في الفترة من 2005 إلى 2007. تم

استخدام الاختبارات السيرولوجية مثل ( BAPAT, RBPT,RIVT )

على الحيوانات المصابة بالبروسيلا حيث بلغ عدد الإصابات في الأبقار 37,060،

20% بينما سجلت بالجاموس 38,060، 20% في نفس الفترة الزمنية.

تم عزل ميكروب البروسيلالسل من عينات الألبان حيث وصل معدل العزل البكتيري في

الأبقار 42% بينما بلغت في الجاموس 50% من إجمالي الألبان التي تم فحصها.

تتم عزل البروسيلالسل من نسبه الجسم ( مثل الغدد الليمفاوية والرئة والكبد والطحال )

حيث كانت نتائج العزل في الأبقار 23% وبالجاموس 27%. في جميع الحالات

كانت المعالجات تتم على البروسيلالسل ميليتريز - 3.

في هذه الدراسة تم قياس معدل أكسيد النتريك ومتابعة النشاط الليسيمومي حيث تم

ملاحظة زيادة مطردة في مستوى أكسيد النتراك والمتابعة الليسيمومي بالبروسيلالألبَقَار والجاموس

المصاب كلاً منها بالبروسيلالسل بينما أشتكى المصابون الألقار والجاموس

المصاب بعدوى مشتركة من البروسيلالسل ويرجع السبب في ذلك إلى التأثير

المتدرج للبروسيلالسل على الخلايا الأوكسدة بدم وأنفسي الحيوانات المصابة.

أظهر الفحص الهستولوجي نتائج تقريرات مع تكسير والرئة والعدد الليمفاوية

والألبان والطحال بالأبقار والجاموس بدرجات متفاوتة تزداد بصورة أكثر وضوحا في

الإصابة المشتركة.

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