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Prevalence of Toxoplasmosis and Brucellosis in Aborted Ewes in Ninevah Province

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ABSTRACT

Serum samples collected from (566) aborted ewes were examined serologically for the presence of toxoplasma and brucella antibodies in Ninevah by using indirect haemagglutination test (IHAT) for toxoplasmosis and by using Rose Bengal plate agglutination test (RBPT) for brucellosis. Also vaginal swabs were cultured on modified brucella agar followed by biochemical test to confirm the positive samples with RBPT From the specimens examined. (45.78%) gave positive reactions to IHAT and (18.5%), (13.5%) gave positive reactions to RBPT and culture respectively. The antibodies titers in IHAT ranging from 1/16 to 1/256 and the titer 1/32 showed highest positive cases while the titer 1/256 showed fewest positive cases.

مدى انتشار الاجهاض الساري وداء المقوسات في النعاج المجهضة في محافظة نينوى

الملخص

تم فحص عينات المصل المأخوذة من (566) نعجة مجهضة مصلياً للكشف عن وجـود اضـداد المقوسات والبروسيلا في محافظة نينوى باستخدام اختبار التلازن الدموي غير المباشر (IHAT) للكشف عن وجود داء المقوسات وباستخدام فحص الروزبنكال (RBPT) للكشف عن وجود الاجهاض الـساري. وقد أخذت مسحات المهبل وزرعت على اكار البروسيلا المحور متبوعاً بالفحوصات الكيميائية الحيويـة لتأكيد الحالات الموجبة لفحص الروزبنكال.وقد أعطت (45.78%) من العينات المأخوذة تفاعلات موجبة لفحص التلازن الدموي غير المباشر واعطت (18.5%) و (13.5%) نتائج موجبة لفحص الروزبنكـال وفحوصات الزرع على التوالي . وقد تراوح معيار الاضداد من 1/16 الى 1/256 في فحـص الـتلازن الدموي غير المباشر واظهر المعيار 1/32 اعلى الحالات الموجبة في حين كـان المعيـار 1/256 اقـل الحالات الموجبة.

INTRODUCTION

Toxoplasmosis considered as one of most important zoonotic disease which infect man and animals (Dubey, 1990; Al-Sim'ani, 2000). Toxoplasmosis widely distributed and causes different pathological conditions one of these are abortion and still birth in ewes (Buxton *et al*., 1990). Also brucellosis is an true zoonosis which affect several species of domestic animals commonly reared by humans for the production of milk, meat and wool (Blood *et al*., 1986).

The aim of this study was to determine the incidence of toxoplasmosis and brucellosis in ewes in Ninevah governorate as causes of abortion as well as the high spread of these diseases in the last years and its nation economic losses which affect the common health.

MATERIALS AND METHODS

Blood samples were collected from (566) ewes. These samples were collected from ten localities in Ninevah governorate. The blood samples were refrigerated overnight and centrifuged at 2000 rpm for 10 minutes for serum separation. The sera were kept at -20℃ until they were serologically tested.

A/ Detection of Toxoplasma AB:

By using indirect Haemagglutination test (Fatohi, 1985).

B/ Detection of Brucella AB:

By using RBPT (Alton, *et al*, 1975).

C/ Culture and biochemical tests:

Vaginal swabs were taken from positive RBPT were subjected to culture on modified brucella agar followed by biochemical test for confirming (Mansour, 2000).

RESULTS

The results of this study presented in table (1) showed that 76(45.78%) of aborted ewes were positive for toxoplasma antibodies while those presented in table (2) showed that 74(18.5%) were positive for brucella antibodies. In culture and biochemical tests 54(13.5%) were positive for brucella while others gave false positive results. Our study also showed that the positive cases for toxoplasma antibodies had a titer ranging from 1/16 to 1/256 in IHAT, the titer 1/32 highest positive cases while the titer 1/256 showed fewest positive cases as shown illustrated in figure (1).

Table 1: Prevalence of toxoplasmosis in aborted ewes in Ninevah governorate.

	Number of cases examined	**Number of IHAT positive cases**	**%**
	32	18	56.2
	18	9	50
	22	12	54.5
	10	3	30
	24	10	41.6
	8	2	25
	20	8	40
	14	8	57.1
	12	5	41.6
	6	1	16.6
Total	166	76	45.78

Tabele 2: Prevalence of brucellosis in aborted ewes in Ninevah governorate.

	Number of cases examined	Number of RBPT positive cases	%	Number of culture positive cases	%
	50	7	14	5	10
	28	5	17.8	3	10.71
	36	5	13.8	4	11.11
	62	12	19.3	10	16.13
	36	5	13.8	3	8.33
	46	9	19.5	7	15.22
	60	10	16.6	8	13.33
	38	8	21.05	5	13.16
	24	6	25	4	16.67
	20	7	35	5	25
Total	400	74	18.5	54	13.5

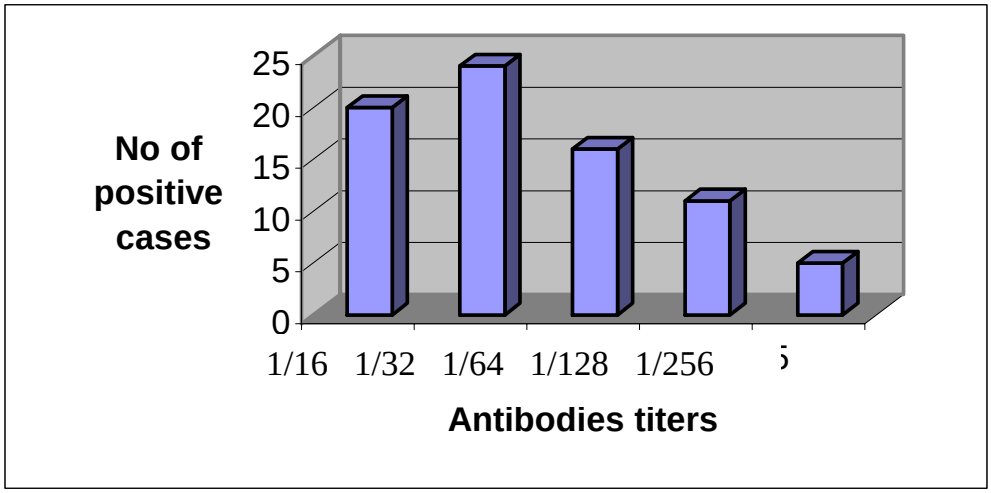

Fig.1: Distribution of serum titers of Toxoplasma antibodies by IHAT in aborted ewes

DISCUSSION

Its shown in table (1) the high incidence rate of Toxopasmosis in the aborted ewes which may be due to exposure of these animals to the agents because of the bad management conditions as well as the high temperature and humidity in animals shelters which provide favourable environment for survival of the oocysts for more than a year (Al-Sim'ani, 2000, Al-Amiri, 1994, Plant *et al*., 1982). Also the spread of cats in Mosul may play an important role in the transmission of the infection (Mohammed *et al*., 1990) as well as the bad storage of the forages may encourage the growth of fungus which secret the aflatoxin which may be considered one of the immunosuppressor factors for the infection with toxoplasma in rats which transmit the infection to sheep (Venturini *et al*., 1996).

The prevalence of brucellosis among ewes was (18.5%) on the basis of RBPT as shown in table (2) and (13.5%) on the basis of culture and biochemical test. These differences in the two tests were either due to the presence of false positive cases in RBPT because of the cross reaction with other types of bacteria genera like *Salmonella*,

E. coli and *Yersinia* and other or due to the activity of antibodies which resist from the vaccination (Radostits *et al*., 1994). This high incidence rate of brucellosis was expected since no brucella eradication programm was applied.

The results from the present study suggest that brucellosis is a major problem of animal production which is considered principle source from food to human beings and thus it causes economic losses due to this infection, therefore we need to give more attention to these diseases to prevent the spread of infection to healthy animals and man by educated health and provide the hygienic conditions in meat consumption.

REFERENCES

Al-Amiri, O.M., 1994. Prevalence of antibodies to *Toxoplasma gondii* among blood donors in Abha-Asir region in south Western Saudi Arabia. J. Egypt. Publ. Heal. Assoc., Vol.69, pp.77-88.

Al-Sim'ani, R.G.G., 2000. A seriological study to diagnose Toxoplasmosis in sheep and human in Ninevah governorate. M.Sc. Thesis, College of Veterinary Medicine , University of Mosul . (In Arabic).

Alton, G.G., Jones, L.M. and Pietz, D.E., 1975. Laboratory techniques in brucellosis 2nd ed, World Health Organization, Monograph series No. 55, Geneva.

Blood, D.C., Radostits, O.M. and Henderson, J.A., 1986. Veterinary Medicine 6th ed. Philadelphia :Bailliere Tindall.

Buxton, D., 1990. Ovine Toxoplasmosis. J. Roy. Soc. Med., Vol.83, pp.509-511.

Dubey, J.P., 1990. Status of *Toxoplasma gondii* in sheep and goats in USA. J. Am. Vet. Med, Asso., Vol.196, pp.259-261.

Fatohi, F.A., 1985. Detection of toxoplasmosis among different groups of population in Mosul city by using IHAT and CFT. M.Sc. Thesis, College of Medicine, University of Mosul, Iraq.

Mansour, R.S., 2000. Epidemiological and diagnostic study of brucellosis in Ninevah province. M.Sc. Thesis, College of Veterinary Medicine, University of Mosul. (In Arabic).

Mohammed, M.A., Zangana, I.K., Al-Safar, T.M., Al-Sati, H., 1990. Isolation of *Toxoplasma gondii* from a cat and aborted sheep. Ind. J. Vet. Med., Vol.10, pp.51-53.

Plant, J.W., Freeman, P. and Sounders, E., 1982. Serological survey of the prevalence of *Toxoplasma gondii* antibodies in rams in sheep flocks in New South Wales. Aust. Vet. J., Vol.59, pp.87-89.

Radostits, O.M., Blood, D.C. and Gray, C.C., 1994. Veterinary Medicine. Bailliere Tindall. 8th ed., pp.787-813.

Venturini, M.C., Quiroga, M.A., Risso, M.A., Lorenzo, C.D., Omata, Y., Venturini, L. and Godoy, H., 1996. Mycotoxin T.2 and aflatoxin B, was immunosuppressors in mice chronically infected with *Toxoplasma gondii*. J. Comp. Pathol., Vol.1. pp.115:229-237.