Preliminary study of chlamydiosis and toxaplamosis

in Goats in Basrah,Iraq

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Abstract

Present study was carried out to investigate the level of antibodies of *chlamydophila abortus* and *toxoplasma gondii in goats*.

The study included 92 female local breed goat ,1-5 years old in different physiological status (30 with history of abortion ,17,pregnant and 45 non pregnant) during April and May 2015 in Basrh city/south of Iraq.

five ml of blood samples were collected from jugular vein puncture for serological analysis using indirect Enzyme Linked Immunosorbent Assay (indirect ELISA) test. Result of the study have revealed that the seroprevalance of goats which have antibodies of C*hlamydophila abortus* were 11.95% and 60.8% of *Toxoplasna gondii .*

The percentage was differ according to the physiological status.In aborted animals it was 16.66% ,whereas In pregnant and non pregnantgoats were 11.76% and 8.88% respectively , with no significant variation (P≥ 0.05) .

the prevalence of *toxoplasma gondi*i antibodies was 70%,76.47% and 48,88% in aborted animals ,pregnant and non pregnant respectively with significant variation (P ≤0.05) . the study has also showed that the animals of 1-3 years old which have antibodies for *chlamydiophila were* 63.63% and76.78% for *toxoplasma* and the animals of 3-5 years old were 36.36% and 23.21% for *chlamydiophila* and toxoplasma respectively .

The study revealed that the percentage of goats which have moderate infection with *chlamydiophila* (titer of antibodies) was 13.33% in aborted animal and 5.88% of pregnant animals had high antibody titer ,while the percentage of goats which had high level of antibody titer of toxoplasma was 40% in pregnant animals and 35.29% and 26.66 % in pregnants and non pregnants resbactivlly .

The study has also revealed that antibodies against *chlamydophila abortus* and *toxoplasma gondii* in does in different physiological status , and does consider food producing animal and *chlamydophila abortus* and *toxoplasma gondiico have a zoonotic* so must tack mor attention for bupplic health consedration .

Introduction

Diseases of goats that caus abortion and reproductive failure is usually accompanied with economic losses ,however abortion may spread throughout the herd , many of these which causing abortion in goats are zoonotic potential (1) .

Chlamydophilosis is a bacterial infection caused by *Chlamydophila abortus*, which is zoonotic pathogen that infects farm animals and has been implicated as a major cause of abortions in goats and sheep (2,3) .

Chlamydiosis is clinically characterized by abortion during the last months of pregnancy, stillbirths or premature births of weak offspring . Since abortions occur without previous clinical specific signs , some goats may develop persistent cough , arthritis and keratoconjunctivitis,Inaddtion experimental infections, slight vaginal discharge was observed the day before abortion on some goats (4). Retained placentas and metritis are not usual (5). After the abortion, goats may recover rapidly(6).

Toxoplasmosis is caused by the *Toxoplasma gondii* . It is another common cause of infectious abortion in all animals and humans. Does can become infected by ingesting food or water contaminated by feces , In pregnant does ,*Toxoplasmagondii* can invade and multiply in the placenta and pass to the fetus, causing fetal death,fetal mummification, stillbirth, or the birth of weakkids. In some cases, the pregnancy can progress normally and the doe can give birth to a normal kid. Abortions from *Toxoplasma gondii* occur mainly in the last trimester of pregnancy and may occur in does of all ages and in successive pregnancies(7,8).

The aim of the present study was investigate the prevalence of antibodies against *Chlamydophila abortus* and *Toxoplasm gondii* occurrence in Goats in Basrah south of Iraq .

Material and methods

Blood samples were obtained from (92) Femal local goat breeds of 1-5years old between Aprile and may 2015,from centr of Basrah city / south of Iraq .

Samples obtained from goat in diferent physiological status (30 animals have an history of abortion,17 Pregnant and 45 non-pregnant does) ,the animals were most fed on trash.

The age, presence and absence of abortion, and frequency of abortions were reviewed from each selected ewes.

Approximately 5ml of blood were obtained from jugular vein puncturethe centrifuged at 1500 r.p.m. for 5 minutes to isolate serum the serum was then stored at - 20 ^{O}C until further processing. Detection of antibodies against *Chlamydophila* and Toxoplasm in sera was done by using an indirect enzyme-linked immunosorbent assay ,(Life technologiesTM Bio-Tek instruments, Inc. ELX-800) according to manufacturer instruction .

this indirect multispecies ELISA detects anti-MOMP (major outer memberane protein of *Chlamydophila*) antibodies in ruminant and *Toxoplasm gondii* P30 antigen, also the test explained the severty of infection in case of *Chlamydophila the infection is not considered a sever if antibody titer is 25-35 ,moderat 35-60 and sever when antibodies titer 60-100 while for Toxoplasma 20-30 is considered low severty ,30-100 and 100-200 considered moderat and more sever infection.*

For each sample,calculate the S/P (sample/ positive) ratio:S/P =(OD sample-ODm NC)/ (OD PC-ODm NC) forToxoplasmosis while for Chlamydophila the S/P(sample/ positive) ratio:S/P =(OD sample-ODm NC) / (ODm PC- ODm NC) .

The analysis of date was performed using the chi-square test (9).

Result and Discussion

The overall seroprevalence levels of the infected animals with *Chlamydophila abortus were 11.95%* while in those infected with Toxoplasna gondii the level was 60.8% .

seropositive samples according to physiological status of animals indicated that The proportion of *Chlamydophila abortus in* aborted does were 16.66%,and in pregnant and non pregnant does of 11.76% and 8.88% respectively , with no significant variation (P≥ 0.05) table 1.

Table (1) seroprevalance of *Chlamydophila abortus* and *Toxoplasma gondii* using Elisa test.

Animals	*Causes*	
	Chlamydia abortus	*Toxoplasma gondii*
Abortion N=30	5 (16.66 %)	21(70%)
Pregnant N=17	2 (11.7 6%)	13 (76.47 %)
nonpregnant N=45	4(8.88 %)	22(48.88%)
Tota	11(11.95%)	56(60.8%)

N=92		

The presnt study also indicated that aborted does ,pregnant and non pregnant gave seropositive of *Toxoplama gondii* of 70%,76.47% and 48.88% respectively with significant variation (P ≤0.05) .

Table two shows the seroprevalence of *Chlamydia abortus* and *Toxoplasma gondii* according to the age of does ,present study reveal that the seropositive of *Chlamydia abortus* 7(63.63%) in 1-3 years old ,and in 3-5 years the rate were 4(36.36%) with significant variation (P ≤0.05) ,while in *Toxoplasma gondii* Animals of 1-3 years 43 (76.78%) while in 3-5 years 13 (23.21%) with no significant variation (P≥ 0.05) .

Table (2) seroprevalance of *Chlamydophila abortus* and *Toxoplasma gondii* according to age group.

Causes	1-3 years	3-5 years
Chlamydia abortus	7 (63.63%)	4 (36.36%)
Toxoplasma gondii	43 (76.78%)	13 (23.21%)

From our investigation abortion due to chlamydiosis and Toxoplasmosis may vary according to animal population, feeding method , using of maternity pens, reproductive and health status of the animal and type of sample tested .In addition the susceptibility increases with pregnancy . and the Presence of stray dogs and cats with goat that may feed on aborted material attrebuted in transmission of infection.

The occurance of toxoplasmosis is related with presence of cats which conseder a final hosts which s contaminate animal feed with sporulated oocytes of Toxoplasma shed within their feces ,as well as the role of climatic variation in *Toxoplasma* spread as the prevalence of toxoplasmosis is higher in warm, moist environment which attributed to the longer viability of *T. gondii* oocysts . it is well Kown that Basrah city is hot and high relative humidity in most mounths of the year.and there is no vaccinaton program against chlamydia or toxoplasma used in animals.

Although other does which have history of abortion and do not appear antibodies agains *Chlamydophila or toxoplasma it may be aborted from other causes of abortion.*

The overall result of this study was differ from other studies conducted on chlamydiosis and toxoplasmosis , (10) showed only 1 (1.1%) of 89 was positive for Cp. abortus susing an enzyme-linked immunosorbent assay (ELISA), and 21 (23.6%) positive for T. gondii agglutinins .Also in Nigeria (11)showed that the prevalence rate of *T. gondii*, in goats 4.8% and *Cp. psittaci*, 3.6% .

(12,13) showed that the most common and important causes of abortions were *Chlamydophilaabortus*infection, which accounted for 23% of all goat abortions and17%,respactivlly .

(14) showed that seroprevalence studies on goat chlamydiosis,The mean seroprevalence values of (19.33%)in India,and (15) reveal that the significance of *C p.abortus*was considered to be significant in causing abortion in15 out of 72 (21%) goat submissions that tested positive was identified by real-time PCR.

(16)reported that the prevalence of *Chlamydophila abortus* infection in goats in China was determined by indirect hemagglutination antibodies were detected in 21 (2.88%) serum samples, in Morocco. (17) explained that an average abortion rate of (10.26%)in does ,the serological analyses revealed the presence of all abortiveinfections, in goats, 21 (91%) to chlamydiosis and17 (74%) to toxoplasmosis, (10).

furthermore (18) showed that abortion from *T. gondii* occur mainly in the last trimester of pregnancy and may occur in does of all ages and in successive pregnancies. The diseases are most common in sexually mature animals and older animal infected but not abort and the variation in the disease occurrence could attribute to environmental condition, climate,type of feeding, grazing and watering, animal density.

The severity of infection according to antibodies titer of *Chlamydophila abortus* and *Toxoplasma gondii* shown in table (3). The study revealed that the percentage of does with history of abortion from *Chlamydia abortus* in low titer 6,66% and 13.33% does in modreat while in pregnant does only one 5.88% doe in moderate and high antibodies titer of *Chlamydia abortus* wharese in nonpregnant two does with low and one with highly antibodies titers(4.44%) and (2.22%) respectively .

In addition the level of antibody titer of does with*Toxoplasma gondii* was 10% and 20% ,40% does in moderate and hightiter of antibodies ,and in pregnant does there are 11.76% ,29.41 and 35.29% does in low ,moderate and high antibodies titer respectively ,while in nonpregnant the percentage of does which havemoderat and high titer of antibodies 1.77%,26.66% against *Toxoplasma gondii* .

Table (3) : interpretation of result of *Chlamydia abortus*and *Toxoplasma gondii* .

Physiological status	*Chlamydia abortus*			*Toxoplasma gondii*		
	25-35 +	35-60 ++	60-100 +++	20-30 +	30-100 ++	100-200 +++
Abortion	2(6.66%)	4(13.33%)	-	3(10%)	6(20%)	12(40%)
Pregnant	-	1(5.88%)	1(5.88%)	2(11.76%)	5(29.41)	6(35.29%)
Nonpregnant	2 (4.44%)	-	1(2.22%)	-	8(17.77%)	12(26.66%)

This study showed that Chlamydiosis in animals specially in goats is important and there is no chlamydial vaccine for goats, since abortion due to *Cp. abortus* remain infected for years, if not for life, and shed the organism, as well as *Cp.abortus* is zoonotic, occasionally causing serious disease in pregnant women so it must tack more attention for public health.even current study reveal goat have antibodies titer aganist toxoplasmosis higher than the *Chlamydiosis* and the Treatment is of limited value. However, it is our

recommendation that perform blood testing on all the adults in the herd.to at least be able to make decisions on the basis of factual data. Also, any cats which have access to the area should also be tested. The blood work will provide with blood antibody titer less than 20 reading indicates that the animal has probably not been exposed to the disease. Any titer level above 100 indicates a probable active disease state. Readings in the low range would be indicative of exposure with immunity possibly sufficient to prevent appearance of disease.

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الخلاصه

صممت الدراسه للكشف عن وجود الاجسام المضاده ل *Chlamydophilaa bortus*و *Toxoplasma gondii* .في الماعز حيث شملت 92من اناث الماعز المحلي بعمر يتراوح بين 1-5سنوات وبحالات فسلجيه مختلفه (30حيوان اجهض سابقا ,17حوامل و45حيوان غير حامل) خلال شهري نيسان و ايارمن سنة 2015 في مركز محافظه البصره / جنوب العراق.تم سحب 5مليلتر عينات دم من الوري الوداجي للتشخيص المصلي باستخدام اختبار الاليزا الغير مباشر.

بينت نتائج الدراسه ان النسبه الكليه للماعز التي اضهرت اجسام مضاده للكلاميديا 11.95% بينما للتوكسابلازما كونداي كانت النسبه الكليه للحيوانات لتي اضهرت اجسام مضاده 60.8% واختلفه النسبه باختلاف الحاله الفسلجيه للحيوان ,ان نسبه الحيوانات المجهضه التي بينت وجود الاجسام المضاده للكلاميديا 6 16.6% بينما 11.76%و8 8.8%في الحيوانات الحوامل والغير حامل على التوالي مع عدم وجود فارق معنوي($P \geq 0.05$) .

, اما نسبه الحيوانات التي تم كشف الاجسام المضاده للتوكسوب 70%و76.47%و48.88%في الحيوانات المجهضه والحوامل والغير حامل على التوالي مع وجود فرق معنوي ($P \leq 0.05$).كّذلك بينت الدراسه ان الحيوانات التي يتراوح اعمارها بين 1-3 سنه تحمل الاجسام المضاده للكلاميديا بنسبه 63.63% بينما للتوكسوبلازما 76.78% اما الحيوانات التي تروح اعمارها 3-5 سنوات كانت 36.36% و23.21% للكلاميديا والتةكسوبلازما على التوالي .

كذلك بينت الدراسه ان نسبه الحيوانات التي اضهرت اصابه متوسطه الشده بالكلاميديا (مستوى الاجسام المضاده)13.33% في الحيوانات المجهضه بينما 5.88%من الحيوانات الحوامل كانت تحمل اعلى مستوى من الاجسام المضاده للكلاميديا .

بينما نسبة الماعز التي اظهرت اعلى مستوى للاجسام المضادة للتوكسوبلازما في الحيوانات المجهضة سابقا 40 % اما الحيوانات االحوامل والغير حوامل 35.29 % و 26.66% على التوالي.

الدراسه الحاليه كشفت وجود الاجسام المضاده للكلاميديا والتوكسوبلازما في الماعز بمختلف الحالات الفسلجيه و يعتبر الماعزمن الحيوانات المنتجه للغذاء وكذلك اهميه الكلاميديا والتوكسوبلازما حيث تعتبر من الامراض المشتركه لذلك يجب ان تاخذ اهميه كبيره لتاثيرها على الصحه العامه .