

RESEARCH ARTICLE

PREVALENCE OF CHLAMYDOPHILA ABORTION AMONGST LOCAL SMALL RUMINANTS IN NINAVAH PROVINCE –IRAQ.

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Abstract

..... The aim of study to estimate the prevalence of Chlamydophila abortus (C. abortus) in small ruminants in Ninavah province, Iraq from September 2012 to September 2013 using C. abortus indirect multispecies ELISA. The study was conducted on 736 sera divided equally between both species (sheep and goats) 368 for each (150 sera from aborted animals, 150 sera from pregnant animals and 68 from newborn animals). The results were revealed that total prevalence of anti-C. abortus antibodies in both species was 4.34%. The prevalence of antibodies were significantly higher in sheep(adults 8.33% and lambs 2.94%) than that of goats (adults 1.33% and kids 1.47%). Asignficantly higher prevalence rate were recorded in aborted ewes (10%) and does (2%) than pregnant ewes(6.66%) and does(0.66%). This is the first report on chlamydophilial antibody survey in goats in Ninavah province, northen of Iraq.

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Introduction:-

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C. abortus is one of the important infectious agent causes of abortion and stillbirth in small ruminants(chlamydophila abortion or enzootic abortion of ewes or enzootic caprine abortion) (1,2).Infected ewes abort in the late stage of pregnancy(3).In does *C. abortus* lead to abortion at any stage of pregnancy(4).Several reports on prevalence of chlamydophilosis in small ruminants worldwide using either complement fixation rate (5) or indirect enzyme linked immunosorbent assay (ELISA)(6,7).Prevalence of chlamydophilosis in small ruminants worldwide using either complement fixation rate (5) or indirect enzyme linked immunosorbent assay (ELISA)(6,7).Prevalence of chlamydophilosis in small ruminants were 11% in Irland (8), 15.1- 94.0% in Germany(9), 9.2-19.0% in Switzerland(10) ,0.86 % in Belgium(11) ,5.38% in Turkey (12) ,25.6% in Iran (13),7.2% in Saudia Arabia (14),21.8% in Jordan(15).In Syria the prevalence were 8.8% and 6.8% in sheep and goats respectively (16). Previous work in the south of Iraq by Dhahir *et al.* ,2008(17) reported 55.9% of aborted ewes had antibodies against *C. abortus* by using passive hemagglutination tests. Al-Dabagh *et al.* 2014(18) found that the prevalence of chlamydophilial antibodies in aborted sheep was 11.2% in Nineveh governorate of Iraq. Fahad and Salman , 2017 (19)detected *C. abortus* antibodies in 11.41% of sheep and goats in AL-Fallugah city ,Iraq.The study was performed to determination the prevalence of *C. abortus* in small ruminants in Ninavah province northen of Iraq using the ID ScreenTMC. *abortus* multispecies indirect ELISA.

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Materials and methods:-

Blood samples:-

A736 blood samples (368 sheep and 368 goats) were collected randomly from ten flocks of local breed animals with history of abortion around Ninavah province in the September 2012 to September 2013. Samples were collected aseptically from jugular vein using vaccutainer tubes from 300 aborted ewes and does (N=150 samples for each species) mostly after 10 – 14 days post abortion , 300 pregnant ewes and does at late stage of pregnancy (N=150 samples for each species) and from 136 lambs and kids aged 7-21 days old (N=68 samples for each species). Sera were separated and stored at -20 ⁰C until use.

Serological examination:-

Serological examination were done using indirect multi species ELISA ID screenTMC. *abortus* kit (ID- Vet innovative Diagnostics, montpeilier, France). According to manufacturer 's instruction. The % of optical density (OD) was calculated as

% OD= Sample OD \setminus Oppc X 100

Oppc = Mean of positive control. Sera were considered to be positive when $OD \ge 60$.

Statistical analysis of chlamydiophila abortion prevalence in small ruminants of different ages ,with abortion and pregnancies were performed by Chi-squared test, using soft of SPSS (statistical analsis system, version 11.5, Chicago, IIIionis). The differences were considered statistically significant if P < 0.05.

Results:-

Out of 736 sera examined , 32 (4.34%) including 27 ewes (7.33%) and 5 does (1.35%) were found positive for *C.abortus* antibodies (Table 1). The seroprevalence of chlamydophilosis in aborted ewes 10% and does 2% were significantly higher than that in pregnant ewes 6.66% and does 0.66% (Tables 2, 3). Astatistically differences were recorded between prevalence rate in adult sheep 8.33% and adult goats 1.33% (Tables 2, 3).

Of the 136 newborns examined , antibodies were found in two lambs (2.94%) and in one kid (1.47%) (Table 4). The significant highest prevalence was found in adult animals (4.83%) than in newborn animals (2.2%) (Table 5).

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Animal species	Number	of	examined	Number	of	positive	Prevalence %
	animals			animals			
Sheep		368			27		7.33*
Goats		368			5		1.35
Total		736			32		4.34

Table 1:-Seroprevalence of Chlamydophila abortion in small ruminants in Ninavah province, Iraq.

*significant difference P < 0.05

Table 2:-Seroprevalence of Chlamydophila abortion in adult sheep in Ninavah province, Iraq.

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Animal species	Number	of	examined	Number	of	positive	Prevalence %
	animals			animals			
Aborted ewes		150			15		10^{*}
Pregnant ewes		150			10		6.66
Total		300			25		8.33

*significant difference P < 0.05

Table 3:-Seroprevalence of Chlamydophila abortion in adult goats in Ninavah province, Iraq.

Animal species	Number	of	examined	Number	of	positive	Prevalence %
	animals			animals			
Aborted does		150			3		2^*
Pregnant does		150			1		0.66
Total		300			4		1.33

*significant difference P < 0.05

Animal species	Number of examined animals	Number of positive animals	Prevalence %
Lambs	68	2	2.94*
Kids	68	1	1.47
Total	136	3	2.2

Table 4:-Seroprevalence of Chlamydophila abortion in newborn (lambs and kids) in Ninavah province, Iraq.

*significant difference P < 0.05

Table 5:-Seroprevalence of Chlamydophila abortion in small ruminants according to the age in Ninavah province ,

 Iraq

Animals	Number of	f examined	Number	of	positive	Prevalence %
	animals		animals			
Adults	e	600		29		4.83*
Newborn	1	136		3		2.2
Total		736		32		4.34

*significant difference P < 0.05

Discussion:-

Chlamydophila abortion (Enzootic ovine and caprine abortion) is one infectious disease characterized by weak neonates and abortion during the last third of gestation (1,2,20,21,22).In present study 4.34% of examined animals (sheep and goats) were found positive to indirect multi species ELISA ID screenTM*C. abortus* kit.These test have been suggested to be highly sensitive and specific for detection of anti *C. abortus* antibodies in small ruminants(5, 8,22,23,24,25).The kit uses a synthetic peptide antigen from a major outer membrane protein (MOMP) specific to *C. abortus* and allows discrimination of infections by *C. pecorum* (26,27,28).

This is the first record of anti-*C. abortus* antibodies in goats in Ninavah province, Iraq. The only other reference to this infection in sheep in Iraq is a recent report by (18) Al-Dabagh *et. al.* (2014) in which antibodies against *C. abortus* were recorded in 11.2% of aborted sheep in Ninavah governorate-Iraq.

In our study, the prevalence of antibodies was significantly higher in sheep (7.33 %) than goats (1.35%). The above result was supported by higher seropositive rate of lambs(2.94%) than kids(1.47%). Similarly higher prevalence in sheep versus goats was recorded by others (29, 30, 31). However, this is not necessarily an indication of higher susceptibility of sheep to Chlamydophilosis as compared to goats, some studies reported no difference in prevalence of *C. abortus* between these two species (13, 15) while still others reported even higher prevalence in goats than in sheep (14, 32, 33).

In current study, the seroprevalence of chlamydophilosis in aborted ewes 10% and does 2% were significantly higher than that in pregnant ewes 6.66% and does 0.66%. The higher rate of seropositivily in our study is in agreement with (12,14, 34).

Abortion storm may occur due to chlamydophilosis which can affect up to around 30% of ewes (1). Its known that susceptibility increases with pregnancy as the stage of gestation increases(1,2).

In non-pregnant animals, the antibody level usually drops rapidly off but there are also studies that report a systemic antibody response even when a period of several years has elapsed from the infection and abortion (35).

The significant highest prevalence was found in adult animals than in newborn animals.Vertical transmission can have occurred from carrier dam to their neonates in two methods either during passage through the birth canal or by congenitally in utero(36)

It could be concluded from this study that chlamydophila abortion is highly endemic in small ruminants in Ninavah province, Iraq.

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