

Study the epidemiology of ticks infected *Camelus dromedaries* in Al-Qadysia city

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Abstract

Tick is one of the most important vectors in animals and this research has made a survey to find out the types of ticks infesting camels in Al-Qadysia city.

Ixodes ticks have been found in two species *Hyalomma* Spp. And *Boophilus* Spp, 218 animals were examined roughly from Iraqi *Camelus dromedaries*, 182 were infested with ratio of 83%.

The research aimed to discover the relationship between tick infestation and animal sex, 75.3% and 24.7% of female and male were infested respectively.

The most infested animals were 5-10 years old and that present 84.6% from examined camels.

Ticks were isolated from different site on the body and regarding to their importance as much as the number of ticks isolated, they are beneath the tail in 182 camels, axillaries and inguinal in 182 camels, udder in female in 40 camels, eyelids in 30 camels and other sites of skin in 20 camels.

The clinical signs were depression, losing of weight and appetite, emaciation, thickness of eyelids and arrhythmia of skin at the sites were ticks isolated from.

دراسة وبائية القراد في الجمال ذات السنام الواحد في محافظة القادسية

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الخلاصة

يعد القراد أحد أهم النواقل للأمراض في الحيوانات، وقد تناول هذا البحث المسح الميداني للكشف عن نوعية القراد المصيبة للإبل في مدينة القادسية. ظهر ان القراد المعزول من الابل وحيدة السنام المصابة هو من نوع *Hyalomma* Spp و *Boophilus* Spp من خلال فحص 218 رأس ابل بشكل عشوائي، وجد ان 182 منها مصابه ونسبة 83%.

تطرق البحث إلى علاقة الإصابة بالجنس، حيث وجد ان نسبة النوق المصابة أكثر مما في الجمال (75.3% و 24.7% على التوالي). تركزت الإصابة في الفئة العمرية 5-10 سنوات ونسبة إصابة 84.6% من الإبل المصابة. تركز القراد في المناطق خلف الذنب (في 182 إصابة)، والمنطقة العجانية (182 إصابة)، وفوق الضرع (في 40 إصابة)، وفوق الجفون (في 30 إصابة) وفي مناطق متفرقة (في 20 إصابة).

ظهرت بعض العلامات السريرية على الإبل المصابة، كالخمول، فقدان الشهية والوزن، الهزال، تقرن جفن العين واحمرار المناطق المعزول منها القراد.

Introduction

Camelus dromedaries can live in areas that are inhospitable, this an important factor in the capacity of humans to survive and make use of these drier regions, camels provide milk, meat, wool, hides, skin, their dung is used for fires, also act a source of prestige for their owners and trade in live camels (1).

The hard ticks play an important vectors of protozoal diseases (*Babesia*, *Thieleria* and *Anaplasma*), bacterial, viral and rickettsial diseases(2,3,4,5,6,7,8,9).

Boophilus known as blue ticks, characterized by short palps and hypostome, anal groove obsolete in female, faint in male and surrounding the anus posteriorly, eye present spiracles circular or oval, one host ticks and most important vectors of *Babesia* spp. and *Anaplasma* (7).

While *Hyalomma* appears long palps and hypostome, spiracles comma shaped in male and triangular in female, two host ticks, vectors of *Babesia* spp., *Thieleria* and Rickettsial infection. *Hyalomma* Spp responsible for ticks toxicosis which cause sweating sickness, and blepharitis, thickened eyelids, blepharospasm, epiphora and chemosis of conjunctiva. The chemical acaricidae use to control the ticks infestation by dipping bath or spray (shower or spot-on), (2, 10, 11).

Zelege & Bekele (12) found that the average of tick load per camel was higher during rainy months than during dry months.

Skin reactions to the ticks bite site, including inflammatory infiltration of tissues, edema, local hyperemia and hemorrhage, and secondary infection may occur (13).

Abdurahman (14) showed that the udder is a predilection site for tick infestation which causes skin and teat lesions.

This paper provides observation on epidemiology of tick infested on *Camelus dromedaries*, which are poorly described in the Iraqi literature.

Material and methods

1. **Animals of the study**: 218 camels of varying age (6 months to 12 years) admitted to Al-Diwanyia abattoir between July till August 2008, were examined for the presence of ticks on the skin of camel by inspection. The animals were from the southern areas of Iraq.
2. **Samples collection**: All body part of each camel slaughter was examined, and samples collected in plastic bags were preserved in 10% formalin and transported to the parasitological laboratory/ College of veterinary medicine / university of Baghdad/ Abu Ghraib.
3. **Ticks classification**: Species classification was made by using the criteria of (15 and 16).
4. **Skin sensitization**: The skin of camel examined for any signs due to infection with ticks.
5. **Age determined**: Age of camel recognized depend on (17).
6. **Statistic Analysis**: Statistically by using T test the data analysis according to (18,19).

Results

A total of 218 slaughtered and live camel were examined. The infestation with hard ticks (*Boophilus Spp* and *Hyalomma Spp*) were 89.3% in the slaughtered camels and 78.3% in live examined camels with total ratio 83%, there are an important statistic differences in ratio of infection in 5% and 1% (Table 1).

Table (1) Ratio of infestation in the examined camel

Type of examined Camel	No. of examined camel	No. of infected camel	Ratio of infection %
Slaughtered	103	92	89.3
Live examined	115	90	78.3
Total	218	182	83

The inspected camels were 56 male and 162 female, 45 and 137 were infested in ratio 24.7% and 75.3% of male and female respectively, there are an important statistic differences in ratio of infection between male and female in 5% and 1% (Table 2).

Table (2) Ratio of infestation between male and female

Sex	No. of examined camels	No. of infected camels	Ratio of infestation %
Male	56	45	24.7
Female	162	137	75.3
Total	218	182	83

Another observation that the correlation with the age, camels divided into three item 0->5, 5->10 and 10 and more years old, infection increase with age in ratio 63%, 86% and 87% respectively, there are an important statistic differences in ratio of infection between age group in 5% and 1% (Table 3).

Table (3) Ratio of infestation according to age

Age/ years	No. of examined camel	No. of infected camel	Ratio of infection %
0-> 5	24	15	63
5-> 10	179	154	86
10 and more	15	13	87
Total	218	182	83

Both Genus of *Boophilus* and *hyalomma* parasitized on all infected camel (Figure 1, 2, 3 and 4).



Figure (1) show dorsal surface of male and female of *Boophilus* Spp. ticks isolate from examined camel



Figure (2) show dorsal surface of female of *Hyalomma* Spp. ticks isolate from examined camel



Figure (3) show dorsal surface of male of *Hyalomma* Spp. ticks isolate from examined camel



Figure (4) show ventral surface of male of *Hyalomma* Spp. ticks isolate from examined camel

Ticks of *Boophilus* Spp. and *Hyalomma* Spp are mostly found beneath the tail, other site may be expected to load ticks axillaries and inguinal, udder of female, eyelids and other site of skin. First and second parts have the large proportion of total amount of ticks being loaded on each infested camels (in 182 cases). Average count of ticks on each infested camels were 27 (5-50), highly average appears in the beneath of tail (35) and the lower average (3) were in the other inspected site of the skin (Table 4).

Table (4) Distribution of ticks according examined body parts

Site of examination	Number of infested camels	Average of ticks per camels	Ratio %
Beneath the base tail	182	35	100
Axillaries and inguinal	182	27	100
Udder of female	40	13	21.9
Eyelids	30	8	16.5
Other sites of skin	20	3	2.7
Total	182	27	-

Heavily infested camel appears dull, inappetite, loss of weight, emaciation and has thickness of infested eyelids; the most obvious signs is the reaction of skin by hyperemia and sometime itching and bleeding.

Discussion

The prevalence rate of hard ticks (*Hyalomma* Spp. And *Boophilus* Spp) is so high (83%) in the examined camels.

Abdurahman (14) revealed tick infestation on the camels was 49.1%, this differences in ratio of infection may be due to examination of udder region only. Hegazy et al. (11) recorded an infection on eyelids of 12 camel from 488 examined one. This low infection may due to the examination of eyelids only.

The highly infestation rate may be due to ignorance in using of drugs, or not effectiveness of used drugs.

The infestation of ticks on female (137) was more than on male (45), and that may be due to the large number of examined female (162) in compressed with male (56), (45) and (137) head of male and female were infect respectively, the infection in female more than male may due to large number of female (162) examined than male (56). Yakhchali (20) and Lees & Miline. (21) showed heavy infestation of ticks in female.

Two genuses of hard tick (*Hyalomma* Spp. and *Boophilus* Spp) Found on the infected camel.

Mugerwa (10) isolated few species of ticks including *Amblyomma*, *Hyalomma* and *Ripicephalus* from dromedary camel in Africa and Asia. While Begum et al. (3) found *Hyalomma dromedaries* in Pakistan. In Iran Yakhchali (20) found *Hyalomma*, *Boophilus* and *Ripicephalus* Spp.

The differences in Spp. May be depend on the variety of weather climate.

Rate of infestation increase with age of infested camels, and this may be due to accumulation nature of infection and increase the suffering of infection.

Ticks found beneath the tail (182), Axillaries and inguinal (182), Udder of female (40), eyelids (30) and other site (20) with average count 27 on each camel.

Yakhchali (20) found ticks on head, ear and neck region, with average distribution 5 ticks per one.

The spreading of ticks in all this part of camel may due to heavy infestation, and do not treated infected camels.

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References

- 1- Dirie, M. F. & Abdurahman, O. (2003). Observations on little known diseases of camels (*Camelus dromedarius*) in the horn of Africa. Rev. Sci. Tech. Off. Int. Epiz.,22(3): 1043-1044.
- 2- Soulsby, E. J. L. (1968). Helminthes, arthropds and protozoa of domesticated animals. 7th Ed., Bailliere, Tindall and Cassell, London.
- 3- Begum, F.; Wisseman, C. L. & Casals, J.(1970). Tick-borne viruses of west Pakistan III. Dera Ghazi Khan virus, Anew Agent isolated from *Hyalomma dromedarii* ticks in the D.G.khan district of west Pakistan. Ame. J. Epid. 92:195 – 196.
- 4- Zhang, J.(1990). Recent developments in the research and control of *Theileria annulata*. Edit. Dolan, T. T.: The international laboratories for research on animal diseases. Kenya.
- 5- Gordon, S. W.; Linthicum, K. J. & Moulton, J.R.(1993). Transmission of Crimean – congo hemorrhagic fever virus in two species of hyalomma ticks from infected adults to confeeding immature forms. Am. J. Trop. Med. Hyg., 48(4): 576-580.
- 6- Reinsert, J. F. & Trips, M.(1993). Disease vector ecology profile. Edit. Robbins, R.G.: Armed forces pest management board, 2ed. U.S.A. PP. 5.
- 7- Urquhart, G. M.; Armour, J.; Duncan, J. L.; Dunn, A. M. & Jennings, F.W.(2003) Veterinary parasitology. 2ed, Blackwell publishing.
- 8- Sang, R.; Onyango, C.; Gachoya, J.; Mabinda, E.; Konongoi, S.; Ofula, V.; Dunster, L.; Okoth,F.; Coldren, R. & Tesh, R. (2006). Tick born Arbovirus surveillance in market livestock, Nairobi, Kenya. Emerging infectious diseases, 12(7):1074 – 1080.

- 9- El-Sadawy, H. A.; El-Shazly, A. & El-Kateeb, R. M. M.(2008). Histopathological studies of hard ticks Hyalomma dromedarii infected of Entomopathogenic nematodes. J. Entomol.; 5(2): 62– 76.
- 10- Mugerwa, E. M.(1981). The camel (Camelus dromedaries): A bibliographical review. International livestock centre for Africa, Ethiopia, PP 4 -11.
- 11- Hegazy, A. A.; Fahmy, L. S.; Aiad, M. A. & Shamaa, A. A.(2008) Eye Affection Among camels in Egypt. (2) pathological studies. Under publishing.
- 12- Zeleke, M. & Bekele, T.(2004) Species of ticks on camels and their seasonal population dynamics in Eastern Ethiopia. Trop. Anim. Health prod. 36 (3): 225-231.
- 13- Zeibig, E. A. (1997). Clinical parasitology: A practical approach. W.B. Saunders Company.
- 14- Abdurahman, O. A.(2006) Udder health and milk quality among camels in the Error valley of eastern Ethiopia. Livestock Research for Rural Development. 18(8): 32-38.
- 15- Soulsby, E. J. L. (1965). Textbook of veterinary clinical parasitology. Oxford: Blackwell.
- 16- Georgi, J. R.(1980). Veterinary parasitology. Philadelphia, Saunders Publishing.
- 17- الوهاب، رياض محمد حسن؛ المراني، وليد خضير وعبد الكريم، محمود عبد الكريم. (1980). إدارة الحيوان. مطابع مؤسسة دار الكتب للطباعة والنشر.
- 18- الراوي، خاشع محمود.(1984). المدخل إلى الإحصاء. مطابع الموصل. مديرية مطبعة الجامعة، صفحة 469.
- 19- المحمد، ثاني محمد؛ الراوي، خاشع محمود؛ يونس، مؤيد احمد والمراني، وليد خضير. (1986). مبادئ الإحصاء. مطابع دار الكتب للطباعة والنشر - جامعة الموصل، صفحة 474.
- 20- Yakhachali, M.(2006). Study on some ecological aspects and prevalence of different species ticks(Acarina:Ixodidae) on cattle, buffalo, and sheep in Oshnavieh suburb. Pajouhes and Sazan degi, 63: 30– 35.
- 21- Lees, A. D. & Miline, A. (1951). The seasonal and diurnal activities of individual sheep ticks (*Ixodes ricinus* L.). Parasitology, 41: 189 – 208.