A Prevalence of abomasal worms in sheep in AL-Kut province abattoir

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Summary

This study is carried out to determine the prevalence of abomasal nematodes of slaughtered sheep in AL-Kut province from the beginning of October 2013 to the March 2014. A total of 450 abomasum from sheep with different ages and sexes were collected and examined for nematodes detection. The results showed that 311 samples of examined sheep abomasal were infected with *Haemonchus contortus. Ostertigia* spp. and *Parabronema skrjabini* and the highest level of prevalence was showed in December (100%) and lowest level was recorded in March (43.47%) and the percentage of infected in young animals (92.35%) compared with adults while the females revealed a high prevalence (75.37%) as compared with males (66.5%). In conclusion, there was a significant effects for the month's ages and sexes on the prevalence of abomasal nematodes parasites.

Keywords: Prevalence, Abomasal nematodes, Small ruminants, Sheep.

Introduction

The phylum Nematoda (roundworms) includes many parasites that are of major socio-economic importance. For instance, grazing ruminants are usually parasitized by one or more nematodes (order Strongylida) which could cause parasitic gastroenteritis (PGE) (1). Livestock production is an important sector of the Iraq agricultural economy, providing a significant contribution to gross domestic and export products and raw materials for industries. Among the parasitic diseases the stomach worm especially the blood sucking Haemonchus contortus causes serious economic losses. It causes a loss of 0.05-0.07 ml blood/ parasite/ day growth, stunted weight loss, decreased meat and milk production anaemia, and finally leads to death of sheep (2). Sheep requiring little inputs. play vital role in rural economy through provision of meat, milk, wool, cash income, accumulating capital, fulfilling cultural obligations, manure and contribute to the national economy through the export of live animals, meat and skins (3). Depending on the number, species and burden of parasitic nematodes and common signs of PGE include reduced weight gain or weight loss, anorexia, diarrhea, reduced production and, in the case of blood-feeding species, anemia and edema, due to the loss of plasma proteins (4).

Materials and Methods

AL-Kut governorate was selected for the present study. Three days every week, regular visit of major slaughter house in AL-kut governorate was made from October 2013 to March 2014. A total of 450 abomasums of sheep from both sexes and different ages were longitudinally incised through the greater curvature placing on the tray and examined for the presence of helminthes in ingesta that attached to the abomasal mucosa. Nematodes were washed in physiological saline immediately after collection, and fixed in 70% alcohol for 24 hours. A hot mixture was made of 70% ethyl alcohol and glycerol (1:1) or 4% hot formalin to straighten the parasites. The worms were kept in this vial partly covered until all ethyl alcohol evaporated, after they were cleared in suitable clearing agents as lacto-phenol (lactic acid 20g, melted phenol crystals 20g , glycerin 40cm^3 dissolved in 20 cm^3 de-ionized water (5 and 6). A statistical analysis using Spss software and Chi-Square test was applied for the statistical analysis of the data. Aim of study was to determine the prevalence of abomasal nematodes of slaughtered sheep.

Results and Discussion

Prevalence of abomasal nematods were collected according to the monthly survey. The total prevalence during month was (69.11) the highest level of prevalence occurred during December 100% while the lowest level was

recorded in March 43.47%. Significant differences (P<0.05) were found among different months (Table, 1). These results where almost identical with (7) who recorded that the total prevalence rate of infection with gastrointestinal nematods was 54% (8). In mid Delta in Egypt it was recorded 10.4% prevalence rate of gastrointestinal nematods (9). In central Ethiopia the prevalence rate was 30.98% (10) which recorded a total prevalence rate and reached 86.9% of abomasal nematods. These differences in results might be due to agro-ecological variations. Time and season of sampling (temperature and moisture). It could be due to the nutrition status of the sampled animals as nutrition affects and immune status of the host (11).

Table, 1: Monthly Prevalence of Sheep Abomasal Nematodes.

Month	No. of examined Sheep abomasal	No. of infected sheep abomasal	Prevalence (%)
October-2013	76	45	59.21
November	73	48	65.75
December	75	75	100
January-2014	80	63	78.75
Feberuary	77	50	64.93
March	69	30	43.47
Total	450	311	69.11
	X^2=21.1	P<0.05	

The relationship of meteriological factors (temperature, humidity and rainfall) and prevalence of abomasal parasites in infected sheep in AL-Kut province were studied. The highest rate of infection was recorded in January (78%) when temperature (14.4-11.7 °C) relative humidity rate (61.0-84.0%) and rainfall (7.1- 54.2 mm), respectively and minimum rate of infection was during March at a mean of temperature (19.25 °C) and relative humidity (55%) and rainfall (38.0 mm) respectively. This study revealed that there was highly significant differences (P<0.05) between prevalence rates, without agreement with (12) which recorded an increased an early mid and late spring in turkey. According to (2) recorded *H. contortus* in Spring and Autumn. *Ostertagia* spp. Increased in Autumn and winter in sheep .The seasonal activity of the parasites differs according to the animal species and ages. Parasites species and geographic location (13). Higher prevalence of abomasal nematods according to sex: Regarding the sex occurrence of helminth parasites for all the nematodes recorded was 75.37% in female and 66.5% in male. Prevalence occurred in December and lower prevalence occured in March. The prevalence of abomasal nematodes was significantly at (P<0.05) among different sex (Table, 2).

Table, 2: Prevalence of abomasal nematodes according to sex of sheep.

Month	Male		Female	
	No. Examine	% No. Infected	No. Examine	% No. Infected
October-2013	48	27(56.25)	28	18(64.28)
November	53	32(60.37)	20	16(80.00)
December	49	49(100)	26	26(100)
January-2014	57	44(77.19)	23	19(82.60)
February	58	36(62.06)	19	14(73.68)
March	51	22(43.13)	18	8(44.44)
Overall	316	210(66.5)	134	101(75.37)
	P<0.05		X^2=18.5	

According to the sex of the sheep during this study, the overall prevalence of abomasal nematodes was higher in females than males in sheep and this might be due to prolactin which sppresses the immunity of the ewe and brings an apparent increase of number of worms by the resumption of development of previously inhibited larval stages, increased rate of establishment of newly acquired larvae, failure in the elimination of existing infection, an inhibited development to maturity of newly aquired larvae increase in the fecundity of egg laying in adult female nematodes,which were repressed in ordinary healthy non lactating ewe (14 - 16). The condition in general brings increased worm egg which out put which is epidemiologically significant not only by contaminating existance of new susceptible population of lambs animals may also are related to in creased susceptibility to new infestation and enhanced prolificacy (17).

Regarding the effect of animal's age on the infection rate, the result revealed that the occurrence of abomasal nematodes in younger (<1 year) was 66.35% compared with 92.35% in young (≥1-2 years) and 31.70% in older animal (≥2 year). The Prevalence of abomasal parasites incidence was significant (P<0.05) among different ages (Table, 3).

Table, 3: Abomasal helminth infection rates according to different age groups.

Age	No. of examined samples	No. of infected samples	% of infected samples
Younger (<1year)	211	140	66.35
Young (≥1-2 years)	157	145	92.35
Old (≥2 years)	82	26	31.70
Total	450	311	69.11
	P<0.05	X^2=28	

In the present study the lower prevalence in adults could be attributed due to the aquired immunology due to repeated exposure to infection as animals get older and the development of acquired resistance. The hypothesis that older animals can acquire immunity against gastrointestinal parasites has been supported experimentally by different studies (18 and 19). Similarly, a number of authors have demonstrated an increased prevalence in younger ages (20 and 21). This could be the result of longer exposition of adult sheep to the parasite eggs and larvae during several grazing seasons

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نسبة الإصابة بطفيليات المعدة الرابعة في الأغنام في مجزره محافظة واسط

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الخلاصه

أجريت الدراسة لتحديد مدى إنتشار ديدان المعدة الرابعة في الأغنام المذبوحة في مجزرة مدينة الكوت من بداية شهر تشرين الأول 2013 إلى نهاية شهر آذار 2014. جمعت 450 منفحة أغنام مختلفة الجنس والعمر وفحصت لمعرفه وجود الديدان الخيطيه. أوضحت نتائج الفحص بأن 311 عينة من مجموع العينات التي فحصت مصابة بـ *Haemonchus contortus* و *Ostertagia spp* و *Parabronema skrjabini* ، وكان الحد الأعلى للإصابة قد سُجل في كانون الاول (100%) أما الأدنى فقد سُجل في آذار حيث بلغت النسبة (43.47%). وكانت نسبة الإصابة في الحيوانات الصغيرة العمر (92.35%) بالمقارنة مع الحيوانات الكبيرة فضلاً عن إيجاد نسبة إصابة عاليه للإناث (75.37%) مقارنة بالذكور. نستنتج من الدراسة أن لعمر الأغنام وجنسها تأثير مهم في إنتشار طفيلي الديدان الخيطية.

الكلمات المفتاحية: الإنتشار، طفيليات المعدة الرابعة، المجترات الصغيرة، الأغنام.