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Hydatidosis In Sheep, A Comparative Study Between License And Unlicensed Abattoirs In Basrah Province.

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ABSTRACT

Echinococcosis or Hydatid disease, is a zoonotic disease caused by *Echinococcus spp.* tapeworms. The number of examined sheep was (271) and number of infected was (114) female and (4) male, in different infected organs with Echinococcosis in a total number of the isolated cysts (301) from female and (9) from male. In unlicense abattoir from (537) an infected sheep was (151) in female sheep and (2) in male, while the total number of isolated cysts was (456) in liver and lung. While, in license abattoir from (281) divided into (257) in female and (24) in male. There was a significant differences between license and unlicense abattoir under $P \leq 0.05$. In unlicense abattoir it is clear that a double problem cause because of this abattoir slaughtered any sick unhealthy sheep with out any veterinary controlling and the offals can reach to any stray animals, like dogs and cats, so, the distribution of parasitic infection in all the city as compared with license abattoir.

Keywords: hydatidosis, sheep, abattoirs

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INTRODUCTION

Echinococcosis or Hydatid disease, is a zoonotic disease caused by *Echinococcus spp.* This cestoda parasite commonly a small tapeworms of carnivores animals, and there are predominantly two species affecting the human population. *Echinococcus granulosus* and *Echinococcus multilocularis* causing Cystic Echinococcosis (CE) [1].

E. granulosus, also called as hydatid worm, or dog tapeworm or hyper tape-worm, is a cyclophyllid cestode that dwells in the small intestine of canids as an adult, but which has important intermediate hosts such as livestock and humans, where it causes (CE), or known as hydatid disease, the adult tapeworm ranges in length from 3 mm to 6 mm and has three proglottids (segments) known as immature, mature and a gravid proglottid, while there was a four suckers on its scolex (head) with a rostellum and hooks [2].

The geographic distribution and animal host species vary by *Echinococcus spp.*, and mixed infections involving more than one species have been reported, in addition, different strains within an *Echinococcus spp.* may have variable morphology, genetic characteristics[3; 4]. And the reason of prevalence the disease is the diversity of helper factors and diversity of intermediate hosts [5; 6]. So, the prevalence of hydatid cysts in the sheep showed a variation in different countries of the world for examples: 10.5% in Morocco 3.6% in Kenya [7] , 26.6% in Turkey [8] and 29.3% in Ethiopia [9]. The reasons for variation among countries may be attributed to a strain difference of *Echinococcus* that exist in a different geographical situation.

In Basrah province, an abattoir can provide a good information about animal diseases that usually have the asymptomatic condition, like, hydatid cyst and different studies showed a different percentage of infection. So, The aim of this study is detecting the distribution of hydatid disease between sheep according to license and unlicense abattoir for complete the epidemiological map with the present and past study.

MATERIALS AND METHODS

This study was conducted on slaughtered sheep in license and un license abattoir at Basrah province from September 2017 to March 2018 with random visit (twice a week) to license abattoir (Basrah abattoir) and un license abattoir in Basrah province to examine the organs of slaughtered sheep, collected the infected organs with hydatid cysts.

Results

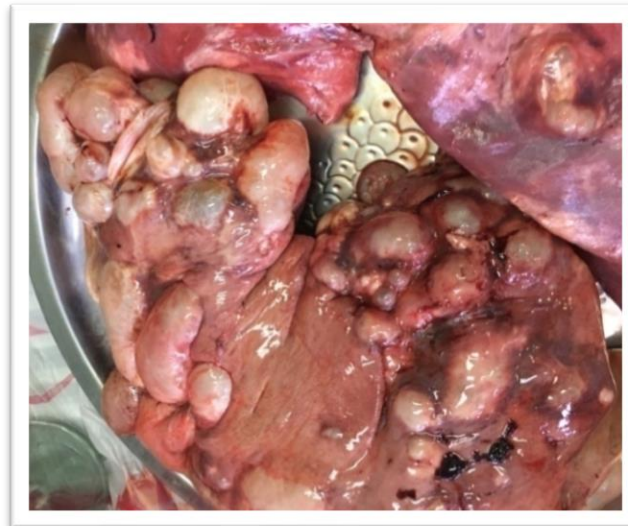
License abattoir:

The number of examined sheep was (271) and the infected was (114) female and (4) male, with different infected organs (Lung and liver) with total number of the isolated cysts (301) in female and (9) in male (Picture 1).

Un license abattoir:

In un license abattoir the number of examined was (537) and infected was (151) in female and (2) in male respectively, while the total number of isolated cysts was (456) with the infected organ liver and lung (Picture 2).

Picture (1): Infected liver with *Echinococcus granulosus*



Picture(2) : Infected with *Echinococcus granulosus* in liver and lung to the same animal(female sheep).

In license abattoir , the total number of examined animals was (281) divided into (257) in females and (24) in males, while, the total number of infected animals were (114) in females and (4) in males. the total number of isolated cysts were (301) from females which are divided in to (153) in liver and (148) in lung and (9) from males which are divided in to (3) in liver and 6 in lung .

The total percentage of infection was between (44.35%) for females and (16.66%) for males. The statistical analysis showed that were a significant differences between the percentage of infection in sheep males and females ($P \leq 0.05$)(0.033), also the number of infection between female sheep showed a significant differences depending on month study ($p \leq 0.05$) (0.037) (Table 1)

By the other hand , the statistical analysis of the intensity of infection showed a significant differences in females sheep (2.640). the statistical analysis of location of cysts in sheep in liver (0.049) and in lung (0.040) and the statistical analysis of number of cysts in female sheep ($p \leq 0.05$)(0.031), finally , the statistical analysis of number of infection show a significant differences (0.045) (Table 2).

Table (1): The total number of examined and infected sheep with *Echinococcus*

Month	No. of Exam		No. of Inf.		Percentage of Inf. %	
	Sheep		Sheep		Sheep	
	Male	Female	Male	Female	Male	Female
September	8	24	4	13	50	54.1
October	5	24	0	17	0	70.8
November	0	20	0	14	0	70
December	2	65	0	25	0	38.4
January	0	21	0	10	0	47.6
February	6	45	0	17	0	37.7
March	3	58	0	18	0	31.0
Total	24	257	4	114	16.66	44.35

No. of Inf. (female, Sheep): $P \leq 0.05$, Sig= 0.037.

Percentage of Inf. % (female, Sheep): $P \leq 0.05$, Sig= 0.033.

Table (2): The total number of infected sheep with *Echinococcus* and number of cysts , location of cysts and Intensity of infection

Month	No. of Inf.		No. of cyst		Location				Intensity of infection	
	male	female	male	female	Lung		liver		male	female
					male	female	male	female		
September	4	13	9	17	6	3	3	14	2.25	1.3
October	0	17	0	53	0	25	0	27	0	3.11
November	0	14	0	34	0	13	0	21	0	2.42
December	0	25	0	73	0	39	0	34	0	2.92
January	0	10	0	31	0	13	0	18	0	3.1
February	0	17	0	42	0	24	0	18	0	2.47
March	0	18	0	51	0	31	0	20	0	2.83
Total	4	114	9	301	6	148	3	152	2.25	2.640

No. of Inf. (female): $P \leq 0.05$, Sig= 0.045.
 No. of cyst(female): $P \leq 0.05$, Sig= 0.031.
 Location, Lung (female): $P \leq 0.05$, Sig= 0.040.
 Location, liver (female): $P \leq 0.05$, Sig= 0.049.
 Intensity of Inf. (female): $P \leq 0.05$, Sig= 0.049.

In unlicense abattoir , the total number of the examined animals were (476) in females and (61) in males. The total number of infected animals were (151) in females and (0) in males. the total number of isolated cysts were 456 from females which are divided in to (266) in liver and (194) in lung .

The total percentage of infection in sheep was (31.72%) for females and (15.38%) for males. The statistical analysis results showed there were a significant differences between the percentage of infection in sheep males and females ($P \leq 0.05$) (0.048), also the number of infection of female sheep showed a significant differences ($p \leq 0.05$) (0.031) (Table 3)

By the other hand , the statistical analysis of the intensity of infection showed a significant differences in females sheep (0.048) and the statistical analysis of location of cysts in sheep in liver (0.040) and in lung (0.028). The statistical analysis of number of cysts in female sheep ($p \leq 0.05$)(0.035), and , the statistical analysis of number of infection show a significant differences (0.040) (Table 4).

Table (3): The total number of examined and number of infection sheep with *Echinococcus* with percentage of infection

Month	No. of Exam		No. of Inf.		Percentage of Inf. %	
	Sheep		Sheep		Sheep	
	Male	Female	Male	Female	Male	Female
September	13	43	2	15	15.38	34.8
October	6	85	0	25	0	29.4
November	17	102	0	31	0	30.3
December	3	74	0	23	0	31.08
January	0	45	0	16	0	35.55
February	6	85	0	27	0	31.7
March	16	42	0	14	0	33.3
Total	61	476	2	151	15.38	31.72

No. of Inf. (female, Sheep): $P \leq 0.05$, Sig= 0.031.
 Percentage of Inf. %(female, Sheep): $P \leq 0.05$, Sig= 0.048.

Table (4): The total number of infected sheep with Echinococcosis and number of cysts , location of cysts and Intensity of infection

month	No. of Inf.		No. of cyst		Location				Intensity of infection	
	male	female	male	female	Lung		liver		male	female
					male	female	male	female		
September	2	15	5	45	3	19	2	26	2.5	3
October	0	25	0	87	0	32	0	55	0	3.48
November	0	31	0	97	0	45	0	52	0	3.1
December	0	23	0	73	0	23	0	50	0	3.17
January	0	16	0	31	0	13	0	18	0	1.9
February	0	27	0	67	0	35	0	32	0	2.48
March	0	14	0	56	0	24	0	31	0	4
Total	2	151	5	456	3	191	2	264	2.5	3.01

No. of Inf. (female): $P \leq 0.05$, Sig= 0.040.
 No. of cyst(female): $P \leq 0.05$, Sig= 0.035.
 Location, Lung (female): $P \leq 0.05$, Sig= 0.028.
 Location, liver (female): $P \leq 0.05$, Sig= 0.040.
 Intensity of Inf. (female): $P \leq 0.05$, Sig= 0.048.

DISCUSSION

This study showed a different results of incidence and prevalence of *E. granulosus* in sheep depending on the type of abattoir (license and unlicense), in license abattoir the total of percentage of infection sheep was (61.01%) , while in un license the total of percentage of infection sheep was (47.1) with a significant differences between them. On the other hand the intensity of infection was (4.89 and 5.51) in license and unlicense abattoir respectively.

This result showed that in unlicense abattoir with a high pathogenic factor and can distribution any infection to the environment because of a clear contact with any stray, wild animals.

The total of percentage of infection in the study was agree with [8; 9] while in other studies the prevalence was low as compared with other studies around the world, 10.5% in Morocco 3.6% in Kenya [7], in Iran the percentage of infection was 15.5% [10].

[11; 12] who reported a prevalence of 1.5%, 5.9%, and 13.7% in North, Middle and South of Iraq. While, [13] recorded that the percentage of infection with hydatidosis between slaughtered sheep in Basrah city (27%). Generally, it is clear to be that the percentage of infection with hydatid cyst between slaughtered sheep were varied from year to year , time to time, region to region, Why? because of different environments and biological factors, but the fact was hydatid cyst cause a big problem health in both human and animals in all the world. Furthermore, it must be stopped all unlicense abattoirs all over the city and country because this without any veterinary controlling and could be a source of parasitic infection and distribution any infection to

the soil, grass, play gardens all over the city, even that, all sick, unhealthy or dead animals bring to this type of abattoir for slaughtered and this is un legal.

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