



## Distribution of liver and lung helminthic infections among slaughtered animals in Kirkuk abattoir

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### Abstract

The aim of this study was to determine the distribution rate of some parasitic helminthes in liver and lung among slaughtered ruminants and demonstrated seasonal factor effect on helminthic infections. Across section study was conducted in domestic ruminant to determine the prevalence and risk factor of helminthiasis, a total of 199738 domestic ruminants slaughtered in Kirkuk abattoirs during 2009-2011. The study revealed that the overall prevalence of helminthiasis in domestic ruminant was 5048(2.5%), the species level prevalence of helminthiasis was 1379 (10.2%) and 25(6.3%) in cattle and buffaloes, in sheep and goat 3138(2.3%) and 306 (1.6%) respectively and lower rate of the infection in calves was 200(0.5%). Hydatid cyst was the most prevalent parasite 3325(1.6%) followed by liver flukes 1242(0.6%) then lung worms 481(0.2%). The highest rate of infection with hydatid cyst was in cattle and buffalo 744(5.5%), 9(2.2%) respectively followed in sheep and goat were 2174(1.6%) and 219(1.1%). Liver flukes investigation were higher in cattle and buffalo 436 (3.2%), 9(2.2%) respectively then in sheep, goat 718(0.5%) and 64(0.3%), while lung worms were higher infection in buffalo and cattle 7(1.7%) and 199 (1.4%) followed by sheep and goat 246(0.1%) and 23(0.1%) respectively. According to seasonal variation the inflectional rate of helminthiasis in summer was indicated higher percentage of helminthes 1468(29%) and in autumn 1385(27.4%) followed by in winter 1254(24.8%) then in spring 943 (18.6%). Hydatid cyst showed highly percentage in summer 1025(30.8%) and autumn 889 (26.7%) then in winter 818(24.6%) and spring was 593 (17.8%). While infection rate of liver flukes were higher in autumn and summer 366(29.4%), 359(28.9%) respectively then in winter 289(23.2%) in spring 228(18.3%), another parasitic type lung worms were higher in winter 146 (30.3%) followed by infection in autumn 130(27%) and spring 122(25.3%) then in summer 84(17.4%).

Key words: Parasite, Season, Ruminant, Abattoirs, Kirkuk.

### Introduction

Parasitic disease in domestic ruminants were directly effect in term of lower productivity (Sykes, 1994) reduce milk, meat. More than 90% of the respondent explained that four to six times treatment was given against helminthiasis which costs about 50-60 birr per animal per year, the reasons indicated by the interviewed people for the frequent applications of anthelmintics were due to animals could not effectively recover from suspected infection. During the control and treatment of ruminant's helminthiasis species, age of animal and agroecology should be considered as

potential risk factors for the occurrence of the disease (Dagnachew *et.al.*, 2011; Al-Abbasy *et.al.*, 1980). Geographical location and seasonal variation had highly effect on occurrence and percentage of parasitic helminthes among slaughtered ruminants (Khalil, 2011). Domestic animals are commonly effect with hydatid cyst, cysticercus, Fasciola hepatica, Dictyocaulus filarial (Amr *et.al.*, 2005) causing considerable economic losses in form of mortality and partial or complete condemnation of the carcasses at the slaughter houses and importance of the disease particularly in rural where more closes association between

man and domestic animal (Ghandour *et.al.*, 1989; kobir *et.al.*, 2010).

Frequent pathological lesions in the lung, heart, liver, intestine and kidney control of zoonotic disease communicable from animal to men under condition is an important task of veterinarian (Slifco *et.al.*, 2000; Sykes, 1994). hydatid cyst is caused by *Echinococcus granulizes* which is often manifested by slowly cystic mass mostly in liver and lung and considered an important public health and the domestic ruminant are the major reservoir of this disease specially sheep and cattle. The aim of this study was to determined the distribution rate of some parasitic helminthes in liver and lung among slaughtered ruminants and demonstrate seasonal factor effect on helminthic infections.

### Materials and Methods

Across section (retrospective study) was conducted in domestic ruminant to determine the prevalence and risk factor of helminthiasis a total of 199738 domestic ruminants slaughtered in Kirkuk abattoirs (sheep 131042, goat 18987, calve35844 cattle13473 and buffaloes 392) for period for three years from January 2009 to December 2011.

Antemortem inspection were conducted on animal to record any signs of disease and abnormalities, general behavior of animal and nutritional status during postmortem inspection for liver, Lung, heart were inspected by visualization, palpation and making systemic incisions where necessary for abnormalities to detected percent of pathological lesion according to animal species to detect incidence on hydatid cyst, liver flukes and lung worms. The different parasite species were identified according to seasonal variation during year.

### Results and Discussion

During the period of January 2009- December 2011 were199738 domestic ruminants were examined in Kirkuk abattoir to the lung and liver of sheep 131042, goat 18987, calve 35844 cattle13473 and buffaloes 392 were indicated Hydatid cyst recorded highly percentage was3325(1.6%) followed by liver flukes 1242 (0.6%) then lung worms 481(0.2%). Helminthes infection in sheep 3138(2.3%), in goat 306 (1.6%), calve 156(0.8%), in cattle and buffaloes 1379(10),

25(6.3%) respectively table (1).

The highest rate of infection with hydatid cyst was in cattle and buffalo 744(5.5%), 9(2.2%) respectively followed in sheep and goat were 2174(1.6%) and219 (1.1%) then in calve179 (0.4%). liver flukes investigation were higher in cattle and buffloe436 (3.2%), 9(2.2%) respectively then in sheep, goat and calve 718(0.5%),64(0.3%) and 15(0.04%) while lung worm was higher infection in buffalo and cattle 7(1.7%) and 199 (1.4%) followed by sheep and goat 246(0.1%) 23(0.1%) and respectively and the lower percentage was in calve 6 (0.01%) figure (1).

Helminthiasis rate in domestic ruminant was differ according to seasonal variation, in summer indicate higher percentage of helminthes 1468(29%) and in autumn 1385(27.4%) followed by in winter 1254(24.8%) and lower percentage showed in spring 943(18.6%) (Table 2). Hydatid cyst showed highly percentage in summer 1025(30.8%) and autumn 889(26.7%) then in winter 818(24.6%) and spring was593 (17.8%). While infection rate of liver fluk was higher in autumn and summer 366(29.4%), 359(28.9%) respectively then in winter 289(23.2%) in spring 228(18.3%) another parasitic type lung worm was higher in winter146 (30.3%) followed by infection in autumn 130(27%) and spring 122(25.3%) then in summer 84(17.4%) (Figure 2).

Helminthiasis was found prevalent throughout the year but with variable levels of infection in different host and seasonal factor. The study showed helminthiasis rate was highest in cattle and buffaloes 10.2%% and 6.3% than in sheep and goat 2.3%and1.6% respectively and this might be due to young age of sheep and goat slaughtered in abattoirs compares to cattle, the lower percentage of helminthes infection in calve (0.5%) which might be due to early age and less number of calve slaughtered in Kirkuk abattoirs.

The rate of hydatid cyst in the study was highest in cattle and buffaloes (5.5%) and (2.2%) followed by sheep (1.6%) and goats (1.1%), while (Al-Abbasy *et.al.*, 1980) reported hydatid cyst in sheep and goat more than in cattle and others study record results about abattoirs disease and found the hydatidosis was highest percentage among other disease (Sykes, 1994) and (kobir *et.al.*, 2010) record prevalence of hydatidosis in livestock

slaughtered was higher in sheep compare to cattle and this could result in the spread of this zoonotic infection to the local dogs consequently human and animal infection with intermediate stage may arise. Liver flukes record in this study with lower percentage 0.6% than hydatid cyst in all slaughtered ruminants, the lower rate of intermediated hosts cause lower percentage of liver flukes, the higher percentage of liver flukes were higher in cattle and buffaloes 3.2%, 2.2% than in sheep and goat 0.5% and 0.4% and this is agreement with (Khalil, 2011) who found liver flukes incidence in cattle 0.9% was higher than sheep 0.6% and goat 0.3% and this difference in the infection rate related to climatic environmental and geographical variation and time of the study. The highest rate of lung worm was also in cattle followed by sheep and goat, the present findings are agreement with other (Rinaldi *et.al.*, 2008; kobir *et.al.*, 2010) lung worms infection effect negative in the productivity of animal which cause bronchitis and pneumonia and increase in winter.

Helminthiasis in the study found during all

seasons with variation in record rate of infection among domestic ruminant slaughtered in Kirkuk abattoirs. Hydatid cyst record higher percentage among summer 30.8% followed by autumn 26.7% then in winter 24.6%. Liver flukes record higher percentage during autumn and summer 29.4% and 28.5%. Lung worm was appearing highest percentage at winter 30.3% during autumn 27%. (Raji and Salami, 2010) detect that monthly distribution of pathologic lesion was significant different at specific period of the time recorded highly percentage at summer in cattle others found significant seasonal different of certain disease between ruminant animal recorded highly percentage at winter in sheep (Daryani *et.al.*, 2006) while (Khalil, 2011) record liver flukes in cattle, sheep and goat were distributed during all seasons with their rate being high during autumn and less percentage during summer and spring this difference related to sample size and period of study and climatic environmental effect on growth and distribution of parasite, (Khalil, 2011) record lung worms rate being high during winter and less rate during summer in domestic ruminants.

Table (1): Incidence of some helminthes infections among slaughtered ruminant in Kirkuk abattoir in from 2009-2011.

Ruminants	No.	Hydatid cyst	Liver flukes	Lung worms	Total
Sheep	131042	2174(1.6%)	718(0.5%)	246(0.1%)	3138(2.3%)
Goat	18987	219(1.1%)	64(0.3%)	23(0.1%)	306(1.6%)
Calve	35844	179(0.4%)	15(0.04%)	6(0.01%)	200(0.5%)
Cattle	13473	744(5.5%)	436(3.2%)	199(1.4%)	1379(10.2%)
Buffaloes	392	9(2.2%)	9(2.2%)	7(1.7%)	25(6.3%)
Total	199738	3325(1.6%)	1242(0.6%)	481(0.2%)	5048(2.5%)

Table (2): Distribution of helminthiasis according to seasonal variation.

Season	Winter	Spring	Summer	Autumn	Total
Hydatid cyst	818(24.6%)	593(17.8%)	1025(30.8%)	889(26.7%)	3325
Liver flukes	289(23.2%)	228(18.3%)	359(28.9%)	366(29.4%)	1242
Lung worms	146(30.3%)	122(25.3%)	84(17.4%)	130(27%)	481
Total	1254(24.8%)	943(18.6%)	1468(29.5%)	1385(27.4%)	5048

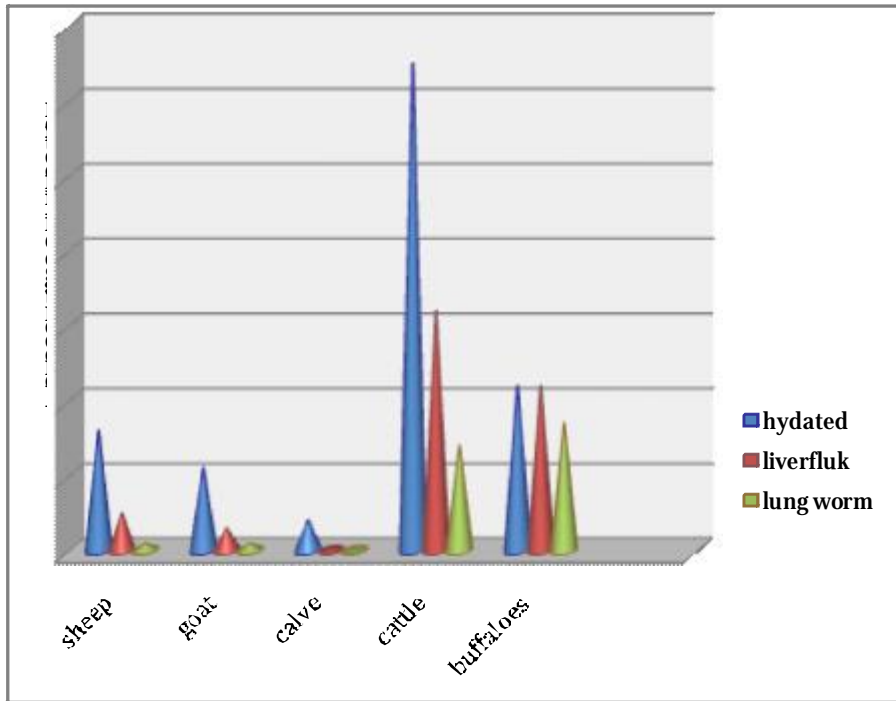


Figure (1) Incidence of some helminthes infections among slaughtered ruminants in Kirkuk abattoir from 2009-2011.

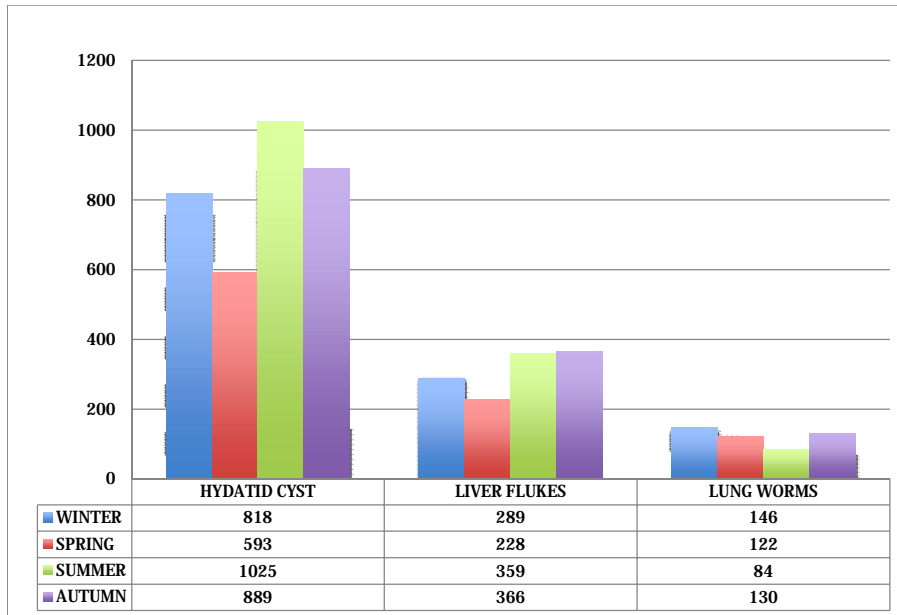


Figure (2) Distribution of helminthes according to seasons of year.

### Conclusions

The highly percentage of pathologic lesion was observed in cattle and buffaloes more than in sheep and goat. Hydatid cyst was the most pathological lesions in slaughtered ruminants followed by liver flukes then lung worms. Regarding the distribution of infection according to season, it shown that the helminthic infections were distributed during all season, the hydatid cyst was mostly seen in summer followed by autumn and less during spring while liver flukes record highest percentage during autumn and less during spring finally lung worms mostly appear during winter and less during summer.

### Recommendations

Improve hygienic conditions at the slaughter houses and quarantine regulations should be address the regulation and careful inspection of live animals to avoid the introduction of exotic parasite, further studies on the health economic importance of helminthiasis and activity of anthelmintics should be conducted to control of these disease.

### References

- Al-Abbasy, S.N., Altaif K.I., Jalad A.K. and Al-Saquer I.M., 1980. The prevalence of hydatid cyst in slaughtered animal in Iraq. *Ann. Trop. Med. Parasitol.*, 74:185-187.
- Amr, Z., Rifal L. and Al-Melhim W., 2005. An abattoir survey of liver and lung helminthic infections in local and imported sheep in Jordan. *Turk. J. Vet. Anim. Sci.*, 29(1):1-2.
- Khalil, K.Z., 2011. Prevalence of liver fluke and lung worm among slaughtered animal in Al-Najaf abattoir. *AL-Qadisiya J. Vet. Med.* 10:11-17.
- Daryani, A., Alaei R., Arab R., Sharif M., Dehghan M.H. and Ziaei H., 2006. Prevalence of liver flukes infections in slaughtered animals in Ardabil province. *J. Anim. Vet. Adv.*, 5: 408-411.
- Dagnachew, S., Amamute A. and Temesgen W., 2011. Epidemiology of gastrointestinal helminthiasis of small ruminants in selected sites of North Gondar zone, Northwest Ethiopia. *Ethiop. Vet. J.*, 15:57-68.
- Ghandour, A.M., Tahir M.O. and Shalaby I.M., 1989. A comparative study of the prevalence of some parasitic in animal slaughtered in Jeddah abattoirs. *J. King Saudi Arab.*, 1:87-94.

- Kobir, H.B., Eliyas M., Hahen A.M. and Miazi O.F., 2010. Prevalence of zoonotic parasitic disease of domestic animals in different abattoirs of comilla and brahman baria region in Bangladesh University. *J. Zool. Rajshahi.*, 28:21-25.
- Raji, M.A. and Salami S.O., 2010. Lesions observe in slaughtered cattle in Zaria abattoir. *J. clinic. Pathol. forensic med.*, 1. 2:9-12,
- Rinaldi, L., Maurelli M.P., Veneziano V., Capuano F., Perugini A.G., and Cringol S., 2008. The role of cattle in the epidemiology in an endemic area of souther Italy. *Parasitol. Res.*, 103:175-179.
- Slifco, T.R., Smith H.V. and Rose J.B., 2000. Emerging parasite zoonosis associated with water and food. *Int. J. Parasitol. St. Petersburg, USA*1988.
- Sykes, A.R., 1994. Parasitism and production in farm ruminant's. *Anim. Prod.*, 59: 155-172.