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Prevalence of Parasitic Helminthes among Slaughtered Animals in Slaughterhouses in Taiz, Yemen

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A B S T R A C T

This study was carried out in 2012. It aimed at detecting the prevalence of parasitic helminthes infections among goats, sheep, cattle and camels slaughtered in Slaughterhouses in Taiz, Yemen. The number of slaughtered ruminants was 636 goats, 47 sheep, 311 cattle, and 12 camels. The highest prevalence rate of hydatid cysts was found in camels (41.66%) followed by cattle (33.76%) followed by goats (6.13%).There was no infection with hydatid cysts in sheep. Also, the highest rate of infection with liver flukes (*Fasciola* sp.) was observed in cattle (5.47%), goats (3.14%). No liver fluke infection was observed in sheep and camels. Whereas, the prevalence rate of *Taenia* sp. infection was higher in goats (22.8%) than that in sheep (14.90%); no infections were detected in both cattle and camels. There was a variance in the rate of helminthes infection during 4 months study period and also, among different sexes and age groups. This result therefore calls for an improved disease control and adequate sanitation program for slaughtered animals in the study area.

Introduction

Animals are considered to be the main source of some epidemic diseases in Yemen. They are the main source of protein as well. Parasitism is one of the main constraints limiting livestock productions. Mortality of animals from parasitic diseases may not be alarming at times but their direct effects in their productions (Baker and Muller, 1988). Control of diseases communicable from animals to men under natural conditions is an important task of a Veterinarian. There are the most important zoonotic parasitic diseases such as Hydatidosis, Gardiasisis, Fascioliasis, Settariosis, Trichinellosis, Ascariosis, and Schistosomiasis (Schwabe, 1984).

The importance of these diseases as a public health hazard, particularly in rural areas where a close association exists between man and domestic animal is well established. Supervision of the Slaughterhouses and organization of hygienic precautions concerning food of animal origin are unsatisfactory in Taiz. Many Slaughterhouses and village markets, where animals are slaughtered have not Veterinary supervision and have become the places where dogs congregate and often waste products of animals are kept in the waste heaps from which dogs became infected by hydatidosis. Cattle, camel, sheep and goats are the most important livestock of farmers in Taiz. They supply meat and milk to meet the partial requirement of protein of high caloric value for the population. The seminar on manpower organized by Food and Agriculture Organization (FAO, 1965) revealed the sufferings of the people of this region due to deficiency of vital food nutrients. Transmission zoonotic agent could be through indirect contact with animal secretion and excretion, infected water and food through direct contact with animal infected (Lorenzini *et al.,* 2006).

It gets such a significant attention that prevention of hydatidosis is one of the dynamic programs of World Health Organization in the field of zoonotic disorders. But these animals are commonly affected with hydatid cyst, cysticercus and coenurus, causing considerable economic losses in the form of mortality, stunted growth, unthriftiness and partial or complete condemnations of the carcasses at the Slaughterhouses (Gemmell, 1990). Increasing recognition of the burden of human fascioliasis has occurred; it is now recognised as an emerging zoonosis by the WHO (Slifco *et al.,* 2000). The zoonosis has a serious impact on both public health & animal health. The common methods of transmission animal diseases to human beings include direct contact, through infected fomites or ingestion of infected milk and meat.

It is known that many zoonotic diseases like Echinococcosis, Amphistomiasis, Trichinellosis. can be transmitted from animal to human body. Indiscriminate slaughter of food animals sale of meat without ante-mortem and post-mortem examinations by a qualified Veterinarian is not only jeopardize human health but also wide spread environmental pollution. In Taiz governorate the Hydatidosis spread was studied by (Al-Selwi *et al.,* 2010) and they found high level Hydatid cysts infection of cows, goats and sheep. This disease infected many organs such as liver, lung, and other organs.

The aim of this study was to detect the prevalence of parasitic helminthes infections among slaughtered animals in Slaughterhouses in Taiz, Yemen.

Materials and Methods

Study area and cases

This study was conducted for the period 2-5/2012 in Taiz, located in the west of Yemen, where spreading of parasitic helminthes in slaughtered animals in Slaughterhouses in Taiz, Yemen. The animals were infected by parasitic helminthes combined from three slaughter (Al-Ashbatt, Al-Mokha and Central slaughter house more specimens). It is very important to note that the practical work for this study was conducted during the period of 2 February 2012 to May 2012 in 9 PM – 4 AM.

Autopsy

In cows, sheep, camels and goats, cyst and parasite were shown in livers, lungs, intestinal and other sites beyond slay in

Central slaughter and rarely Al-Ashbute Slaughter that taken from it.

Manual work

Autopsy taken off thin cyst and parasite was fixated in 10% formalin and examined in the laboratory of parasitology Department. The site of cyst, size, their location and type were noted (Bin Kabir *et al.,* 2010). The cyst fluid was excreted from each cyst and decanted in a test tube for 1 ml from each of germinal layer cyst, then centrifugated the samples more than onetime respectively, after that the specimen examined under the microscope to observe its fertility, also to counted and monitor development of protoscolices and staining it.

Direct smear

One drop from hydatid cyst fluid on slide after that it was scanned under the microscope 10x that used to certain from found of scolex and second method determinant of sterilized or fertilized cyst after looking to (shape cyst).

Staining by Gemsa stain

After direct smear fixed the slide and add 70%. Methanol thin lead to dry beyond Staining by Gemsastain at 5minutes thin wash by distill water drop to drop after that examination 100 x**.**

Staining /Eosin Stain

Take of the drops of sample in the slid lead to dry thin fixed the alcohol 70% lead to dry thin add the eosin stain at 15 minutes thin wash the distill water drop to drop and drythin examination the microscopic100x.

Results and Discussion

The results in this study revealed that the prevalence of Parasitic Helminthes among Slaughtered Animals in Slaughterhouses in Taiz, Yemen, during the period from February to May 2012. Table 1 showed that the total number of cattle, goats, sheep and camels were 311, 636, 47 and 12 respectively. It is also shown that the prevalence of parasitic diseases encountered in slaughtered animals.

Out of 1006 slaughtered animals 149 (14, 81%), 37 (3.67%) and 152 (15, 1%) ruminants slaughtered were found to be infected with Hydatidosis, Fascioliasis and Taeniasis respectively. The prevalence of hydatidosis was highest in camels (41, 66%) followed by cattle (33, 76%) and goats (6, 13%).There was no infection with hydatid cysts in sheep. In addition to the results showed the prevalence of fascioliasis was highest in cattle (5.47%) then g goats (3.14%). No liver fluke infection was observed in sheep and camels. Out of 1006 slaughtered animals 145 (14.41%), 7 (0. 69%) were found to be infectedwith Taeniasis, while no infected inboth cattle and camels.

Table 2 illustrated the sex related distribution of parasitic diseases. The prevalence of all disease condition was distinctly higher in male animals except higher in female in cattle.Age related distribution of parasitic helminthes among slaughtered animals is shown in table 3. The results showed that the older animals were highly infected.

Table 4 revealed that the prevalence of parasitic diseases relation in rural and importer which were in rural more than importer.

Zoonotic diseases are one of the most important diseases that distribute in the most area of the world. It's endemic in Yemen and another countries, and makes abundant economics damage.

The parasitic helminthes diseases

epidemiology depends on the equilibrium between the infection rate and the host resistance. Accordingly in both temperate and tropical areas, young animals are predominately liable to develop heavy infection. while, there is a marked difference in the seasonal incidence of the disease between those tropical areas in which the climate includes a treatment area, dry season and those in which the dry season is short or absent (Kadir, Rasheed, 2008).

Table.1 Prevalence (%) of parasitic diseases encountered in slaughtered animals.

Disease	Cattle n=311	Goats n=636	Sheep n=47	Camels n=12
Hydatidosis	105 (33.76%)	39 (6.13%)	00000	5 41.66%
Fascioliasis	17 (5.47%)	20 (3.14%)	000000	00000
Taeniasis	000000	145 (22.80%)	7 (14.90%)	000000
Necrosis	94 (30.22%)	30 (4.71%)	000000	4 (33.33%)
Necrosis + Hydatidosis	44 (14.14%)	2 (0.13%)	00000	4 (33.33%)
Taeniasis + Hydatidosis	00000	6 (0.94%)	00000	00000
Taeniasis+necrosis	00000	11 (1.72%)	0000	00000

n= Number of animals examined,
( )=Number of infected animals

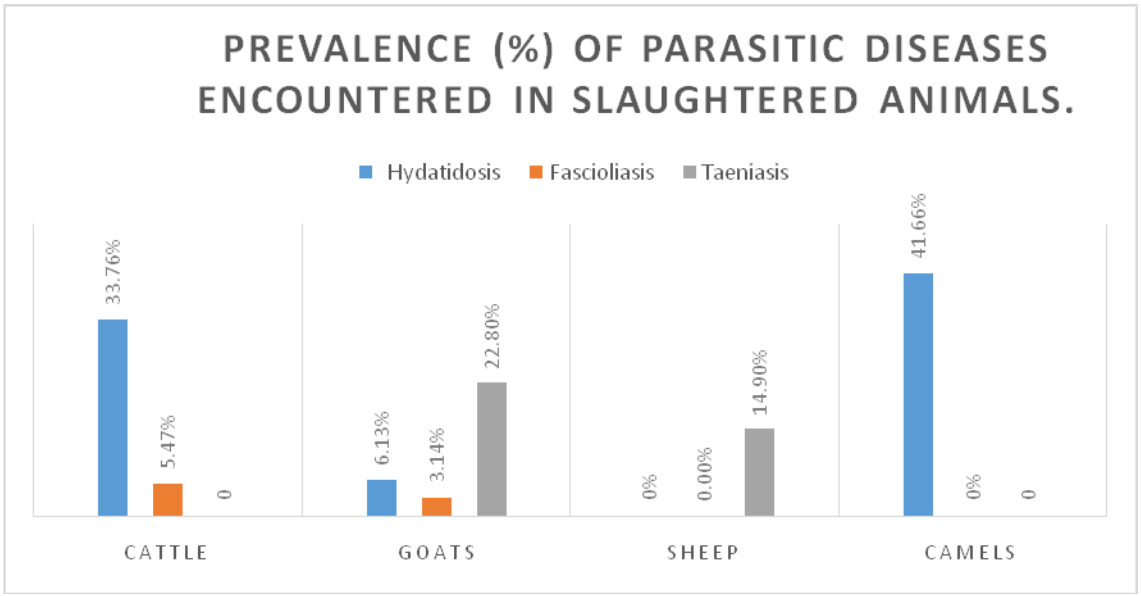

Table.2 Prevalence of parasitic diseases in several species relation to Sex.

Disease	Species of Slaughtered animals							
	Cattle		Goats		Sheep		Camels	
	M n=79	F n=232	M n=509	F n=127	M n=42	F n=5	M n=11	F n= 1
Hydatidosis	12	93	39	000	000	000	4	00 00
Fascioliasis	2	15	16	2	000	000	00	00 00
Taeniasis	2	000	127	18	6	1	00	00 00
Necrosis	13	81	15	15	000	000	5	00 00
Necrosis + Hydatidosis	6	38	2	000	000	000	4	00 00

M= Male; F= Female

Table.3 Prevalence of parasitic diseases relation to Age

Disease	Age Slaughtered animals							
	Cattle		Goats		Sheep		Camels	
	≤4y	>4y	≤5m	>5m	≤5m	>5m	6-10 y	5y
Hydatidosis	10	3	18	21	00	00	5	00
Fascioliasis	7	10	4	16	00	00	00	00
Taeniasis	1	1	23	122	00	7	00	00
Necrosis	39	66	9	21	00	00	4	00
Necrosis + Hydatidosis	20	24	00	2	00	00	4	00
Taeniasis + Hydatidosis	00	00	3	3	00	00	00	00
Taeniasis+necrosis	00	00	3	8	00	00	00	00

Y= year; M= month

Table.4 Prevalence of parasitic diseases relation in Rural and Importer

Disease	Cattle		Goats	Sheep	Camels
	Rural	Importer	Rural	Rural	Rural
Hydatidosis	93	12	38	00	5
Fascioliasis	15	2	20	00	00
Taeniasis	00	0	141	8	00
Necrosis	82	12	30	00	4
Necrosis + Hydatidosis	38	6	2	00	4
Taeniasis+ Hydatidosis	00	00	6	00	00
Taeniasis+necrosis	00	00	11	00	00

Fig.1 protoscolesis

Fig.2 containe of Hydated cyst

Fig.3 Necrosis and Hydatidosis

Fig.4 Taenia in small intestiane

This study showed the most common ruminants slaughtered animals in Taiz abattoir Slaughterhouses were goats, Cattle, sheep and camels with number 636, 311, 47 and 12respectively. The prevalence of hydatid cysts were revealed in Camels (41.66%), cattle (33.76%) and goat (6.13%), while no hydatid cyst was revealed in sheep, may be due to different feed grass and grassland.

The prevalence rate of liver flukes "Fasciolasis" were observed in cattle (5.47%), goats (3.14%),whereasliver fluke wasnot present in camel and sheep. We think that depend on the ecological factors.

The distribution of *Taenia* was high rate in goats (22.8%) and sheep (14.90%), however not detected among camel and cattle. In comparison the results in our study with other study carried out in Hadhramout, Yemen that showed variations in incidence of hydatid cyst, where the incidence in sheep 3.21% more than in our study, while the incidence in goats 2.13% less than our study, this may be due to the geographic variation(Baswaid, 2007).

Sex related distribution with all of parasitic diseases is shown in table 2. The prevalence of infection in male more than female but the higher in female in cattle that may be the females are kept back for reproductive purposes and milk production. The infection rate increase according to the increasing animal's age. This is impute to two factors. Firstly, higher age reflects a much longer period of risk of infection. Secondly, the chances of detecting cysts at meat inspection are higher in aged animals due to the bigger size of the cyst. (Baswaid, 2007).

The animals check for hydatid cysts, in this study, exhibited relatively low rate of infection, compared to the results of studies done in Yemen 22,9% (Al-Shaibani *et al.*, 2015) likewise in some Arabic countries: 4.6% in sheep in Saudi Arabia (Farah *et al.*, 1984), 12.8% in sheep in Kuwait (Hassonah and Behbehani,1976), 4% in sheep and 3.6% in goats in Jordan (Al-Yaman *et al.*,1985), 5.3% in sheep in Morocco (Pandey *et al.*, 1988) and 5.9%, 4.5% in sheep and 5.1%, 3.1% in goats in Iraq respectively (Al-Abbassy *et al.*, 1980 and Molan, 1993), but slightly high compared to the results 0.17% in sheep showed by Ali *et al*. (2003).

Bin Kabir *et al.*, 2010: a study was conducted in Bangladesh that showed the prevalence of hydatidosis was nearly similar to our study (26.01%), otherwise the fascioliasis was more than our study (20.74%). The results revealed that the prevalence of parasitic diseases relation in rural importer which were in rural more than importer that's due to the ruminants slaughtered undergo a medical examination at ports.

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