

The relationship of infection with Giardia parasite to the ages of infected sheep at holy Karbala city

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Abstract— The current study included examination of 120 fecal samples of sheep from the slaughter house at Kerbala province and private fields for 6 months (from Oct. 2022 to March 2023). The animals suffered from diarrhea. The current study showed the rate of total infection of Giardiasis was (80 of 120 samples). They were examined by smear method and using light microscope trophozoite and cyst phases of parasite. The result showed that the infection 52.5% I sheep from 42 infection the age less than 1 year, 47.5% from 38 infection more than 1 year Conclusion's animal and human together was source of infection with Giardiasis between them.

Keywords — sheep, Kerbala, Giardiasis, trophozoite, cyst

I. INTRODUCTION

GIARDIA lamblia (Syn: Giardia duodenalis, Giardia intestinalis) is the etiological agent of giardiasis, a gastro intestinal infection of humans, companion animals, livestock and wild life , it's usually spreads when Giardia duodenalis cysts within feces contaminate food or water that is later consumed orally , the disease can also spread between people and through other animals , cysts may survive for nearly three months in cold water , Giardiasis is diagnosed via stool tests [1]. Symptoms of a Giardia infection range from a symptomatic to sever diarrhea as well as chronic disease. Giardia has a simple life cycle comprising rapidly multiplying, non-invasive trophozoite on the mucosal surface of the intestine, and production of environmentally resist at cysts that are shed with host faces [2]. The infections cysts are excreted in large numbers in feces of infected host and they contaminate drinking water hand swimming pool and food [3]. Giardiasis has worldwide distribution, it is traditionally considered an epidemic and zoonosis disease between the human and animals [4]. Ruminants which infected with Giardia are mostly asymptomatic, but subclinical signs such as reduction in growth rate, impairment in feed [5].

II. METROLOGY

Feces samples collection Total of 120 fecal samples are collected from sheep which suffered from diarrhea in the house slaughter in Karbala province and private fields during 6 months (from Oct 2022 to March 2023). These samples were collected in the sterile plastic containers and stored in the large containers containing ice bags, then transported to the parasitology laboratory in Vet. Med. in Kerbala university to

perform the examination.

2 sheep age determination: The age of sheep is determined chiefly by examination of the teeth, and less perfectly by the horn rings 3-2-3 Microscopic examination: 1. The direct smear method (wet mount method) Classically, laboratory diagnosis of Giardia lamblia infections is performed by microscopic examination of stool samples, it has been based on detection of cysts or trophozoites in feces or of trophozoites in the upper small intestine. It would appear that few infections are missed by following Wolfe's recommendations of examining three concentrated stools collected on nonconsecutive days. The direct smear of fecal samples as soon as possible after being passed [6]. 2. The direct smear method by loughal' Iodine: According to [5] the method was done was following: 1. A drop of loughaliodin solution was placed on a glass slide. 2. Small amount (about pin head in size) of feces was put on loughal' iodine drops and mixed thoroughly using wooden stick. 3. Cover slide was applied with forceps or fingers. 4. Examined of slide under (40 x) and (100 x) powers. 3- 2-4 Statistical Analysis All data of this study were statistically analyzed by using Chi-square test [6].

III. RESULTS

Giardiasis according to microscopically examination:

The method was used to detect the Giardia trophozoite or cyst, the direct smear by using normal saline (10 %) and loughal' iodine. This diagnostic feature was seen the cyst and trophozoite, the trophozoite as a tennis or badminton racket with longitudinally split pear, two and two sides.

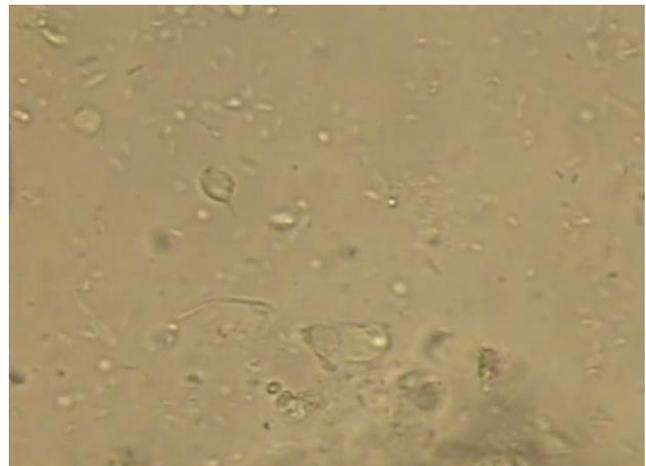


Figure 1: Giardia spp. trophozoite from sheep feces. (x40)
using Normal saline 10 %



Figure 2: Cyst of Giardia spp. (100% immersion lens) using loulgal' iodine.

In sheep: Out of 120 fecal samples, 80 samples were positive to the infection according to the direct examination with normal saline (10%) and loulgal' iodine 80 (66.66%) and the negative to infection 40 (33.33%).

Animal's age:

In sheep: Out of (80) samples positive: 42 (52.5%) less than 1 year and 38(47.5%) more than 1 year. (Table: 1)

Age	Infected	Percentage
Less than 1 year	42	52.5%
More than 1 year	38	47.5%
Total	80	%100

IV. DISCUSSION

Giardia lamblia is a flagellated eukaryotic unicellular microorganism that produce diarrhea throughout the world [5]. This intestinal protozoan of mammals and it's a zoonotic agent [5]. The infection occurs in many animals, including beavers, other rodents, cows, and sheep. Animals are believed to play a role in keeping infections present in an environment. Giardiasis usually spreads when cysts within feces contaminate food or water that is later consumed orally. The disease can also spread between people and through other animals. Cysts may survive for nearly three months in cold water, it diagnosed via stool tests.

Giardiasis according to the ages:

The current study showed that the most infections of giardiasis was recorded in young animals, the highest rate (52.5%) was

seen among animals aged (<1 year) and (47.5 %) in animals aged (more than 1 year).

prevalence 18.6% of Giardia in group of animals aged from (1 day – 1 year), also agreement with results that reported by in Baghdad and in Al-Diwanyah when they recorded the highest prevalence in group of animals aged less than six months (< 6 months) in sheep, in Nineveh, also reported the highest prevalence 22.5% of G. was recorded in group of animals aged (3-6 months).

In West Australia reported the high prevalence of giardiasis in aged from (4-7 weeks). Also showed that the high prevalence rate of giardiasis recorded in animals aged below 6 months [7] in the East Azerbaijan-Iran recorded high rate in lamb aged less two month and (24) which recorded high rate in group of animals under 12 months in Ahvaz in Iran. These differences between the prevalence of giardiasis in the present study and prevalence of other studies in the other regions and countries may be related to many factors including environmental changes, number of samples were collected, study season, laboratory methods which used in diagnosis, in addition, the experience of examiner all these factors affect in the final image to infection of Giardia [8] [9], Sewage effluent was shown to have the highest prevalence of Giardia, although the concentration of cysts was minimal compared with that detected in sheep feces [10]. Nevertheless, an interpretation of these results in the context of the source of human Giardia infections can be made only in the conjunction with data on the distribution of Giardia specie in these potential contamination source [11] However, there is little evidence to implicate these animals as the original contaminating source in water borne outbreaks. It has been suggested that these animals are more likely to become infected from water contaminated with fecal material of human or even domestic animals' origin [12].

However, Giardiasis in ruminant is often asymptomatic. The C.S appear as this is influenced by many factors like species, breed, age, immune competence, source of infection (food & water) contamination with fecal material & humidity. The infection with Giardia is associated with economic losses through the occurrence of diarrhea, poor growth and even death in farm animals. The difference in distribution in sample size, housing condition and management practices.

V. CONCLUSIONS

1. The animal and human together was source of infection with Giardiasis between them
2. On the bases of the results, in the microscopical methods, Giardiasis was distributed in sheep in Kerbala province.
3. There are non-significant difference between animal species in Giardia prevalence but there are significant differences in age and months study by microscopical methods.

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