PREVALENCE OF THE GASTROINTESTINAL TRACT PARASITE IN GOATS IN SULAIMANI PROVINCE

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ABSTRACT

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Parasitosis, especially parasitic gastro-enteritis, constitute to cause a serious health threat and a limitation to the productivity of small ruminants due to the associated morbidity, mortality, cost of treatment and control measures. A survey of the prevalence of gastrointestinal parasites in goats was conducted in and around Sulaimani province/Kurdistan Region/Iraq. Fecal survey of eggs/oocysts of gastrointestinal parasites of goats on the Sulaimani farms was conducted between September 2009 and May 2010 out of 316 fecal samples were collected from local bread type goats and from four selected area of Sulamani province that was Sulamani center, Arbat, Aghgeler and Said sadeq 142 (44.9%) were positive. All fecal samples were examined by using saturated sodium chloride floatation technique. Relative percentage prevalence 55(38.7%), 47(33%), 29(20.4%), 4(2.8%) was obtained for Nematodirus spathiger, Marshallagia marshalli, Trichuris ovis and Eimeria oocysts respectively. Total mixed infection that means more than one type of parasite infected were 7(2.2%) Mixed infection by Trichuris ovis eggs+Nematodirus spathiger eggs had the highest prevalence of 4(2.8%) while the lowest was by Nematodirus spathiger+Marshallagia marshalli+Trichuris ovis with 1(0.7%). Other mixed infection was Trichuris ovis+ Eimeria oocysts with 2(1.4%).

Keywords: G.I.T., Parasites, Goats, Iraq.

INTRODUCTION

Internal parasitism is one of the biggest problems in the small ruminant animals. Internal parasite infections of herds can cause major health issues, which have a major effect on the animal’s performance and cause great economic losses to the producer. In fact, most of the economic losses caused by internal parasitosis are actually not due to mortality but production loss (Waller and Thramsborg 2004).

Parasites, especially parasitic gastro-enteritis, constitutes to pose a serious health threat and a limitation to the productivity of small ruminants due to the associated morbidity, mortality, cost of treatment and control measures (Nwosu et al., 2007).

Parasitic gastroenteritis has been noted as major constraint to ruminants’ productivity in terms of pathology and economic importance (Biu et al., 2006).

Nematode parasites of small ruminants result in low productivity due to stunted growth, poor weight gain and poor food utilization (Pedreira et al., 2006).

The control of gastrointestinal trichostrongylosis in small ruminants is severely impaired by the increasing development of anthelmintic resistances (Sangster N.C 1999, 2001) Resistances to the three main families of broad spectrum anthelmintics available for the control of trichostrongyles have been described worldwide in most nematode species (Jackson F and Coop 2000) (Sangster N.C., 1999) (Silvestre A. et al., 2002).

Infection by gastrointestinal parasites in sheep and goats can result in severe losses. Production losses result from decreased utilization of food and in severe cases from death. Goats have numerous internal parasites; two of the most important are the protozoan Coccidia (Dai et al., 2006).

Internal parasites are a significant threat facing today’s small ruminant producer. Problems associated with parasites, particularly those of the gastrointestinal tract of sheep and goats can cause irreversible damage or even death to the animal, reduced performance and economic loss for the producer. (Christensen, 2005).
Goats and sheep have numerous gastrointestinal parasites, many of which are shared by both species. The most important include coccidia (protozoa), nematodes (roundworms), cestodes (tapeworms), and trematodes (flukes). Gastrointestinal nematodes of Trichostrongylidae family are perhaps the most important parasites of small ruminant’s world-wide, causing significant morbidity and loss of production. Gastrointestinal nematode infections can be treated by anthelmintic chemotherapy; however, treatment is costly and drug resistance has evolved in all major parasite species (ROSS, 1997; ZAJAC and GIPSON, 2000; VEALE, 2002).

MATERIALS and METHODS

Description of study site: The area of study is characterized by seasonal rain from October to May and poor farmer awareness about the control and management of the internal parasite in sheep and goat. Selected sampling areas were four sites Sulamani center, Arbat, Aghgeler and Said sadeq.

Sample collection: Faecal samples were obtained from the rectum of (316) goats randomly. Different age and sex goats’ sample of only local breed from various regions of the Sulaimani province collected. Period sampling was between September 2009 and May 2010.

Faecal examination: Faecal samples obtained were examined using saturated sodium chloride floatation and eggs or oocysts identified. The samples were transported to the Veterinary teaching hospital and college of Veterinary Medicine Laboratories, Sulaimani for the identification of endoparasitic infection using direct microscopic examination and centrifugation floatation techniques using the light microscope at x40 objective. Identification of the eggs was made on the basis of morphological characteristics and size of eggs (Anna and Gary, 2012), (Foriet, 1999).

Parasite eggs, cysts, and oocysts were concentrated on the surface of the medium because of their lighter density. The result is a clean preparation for microscopic examination with a minimal amount of distracting fecal debris. (Chinone, 2001)

RESULTS

The result were summarized by table (1), the prevalence of parasitic gastrointestinal eggs/oocysts identified on the research farm as shown in Table 1 indicated an overall rate of (44.9%) representing 142 infected cases out of the 316 goats examined. Single infection by Nematodirus spathiger had the highest prevalence of 55 (38.7%), followed by Marshallagia marshalli ova with 47 (33%) while Eimeria oocysts had the lowest with 4 (2.8%). Overall prevalence rate of mixed infection were 7(4.8%). Nematodirus spathiger+ Trichuris ovis ova had the highest prevalence 4(2.8%), while the lowest was by Nematodirus spathiger+ Marshallagia marshalli+ Trichuris ovis 1(0.7%) table 2.

There is no significant difference in the infection between male and female of goats.

Table 1: Prevalence rate of the gastrointestinal parasites.

<table>
<thead>
<tr>
<th>parasites</th>
<th>n=316</th>
<th>*Relative prevalence (%)</th>
<th>Overall prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nematodirus spathiger</td>
<td>55</td>
<td>38.4▲</td>
<td>17.4</td>
</tr>
<tr>
<td>Marshallagia marshalli</td>
<td>47</td>
<td>32.8</td>
<td>14.8</td>
</tr>
<tr>
<td>Trichuris ovis</td>
<td>29</td>
<td>20.2</td>
<td>9.1</td>
</tr>
<tr>
<td>Eimeria oocysts</td>
<td>4</td>
<td>2.7▼</td>
<td>1.2</td>
</tr>
<tr>
<td>Mixed infection</td>
<td>7</td>
<td>4.8</td>
<td>2.2</td>
</tr>
</tbody>
</table>

*Based on the positive samples=142.Negative samples=173.

Table 2: Prevalence rate of gastrointestinal parasite of mixed infection.

<table>
<thead>
<tr>
<th>Mixed infection species</th>
<th>n-316</th>
<th>*Relative percentage (%)</th>
<th>Overall percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nematodirus spathiger+ Trichuris ovis</td>
<td>4</td>
<td>2.8▲</td>
<td>1.2</td>
</tr>
<tr>
<td>Trichuris ovis+ Eimeria oocysts</td>
<td>2</td>
<td>1.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Nematodirus spathiger+ Marshallagia marshalli+ Trichuris ovis</td>
<td>1</td>
<td>0.7▼</td>
<td>0.3</td>
</tr>
</tbody>
</table>

*Based on the positive sample=142
DISCUSSION

Present study showed that goats of the Sulaimani province are commonly infected with a variety of gastrointestinal parasite species with a high prevalence of (44.9%) and generally high egg/ocyst number because there is no scientific record or survey of the gastrointestinal in Sulaimani area, we compare with study in Mosul/Iraq. These results agree with the study of (Al-Bayati and Arsalan 2009) in the points of infection, but there are difference in the species and relative prevalence rate of the infection. The present survey explain four species of gastrointestinal parasite in the goats that were Nematodirus spathiger, Trichuris ovis, Eimeria oocysts and Marshallagia marshalli but (Al-Bayati and Arsalan 2009) they found out sixteen species of the gastrointestinal parasites and only three species resembling with results of this study that were Nematodirus spathiger, Trichuris ovis, and Marshallagia marshalli. in the present study the highest prevalent rate was Nematodirus spathiger (38.7%) but (Al-Bayati and Arsalan 2009) there results were Marshallagia marshalli (62.9%). The lowest prevalent rate in the present study was Eimeria oocysts (2.8%) but (Al-Bayati and Arsalan 2009) detected Gongylonema spp (1.2%).

The present study results showed highly prevalence rate of gastrointestinal parasites due to the randomly drenching of the animals by the farmer and there is no basic data about the most common or most important parasites and this study is the most recent one about the gastrointestinal parasite and for long period we don’t have any data about these parasites (personal communication).

Eimeria oocysts were the lowest prevalent rate by (2.8%) in the present study and this disagree with (M. Asif et al., 2008) in Islamabad, Pakistan that explain the high prevalence with Eimeria oocysts by (57.5%) this variation may be due to the geographical and breed of the goats, and lead to production losses by reducing weight gain or through mortality (Sharma and Singh, 1997) in kids but in the present study the infected animal by Eimeria oocysts show moderate abnormal conditions.

The relative prevalence rate of the Nematodirus spathiger was (33%) and there is significant variation with (Asif et al., 2008) in Islamabad, Pakistan that is explained no infection with this species and there is (14.1%) in Mosul/Iraq by Nematodirus spathiger (Al-Bayati and Arsalan 2009).

The results of the present study support the opinion that goats acquire a lower level of immunity to gastrointestinal parasites than sheep (PAWEL GORSKI et al., 2004).

There are numerous species and genera of gastrointestinal nematodes which parasitized domestic animals (Lancaster et al., 1990). The prevalence and seasonal activity, life cycle and pathogenicity of each species vary with animal species, country and/or climatic region (Umur 1997).

Most of the animals examined during the present survey had low to moderate clinical signs suggesting that some infections were sub-clinical. However, sub-clinical infections may be very important economically leading to retarded growth; reduced productivity and animals are more susceptible to other infections. The animal will also continuously contaminate pastures. Some positive animals treated by anthelmintic drug like Albendazole and Closantile this mean there may be appearance the resistancy against the anti parasite drug.

REFERENCES


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**انتشار الطفيليات المعوية في الماعز في محافظة السلامانية**

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تعتبر الطفيليات وخاصة الطفيليات المعوية من أسباب المخاطر للصحة وكذلك من محددات الإنتاج للمجئيات الصغيرة وذلك بسبب الإصابة والوفيات وتكتسب الفلاف والسيطرة. تم عمل مسح لإيجاد نسبة الإصابة بالطفيليات المعوية في الماعز في حزول محافظة السلامانية، وذلك عن طريق خص البراز للكشف عن البيضات وكيس الأولي في الفترة ما بين أيلول 2009 ومارس 2010، اظهرت النتائج أن 142 عينة براز تم جمعها من حقول اربع مناطق من محافظة السلامانية وهي مركز السلامانية ورعيت واعجار وصيد صيادى. كل عينات البراز تم فحصها بطريقة الطفول واستعمال محلل الملع ومعاون وتم الحصول على نسبة 38.7 (47.04)% و38.4 (29.4%) و7 (5%) و2 (2%) لبيض طفاليات نيمتودايرس سالاجري ومارشال ياجا مارشالي وهي بيوستات ترايكورس اوفر وكبيرات الأولي اميريا على التوالي، على نسبة الإصابة كانت 38.7 (47.04)% في عينات طفاليات نيمتودايرس سالاجري وكانت أقل نسبة إصابة لكيكاست أولي اميريا بنسبة 2 (2%). كانت هناك نسبة إصابة مختلطة أي الإصابة بأكثر من طفلي واحد بنسبة 13% ونسبة 4% كانت ruspiطات نيمتودايرس سالاجري ومارشاليجيا مارشالي نسبة 1 (0.7%) و1 (0.7%) الفرايمورس ترايكورس اوفرو مارشال ياجا مارشالي نسبة 1 (0.7%) و1 (0.7%).