

ORIGINAL ARTICLE

Study of Abomasal Nematodes in Adult Cattles in Abattoir of Tabriz Iran

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ABSTRACT

The aim of this study, was made to assess the problem of gastrointestinal parasitism of nematodes in adult cattles in slaughterhouse of Tabriz_Iran. Over a period of almost a year, from 100 cows was sampled for nematodes. Differentiation of species based on recognition of larvae, revealed the following genera in order of decreasing prevalence : *Haemonchus*, *Ostertagia*, *Marshallagia* and *Trichostrongylus*. The prevalence of *Haemonchus contortus* is more than others and *Hamenchosis* is leading the animals to severe anemia and poor production problems.

In the view of these results, the conclusion is drawn that worm-infestations is still exist in cattle and results in economic production in dairy farms. Recommendations are given with respect to the type of anthelmintics to be used and the frequency of dosing.

Keywords: nematode, Tabriz-Iran, Cattle, Abomasum

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INTRODUCTION

Cattle of all ages, but particularly young cattle, are affected by a diversity of internal parasites. Among these are the roundworms (Nematodes), which are primarily parasites of the gastrointestinal tract (a lungworm is included), the liver fluke (Trematodes), tapeworms (Cestodes) in the small intestine, and singlecelled protozoan parasites (Coccidia) in the lower intestinal tract [1].

Climatic conditions through most of the Tabriz area in Iran provide for long grazing seasons; however, these same conditions provide an ideal setting for internal parasites. Periods of greatest infection risk occur from late winter through spring and again in the fall. Under pasture conditions, it is the rule to encounter mixed infections with several types of roundworms as well as with other parasites indicated above. Because of their wide distribution throughout the southern region, the large numbers of cattle infected, and the damage caused by the worms, nematodes are considered to be the most economically important group of internal parasites in cattle. Tabriz area has the highest number of livestock population. Helminth infections in domestic ruminants are of major importance in many agro-ecological zones in Iran and had the highest index as an animal health constraint to the poor keepers of livestock worldwide through losses due to reduced weight gains and growth rate, reduced nutrient utilization, lower meat, wool and milk production, involuntary culling, cost of treatment and mortality [2].

Gastrointestinal nematodes are recognized as a major constraint to both small and large-scale small ruminant production in developing countries, leading to significant economic losses. The abomasal nematode *Haemonchus contortus* is particularly important and causes severe anaemia and even death in severely infected animal. The aim of this simple screening was to investigate the need for thorough and frequent dosing of dairy cattle, by veterinarians, animal health assistants and extension workers in order to enhance milkproduction. The general idea concerning the use of anthelmintics. It is therefore imperative to understand the epidemiology of the common gastro-intestinal nematodes in the prevailing climatic conditions and within the management systems used, as well as to assess the pathological and economic desirability of frequent treatment [3,4]

The aim of this study was to investigate the incidence of gastro-intestinal nematodes in cattles in order to get a rough idea of the average infestation-levels and causative nematodes-species in cattles of Tabriz area in Iran.

MATERIALS AND METHODS

The study was performed During the 2012 and 100 abomasum were collected from five to seven years old Holstein cows, at slaughterhouse of Tabriz, Iran.

The age of the animals ranges from 3 –6 years. The abomasum was removed from the abdominal cavity and ligated at both ends and immediately taken to the laboratory of veterinary parasitology of faculty of veterinary medicine for appropriate examinations. From the total 100 abomasums were used for studying distribution of larvae of parasites.

In a preliminary examination, the abomasums was opened along its greater curvature and the abomasal contents were diluted with saline and the mucosal surface of the abomasum was washed several times by rubbing with hands the contents filtered through sieve that can retain larvae therein.

The abomasal contents were washed into a bucket up to a total volume of 2 liters from which an aliquot of 200ml was transferred to a labeled graduated beaker and preserved in 10% formalin.

Following collection of samples, they were taken for worm counting. When a large number of small nematodes was collected, more than a quarter of the worms were identified and the proportion of the various species present was extrapolated for the whole sample. All the large nematodes collected were identified. In the preliminary examination of 20 cases, the worm count of the mucosal washings was found to represent 1/4 of the total adult worm count for the whole sample.

Microscopic evaluation of samples were carried out using the after Keith method that available at FAO [5].

RESULTS AND DISCUSSION

Out of the total 100 cattle abomasums examined an overall prevalence rate of 44% of abomasal nematodes was recorded. four genera of abomasal nematodes were identified from cattle with prevalence of 17.6% *Haemonchus Contortus*, 11.3% *Ostertagia ostertagi*, 9.8% *Marshallagia Marshalli* and 5.3% *Trichostrongylus Axei*.

Table 1: Prevalence and intensity of abomasal nematodes in cattles.

Nematode	Prevalence %	Mean number of worm per infected abomasum	Maximum border
<i>Haemonchus Contortus</i>	17.6	103.2	543
<i>Marshallagia Marshalli</i>	9.8	85.4	312
<i>Trichostrongylus Axei</i>	5.3	33.2	121
<i>Ostertagia ostertagi</i>	11.3	91.2	424

Haemonchus, known as barbers pole worm, are among the most pathogenic helminth species of ruminants in humidity areas. *Haemonchus contortus* is mainly a parasite of sheep and goats (sometimes cattle) and *H. placei* is mainly a parasite of cattle (sometimes sheep and goats). *Haemonchus* are most dominant in summer rainfall areas. Both the developing 4th larval stages (L4s) and adults cause punctiform haemorrhages at sites of feeding on the abomasal mucosa which may be oedematous. The ingesta may be reddish brown and fluid. Worms may be attached to the mucosa and free in the lumen.

Ostertagia, that known as small brown stomach worm is a worm in small ruminants and cattle tend to be more important in winter and non-seasonal rainfall areas. Heavy infections (particularly if accompanied by *Trichostrongylus* spp in sheep & goats) can cause profuse scouring, ill thrift and possibly deaths.

O. ostertagi is considered to be the most pathogenic cattle nematode in southern Australia and other temperate cattle raising regions in the world. The free living stages of *Ostertagia* spp can develop at lower temperatures than most other trichostrongylid species.

Trichostrongylus axei ('stomach hair worm') occurs commonly in ruminants, often in association with *Ostertagia*, and also in other host species, such as horses, but appears to be relatively non-pathogenic [1,3,4].

In this study, we found 4 genera of nematodes in abomasums of cattles. The most founded nematodes, was *Haemonchus contortus*. The more same conclusion was reported by Noda et al. [6] and Kudo et al. [7] in *post mortem* examination. However, Noda et al. [6] reported in Japan, that the prevalences of *Mecistocirrus*, *Haemonchus* and *Ostertagia* in cattle were 31.1%, 22.6% and 33.1%, respectively. Interpretation of the data from this type of survey is difficult since it is not known if the animals had recently been treated with an anthelmintic or the level of parasitic larval challenge to which they were subjected [8]. In addition we did this study in duration of a year, So we do not know the stage of lactation, as well as the housing and grazing period in samples, because we did that in abattoir.

We observed the same intensity of abomasal nematode infection in cattle as compared with unreported survey in last year in Tabriz area, but in the other hand of emphasis of the types of nematodes, there is a low intensity of reported similar surveys in other countries in some years ago [9,8,10,11]. In most areas of Tabriz, husbandry of the Holstein steers were raised without grazing. Barth *et al.* [10] stated that the zero-grazing system gives rise to lower worm burden. However, the methods used in *post mortem* examination are also important. In this study, eggs of parasites were not counted. Besides, the adult worm count was made on the mucosal washing and in contents of the abomasums. So this apparently represents *total* of the actual number of worms present in the abomasum.

At the end of this study, because of same results in last year, we suggest, that adequate anthelmintic therapy must be given in safe and sound dose to all of the cattles that are disposed to infestation with worms.

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