EPIDEMIOLOGICAL INVESTIGATION OF DIGESTIVE STRONGYLES OF HORSES IN THE CENTRAL REGION OF ALGERIA.

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Abstract. *A study on the digestive strongyles was realized at thorough bred horses infested naturally in two moderate regions of Algeria. 80 quantitative coproscopies on blade of Mac Master, made over a period of 4 months during year 2010-2011 on 10 vermifugés horses to Blida and 10 horses not vermifugés in Ain Defla, revealed a rate of infestation respective of 72 % and 90 % and identification of various eggs of Strongyles, Parascaris equorum and Habronema sp.The development of a resistance because of the long use of the same product is suspected in dewarming horses.*

Keys words: Strongyles – Horses - Blida & Aïn-Defla

INTRODUCTION

The strongyles are the main causes of gastrointestinal parasitism in horses. Largestrongyles Strongylus genres together, and Triodontophorus Craterostomum and are distinguished by the severity of symptoms caused, due to extensive migration in the bodyof the host, such as ruptured aneurysm to the most pathogenic of them , Strongylusvulgaris [13]. Small strongyles, or cyathostomes, nominate the other strongyles and collect more than 50 species. These are considered less pathogenic, as confined to the digestive tract, resulting in less dramatic events, such as colic, diarrhea, weight loss, anorexia andgrowth retardation. But their importance is primarily due to their frequency, since 100% of horses are strongyles in their digestive tract [9, 10]. Deworming has become for horse owners a regular move, which raises more questions [6]. All horses are affectedregardless of age, but foals and yearlings generally have more severe clinical signs. In temperate zones, in late spring and summer, the concentration of L3 S. vulgaris on pastures is maximum while there is little in the arteries of infected animals. In winter it isagainst the minimum but maximum pastures in the arteries.

For the diagnosis, quantitative coproscopy blade Mc Master, is a dilution of feces in1/15th and counting the number of parasitic elements contained in 0.30 ml of the suspension with a blade Mac Master. This technique has the advantage of providing aquantitative result and be quick. The interpretation requires a minimum of experience.

MATERIAL AND METHOD

Our work aims to highlight the situation of internal parasites of horses including digestive strongyles in the central regions of Algeria, from two mares (Blida and Ain

Defla). It concerned the horses of both sexes and all ages, of different races (arabian, thorough bred English and Arabic beard). The diagnosis of parasitic infections was conducted by fecal examinations of individual blade Mc Master. (Beugnet et al. 2004; Euzéby, 1981; Loudières, 1996), 10 breeding horses, chosen at random from a herd of 42 animals in thestud of Chebli (first batch) and 10 sport horses selected chance on a herd of 52 animals in a riding club in Ain Defla (second batch). The horses tested were divided into two lots:box: 1 underwent deworming with Albendazole oral and Lot 2, is the control group (untreated parasitized). The investigation lasted four months, with a total of 80 coproscopy carried out during 2010-2011. The samples were taken from the tops of dung (for aggressive animals, we could not achieve in the rectum, except in rare cases) harvested in plastic gloves and identified. These samples placed in a cooler, were sent to the parasitology laboratory of the Veterinary Department of the University Saad Dahlab of Blida.

RESULTS AND DISCUSSION

For the first batch, the coprology revealed the presence of a double infestation, that due togastrointestinal strongyles (70% of subjects) and that due to Parascaris equorum (20% of subjects). For the second batch, the more coprology revealed the presence of gastrointestinalstrongyles and roundworm, Habronema sp. with rates of infection of 90%, 50% and 10%.

Table 1

Rate of infestation of the flock by gastrointestinal strongyles

Number of subjects		January	February	March	April
Locality	infected	7	7	7	8
	Rate	70%	70%	70%	80%
Non treated Lot	infected	9	9	9	9
	rate	90%	90%	90%	90%

The percentage of animals infected with gastrointestinal strongyles is obtained by averaging the percentages of both groups of animals. The kinetics of the monthly number of eggs per gram of manure (OPG) of both groups of animals is represented as follows:

Fig. 1. Level of excretion through O.P.G

This figure shows the evolution of average levels of fecal excretion of eggs (OPG) ofdigestive strongyles during the 4 month follow-up during 2010-2011. In the first batch, the level of excretion of eggs presented a peak in the month of January (741 OPG). Afterdeworming done in early January, there's a downturn in the month of February (123 OPG) and a slight increase in March (224 OPG) and finally, a further increase (595 OPG) during the month of April, reaching the peak in January. In the second batch, the level of excretion of eggs presented a value of (505 OPG) in the month of January. This lot has not undergone any anthelmintic treatment, has an almost linear kinetics with respective levelsof parasitic OPG 708 (February), OPG 1132 (March), and OPG in 1345 (April).

Table 2

Average rate of infestation with Parascaris equorum

Nombre de sujets		January	February	March	April
treated group	with	-	-	150	213
	percentage	-	-	10%	20%
Lot untreated	with	4	6	7	9
	percentage	40%	60%	70%	90%

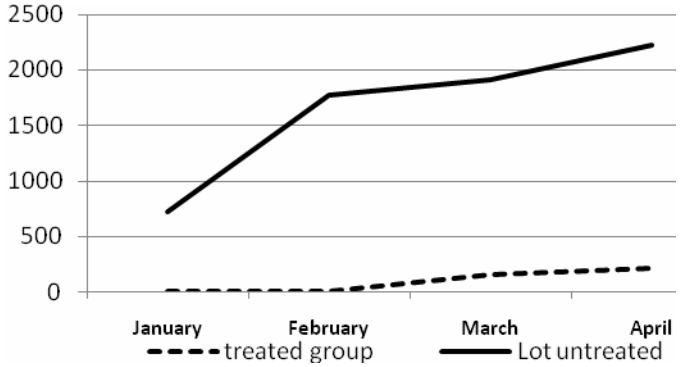

Fig. 2. Average level of fecal excretion of Parascaris equorum eggs

There was one case detected in the stool analysis of untreated horses in the month of February (30 OPG).

This study shows that the horses of the region of Blida and Ain Defla, are constantly exposed to parasitic infestations worm whose population was dominated by the genus Strongylus. Larval development of the latter inside the egg provides greater resistance to weather conditions with longer survival in the pasture and, therefore, an almost permanent threat of infestation of the horses to pasture. The infection rate was high from the start of our study (> 500 OPG). This increase may be associated with factors related to the animal itself, namely its growth stage (foal or adult), its physiological state (pregnant or lactating mare), the immune status (1st or 2nd season of grazing) or, quality forage sufficient to cover all the needs of animals. In the wilaya of Blida, there is a clear decrease in the rate of infestation in February. This decrease is related to the deworming Albendazole based oral administration Jan. 28. The reappearance of infected animals is light and progressive during the month of March. It becomes important frankly April. This could be due to a re-infestation because the horses are kept permanently on the same pasture. In contrast, 03 subjects are kept at the box remain intact. Since the one hand, the

prepatent period (time between infection with the L-3 and the first appearance of eggs in dung) parasites of the genus Strongylus varies ente 6.5 (S. vulgaris) and 10 months (S. edentatus) and on the other hand, the coprology never totally negated, we are entitled to think that used anthelmintic (Albendazole) is the only factor to be charged. If this is the case, three hypotheses are proposed:

- The deworming was not properly carried out is to say, not in accordance with manufacturer's recommendations (route and / or dose not met).

- Appearance of cases of anthelmintic resistance. Anthelmintic resistance may be due to the use of molecules of the same family for the past four years (no use of alternating molecules ornew molecules continuously).

- Persistence of horses on the same contaminated pasture after deworming. Then they must be kept in their box the day before the deworming overnight, so that the elimination of the eggs takes place in the litter, not the pasture. As another source of contamination is the horse manure that has not a specific location. The grooms are out of the box by storing them in areas close to pastures.

In the wilaya of Ain Defla, there is a rise in half the rate of infection during the month of February compared to January. The absence of a pesticide treatment is undoubtedly the main cause of this elevation. This continues the following months, representing about double compared to January and February.

The few who remained free, people have been dewormed but kept in their box. Two hypotheses may be the cause of this increase parasite:

- The introduction without respecting the quarantine of new arrivals. Thus there each time increasing the rate of infestation in the number of infected individuals and potentially new pest infestations (Parascaris / Habronema).

- The coexistence of different equine species (horses, ponies and donkeys).

The quantitative coprology was a reliable tool. The excretion of eggs strongyles (OPG) on four months of study, was characterized by two peaks in the area of Blida. The first peak was recorded in the month of January (OPG 741). Compared to the study begun in 2009 by A. Boulkaboul Senouci and K. the horses of the stud farm of Tiaret, it is almost equal to half recorded (OPG 1600). You could put this higher count, on account of climatic differences (high rainfall and severe cold) inducing more infective larval dose (L-3) or the awakening of hypobiose larvae (L-4). After this phase, we observed a reduction in fecal shedding in horses normally "wormed": this was actually recorded in January. The fall of OPG in February alone is related to the use of Albendazole. This low period of the decline in egg is due to the effect of Albendazole, since it has a duration of action of 14 days. In addition, this should be reinforced by the harsh conditions, which have a limiting effect on the development of larval stages. Dice the return of favorable weather conditions, inhibited larvae accumulated in the digestive mucosa resume their development by mass, and adult worms then begin their spawning simultaneously. This new nematode population is in addition to that already existing, and therefore contributes to an increase in the production of eggs excreted in feces in March and April, where it was noted a second peak (595 OPG) . This increase in spring spawning is known in Anglo-Saxon as the "Spring Rise". In the area of Ain Defla, a continuous increase, with the recording of a single peak in the month of April (1345 OPG), is close but still below the rate (OPG 1800) obtained in the 2005 study. Bentounsi by B. and M. Maatalah on seasonal variations in the excretion of eggs strongyles in horses untreated areas and sub-humid-Tarf. The increase becomes significant as early as March. This increase would also be the fat of the phenomenon of "Spring Rise".

CONCLUSIONS

This survey on the ground confirmed that the horses of the wilaya of Blida and Ain Defla are continually infested by gastrointestinal strongyles (Strongylus sp.) And, more rarely by Habronema and round worms. The percentage of infected animals is high, especially during the spring. The level of fecal excretion of digestive strongyleseggs reached a maximum value of 595 in the batch wormed OPG and OPG in 1345 in the untreated lot. Parasitism is important from the monthsof March and April. Seasonal treatments must be undertaken systematically, especially in mares to better control the development of parasite resistance. Thus, the foals first grazing season could only get better. Finally, as a reason to fight programs are not implemented, should greatly limit contact with grazing areas: the main source of contamination of animals (especially naïve).

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