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The epidemiology of *A.suum* at swines in Albania

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Abstract:- About 300 000 swines are bred in Albania, out of which 120 000 under intesive growth conditions and 180 000 under ½ intesive and extensive growth conditions. In the study we included 738 swines out of which 372 in extensive growth and 356 samples from intesive growth spread all over the territory of the Republic. 10 samles were colekted from imported pigs. 120 samples from these belonged to piglets 0-3 months old, 224 to piglets 3-7 months old, 163 samples to sows about to be substituted, 78 sows a week before farrow, 126 samples of sows within 2 weeks of lactation, and 27 samples were taken by uncastrated pigs. The quantitative and qualitative sedimentation was the coproscopic method used in the study. To evaluate the parasitic load we applied the Mc Master technique. The post mortum diagnose was proved in 37 head. For the first time in Albania we define accurately the presence of *A.suum* among all age groups of swines. The average parasitic load resulted 83 v/g/f in piglets 0-3 months old, 180 v/g/f in piglets 3-7 months old, 210 v/g/f in sows about to be substituted, 190 v/g/f in sows before farrow, 284 v/g/f during lactation 90 v/g/f in uncastrated pigs. By evaluating the efficiency and parasitic load for other parasites, we conclude that *A.suum* is the main cause of hypoefficiency in swines of extensive and intesive growth. Considering the conditions of extensive and ½ intesive growth we notice a higher parasitic load. The periodic controls of the faeces and at least 3 dehelmentisations per year would keep under control infestations and the damages in the conditions of extensive economies of swine growth. The observed parasitic load requires necessarily a dehelmentisation of the sows 2 weeks before farrow.

Keywords:- *A.suum,* ascarid, swines, n/v/g/f, Albania.

I. INTRODUCTION

Ascaris suum, otherwise known as the big ascarid of swines is a parasitic nematode, which causes swine ascariasis, but might also infest people. *Ascaris suum* is widespread all over the world and might go up to 40 cm long. Infestations by *Ascaris suum* are medicated and prevented by means of ascarids. *Ascaris suum* is a representative of the family Ascarididae, and one of the most maleficent parasites in swines, especially in piglets. Its biological cycle is direct, but it might also be developed through paratenic hosts. Pigs, especially piglets are infested with L2 through food or water. Larva through hepatic migration comes back to the liver in L3 and by means of blood circulation it reaches the liver and goes down to the alveoli. This process is known as the phase of hepatic-tracheal migration, which by swallowing goes down to the intestines, where it settles and 2 months after infestation is transformed into a grown nematode.the masculine parasite is from 15cm up to 31cm long and from 2mm up to 4mm wide. Their end is curved and terminates in a thin tail. They have simple spicules from 2.0mm up to 3.5mm long. Females are bigger than males and might go from 20 to 49 cm long, with a diameter 3 to 6mm. They lay 200,000 eggs in a day and their uterus might contain up to 27 million eggs. The fertilized eggs daub water and food. They have an elliptic form 45 up to 75µm long and a diameter 35 up to 50 µ. In the atmosphere they are transformed into invasive larvas and they infest swines, especially piglets 0-7 months old. Reduction in the productivity of swines is the main characteristic of ascaridiosis, the clinical signs are attributed to the number of parasites, which colonize the digestive system having as characteristic verminous bronchopneumonia, which is especially expressed into piglets. Swines comprise one of the most important income from farming in Albania. In Central and Southern Albania swines are generally kept in intensive conditions, while in the north of the country they still continue the extensive swine growth, but with a tendency to transform them into intensive economies.

II. MATERIALS AND METHODS

We examined all the fecal samples taken throughout the whole territory by means of coproscopic method. In the study we included 738 swines out of which 372 in extensive growth and 356 samples from intesive one. The fecal samples were taken individually in sows, pre-sows, and uncastrated pigs, while the samples in the piglets category were fecal samples of stables or padoks**.** From the total of the samples we examined 120 samples which belonged to piglets 0-3 months old, 224 piglets 3-7 months old, 163 samples of sows to be substituted, 78 sows a week before farrow, 126 samples from sows during 2 weeks of lactation, and

27 samples from uncastrated pigs. The qualitative and quantitative sedimentation, the technique of swimming with the dip full of NaCl of the salt of ZnCl2 was the coproscopic method used in the study. To evaluate the parasitic load we applied the Mc Master technique. The samples were taken 50 gr for the individual samples and 150 gr for the collective ones. They were transported and preserved in containers and were generally examined within 24 hours. In cases when conservation was necessary they were kept in refrigerator at 4 degrees C. For the first time in Albania we are able to define exactly the presence of *A.suum* in the the grouped categories of swines. In the region of Gjirokastra, Korca, Elbasani, Lushnja, Fieri the samples were taken by economies of intensive growth. In the region of Tirana and Shkodra we took samples from economies of intensive and ½ intensive growth. In the region of Lezha, Puka and Malësia e Madhe we took samples from economies of extensive growth. In the region of Gjirokastra and Lushnja we took and examined samples even from imported piglets in slaughterhouses. Observations took place in collaboration with veterinarians even for the presence of verminous bronchopneumonia. We took and examined samples from 52 piglets in slaughterhouses. The post mortum diagnosis was done for 37 head. The coproscopic and post mortum examinations were done in the Laboratory of Veterinary Parasitology at the Faculty of Veterinary Medicine in Tirana.

III. RESULTS AND DISCUSSION

The results of the coproscopic observations for the presence and evaluation of parasitic load by *Ascaris suum* are presented in a detailed manner according to the areas of study for all swine categories in the following tables:

Table 1. The values of coproscopic examinations in the economies of intensive growth.

Region	Examined samples/parasitic load							
	Piglets 0-3 months old	Piglets 3-7 months old	Sows to be substituted	Sows before farrow	Lactation sows	Uncastrated pigs	Examined samples	Positivity %
Gjirokatër	8/122	5/148	10/230	11/206	6/460	2/120	42	84
Korcë Pogradec	14/112	12/120	10/182	8/140	7/118	3/60	54	76
Elbasan Berat	13/84	12/146	9/272	14/196	15/124	4/40	67	68
Fier	8/24	16/60	10/54	6/78	18/40	2/0	60	18
Lushnjë	8/102	14/132	20/146	9/172	8/220	2/80	61	74
Tiranë	8/96	5/86	12/142	8/104	11/68	2/46	46	62
Shkodër	8/42	6/104	8/130	6/106	12/64	2/12	42	54
Total	67/78	70/124	79/180	62/148	77/246	17/64	372	78

The results show clearly that *Ascaris suum* is really frequent among swines in our country. It resulted to be present all over the territory with considerable variations among swine categories, different geographical regions and the way of swine breeding. There are regional variations which are often attributed to the hygienic sanitary conditions in stables and the efficiency of executing the dehelminth schemes. In the economies of intensive growth the highest result appeared in the region of Gjirokastra with a prevalence of 84 %. While in the other economies the lowest level of the region was in Fier with 18 %. We must say that the result in Fier belongs to a model economy with perfect hygienic sanitary conditions and regular antihelminth treatments. In intensive economies, excluding the category of uncastrated pigs there is a considerable level of Ascaris suum. Howeever the riskest category are piglets 3/7 months old where parasitic load varies about 120 v/g/f. Almost the category of the sows to be substituted represents one category with piglets (over 7 months old) gives evidence for an increasing tendency on the parasitic load. This increase goes up to 20 %. In sows before farrow there is a parasitic load of about 148 v/g/f (minimum 78-maximum 206) and this is one of the main reasons of piglet infestation source in stables. The parasitic load for lactation sows resulted 246 v/g/f (minimum 64-maximum 460). We notice a high parasitic load for lactation sows and this explains with the decrease of their condition during lactation and the lack of veterinary and zootomic care for this category.

Table 2. the values of coproscopic examinations in the economies of ½ intensive and extensive growth.

	Examined samples/parasitic load		

Region	Piglets 0-3 months old	Piglets 3-7 months old	Sows to be substituted	Sows before farrow	Lactation sows	Uncastrated pigs	Examined samples	Positivity %
Tiranë	7/102	24/150	13/192	2/120	6/204	1/82	51	84
Shkodër	6/86	32/136	17/180	2/118	8/192	1/128	66	86
Lezhë	14/92	39/206	18/260	4/342	10/324	3/148	88	90
Pukë	15/114	36/260	17/254	5/246	12/364	3/204	88	96
Malësi e Madhe	11/106	23/208	19/246	3/284	13/228	2/182	74	92
Total	53/92	154/220	84/252	16/286	49/334	10/142	356	88

The coproscopic examinations showed that *Ascaris suum* is really problematic for the economies of extensive and ½ intensive growth of swineries. Prevalence in the economies of ½ intensive growth in Tirana and Shkodra resulted respectively 84 and 84 %. The highest parasitic load and a prevalence of the level above 90 % in the economies of extensive growth, which is still in the level of households severely damages swine productivity. In the region of Puka, Malësia e Madhe, but also in Lezha swine breeding still remains a family tradition, at an empiric level where the main food for swines is the refuse of the family, almost completely without profilactic and medication precautions. In some cases the parasitic load is scary; there have often been found over 1200 v/g/f. In almost all the household economies no dehelminth is applied to sows before farrow.
Procedures at slaughter and post mortum diagnosis. 10 representative samples were taken from imported swines in slaughterhouses in Lushnja, Gjirokastra and Korca. Swines represented all the categories and were imported by Greece and Macedonia. We did macroscopic observations and sampled the whole digestive apparatus. The pigs were euthanized using a captive bolt pistol followed by exsanguination. The small intestine was cut open, washed in saline, and and faeces and the mucus scraped in microscope. Large *A. suum* were removed before the intestinal contents and the mucus mixture were processed according to the agar-gel technique described by Slotved et al. (1997), modified by incubating the agar-gels for 3 h. For all tracer pigs and experimental pigs aged 3 to15 weeks the entire mixture of contents and mucus was processed. For experimental pigs aged 19 weeks, a subsample of 50 % was examined. The lungs of the experimental pigs were digested (at weeks 3–9 p.p. : 100 % ; at weeks 11–19 p.p. : 50 %) according to Kapel and Gamble (2000), modified by digestion for 2 h. All samples were preserved in 70 % ethanol. Intestinal worms were measured to the nearest mm. Livers from tracer and experimental pigs were examined for superficial liver white spots which were classified as being either of the diffuse granulation-tissue type or the lymphonodular type (Rone´us, 1966). Coproscopic examinations showed that imported swines resulted to be positive for Ascaris suum. Often the parasitic load resulted equal to the results gained in swines of extensive growth economies. We think

that the reason is related to non fulfillment of dehelminth scheme for swines from the economies that import them to our country. The post mortum diagnosis was done for 37 head of piglets in most of the cases, piglets 7 months old from the generation to be substituted. For the samples we examined macroscopically the content of the intestines and counted L5 of Ascaris sum. 90 % of the samples resulted positive for *Ascaris suum* in intestines. In 4 samples almost 10 % of them counted up to 40 *Ascaris suum* grown within the intestine.

IV. CONCLUSIONS

Ascaris suum resulted to be present in all the categories and all over the territory of the republic. The results showed that it is the most damaging helminth of the swines efficiency. For the first time in Albania we define accurately the presence of *A.suum* among all age groups of swines. The average parasitic load resulted 83 v/g/f in piglets 0-3 months old, 180 v/g/f in piglets 3-7 months old, 210 v/g/f in sows about to be substituted, 190 v/g/f in sows before farrow, 284 v/g/f during lactation 90 v/g/f in uncastrated pigs. By evaluating the efficiency and parasitic load for other parasites, we conclude that *A.suum* is the main cause of hypoefficiency in swines of extensive and intesive growth.

Ascaris suum resulted to be widespread in the economies of extensive and ½ intensive growth. The lack of hygienic sanitary conditions and the profilactic dehelminth precautions favour this tendency. The results showed that the sows were from a reservoir and the infestation source. Under these conditions dehelminth of sows before farrow is indispensable and at least three dehelminths for all the categories under risk, especially in the economies of extensive and ½ intensive growth. Even in the sows to be substituted it is necessary to do 2 dehelminths per year. The change of the mentality of swine breeding, risk recognition and the need for the presence of the veterinarian is indispensable in all the swine economies, especially in the household economies (in the north of the country). The routine situation must be monitored continuously in all kinds of economies for

the prevalence and parasitic load of Ascaris suum. It is necessary to monitor the situation even after dehelminths and undertaking of profilactic precautions.

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