Scientific Works. Series C. Veterinary Medicine. Vol. LIX (3)
ISSN 2065-1295, ISSN Online 2067-3663, ISSN-L 2065-1295

PREVALENCE OF ECTOPARASITES INFESTATION IN DOGS FROM MORENI – DAMBOVITA AREA

Al. NEAGU, Poliana TUDOR, C. VLAGIOIU

Faculty of Veterinary Medicine, Bucharest

neagualex29@yahoo.ro

Abstract

The objective of this study was to assess the prevalence of ectoparasitic infestation in dogs in Moreni – Dambovita area. Investigations were carried out during July 2012 to June 2013 on a total of 155 dogs of various breeds and ages belonging to both sexes. A prevalence of 70.97 % (110/155) on ectoparasitic infestation was identified. Ectoparasites identified either species were represented by: Ctenocephalides canis 88.18 % (97/110), Trichodectes canis 26.36 % (29/110), Ixodes ricinus 19.09 % (21/110), Dermacentor marginatus 14.54 % (16/110), Demodex canis 17.27 % (19/110), Sarcoptes scabiei 0.90 % (1/110). Regarding the number of ectoparasites present on a specific individual: 57.27 % (67/110) with a single parasitic species, 40 % (44/110) with two parasitic species and 2.72 % (3/110) with three parasite species. The results had shown a high prevalence of ectoparasitic infestation in the studied area, which requires better information on the owners of dogs and need regular deworming.

Keywords: *dog, ectoparasites, infestation, prevalence.*

INTRODUCTION

Dogs are representative for numerous specific hosts of ectoparasites, which can cause skin conditions represented by erythema, papules, crusting, itching associated with lack of hair. In addition to skin diseases, ectoparasites plays an important role of vectors for various pathogens (Mitrea, 2011), which they can transmit in animals or humans. Evaluate the prevalence of ectoparasites in dogs has been subject of studies in different parts of the world (Klimpel et al., 2010; Mateescu et al., 2012; Agbolade et al., 2008; Xhaxhiu et al., 2009), their prevalence vary widely.
The objective of this study was to estimate the prevalence of ectoparasites in dogs from Moreni -Dambovita areas.

MATERIALS AND METHODS

The study was conducted from July 2012 to June 2013, being made on 155 dogs with or without owners from Moreni, Dambovita areas. Animals were represented by 91 males and 64 females, aged between 4 months and 10 years, belonging to 5 difeferent breeades, consisting of: Common (95), Little common (35) German Shepherd (18) Carpathian Shepherd (5) and Mountain Shepherd (2). Identification data have been obtained from the owner. Clinical examination of ectoparasites followed by the detection of skin lesions. Collection of ticks and fleas was made in bottles of 70 % alcohol in order to identify and for lice Scotch test was used. Where changes of skin were highlighted, scraping was performed and the material was plated blade scraped across the clarifying substance added to microscopic examination.

RESULTS AND DISCUSSION

Clinical and microscopic examinations found that 110 (110/155; 70.97 %) dogs were found positive. Based on morphological characters were identified the following species of ectoparasites: *Ctenocephalides canis* 88.18 % (97/110; Fig. 1), *Trichodectes canis* 26.36 % (29/110; Fig. 2), *Ixodes ricinus* 19.09 % (21/110), *Dermacentor reticulatus* 14.54 % (16/110; Fig. 3), *Demodex canis* 17.27 % (19/110; Fig. 4), *Sarcoptes scabiei* 0.90 % (1/110). Of the 110 dogs who were positive, 57.27 % (63/110) showed infestation with a single species, 40 % (44/110) with two species and 2.72 % (3/110) with three parasitic species.

Figure 1. *Ctenocephalides canis*

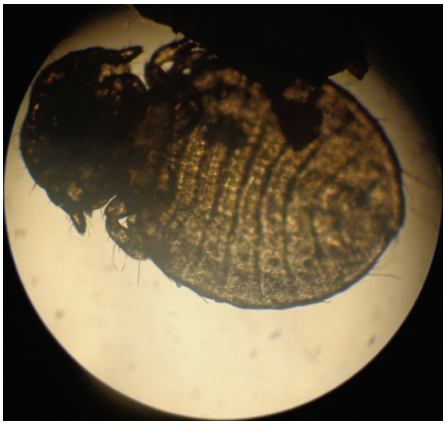

Figure 2. *Trichodectes canis*

Figure 3. *Dermacentor reticulatus*

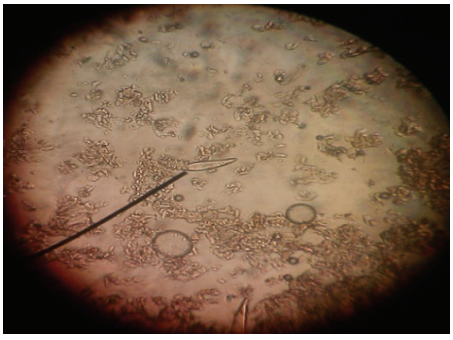

Figure 4. *Demodex Canis*

The results obtained in this study show a high prevalence of ectoparasitic infestation in dogs, indicating the existence of a serious risk of infestation to their owners but also for other animals. Previous studies conducted in our country have reported a prevalence of 52.41 % (Mateescu et al., 2012), which identifies seven species of ectoparasites, represented by: *C. canis* (33.71 %), *Ctenocephalides felis* (7.24 %), *Rhipicephalus sanguineus* (24.51 %), *D. reticulatus* (11.42 %), *T. canis* (16.99 %), *D. canis* (7.52 %), *S. scabies* (4.18 %). Tudor (2009) identified five species represented by: *C. canis* (45.52 %), *D. canis* (35.82 %), *Otodectes cynotis* (20.15 %), *S. scabies* (14.18 %) and *T. canis* (6.72 %). Studies conducted in different parts of the world have shown a variety of ectoparasites that are found in dogs, accounting for different prevalences. Agbolade et al. (2008), in SE Nigeria reported a prevalence of 98.5 %, *Rhipicephalus sanguineus* having the highest prevalence (89.6 %), followed by *Haemophysalis leachii* (78.7 %), *C. canis* (13.4 %) and *Damalinia* sp. (1.5 %). Tsai - Wu Jung et al. (2009), in Taipei, Taiwan determinated a prevalence of 2 % of ticks on dogs in stores. In Albania, Xhaxhiu et al. (2009) highlighted a prevalence of 79%, identifying nine arthropod species *R. sanguineus* (23.8 %), *I. ricinus* (0.6%), *S. scabiei* var. *canis* (4.4 %), *O. cynotis* (6.7 %), *D. canis* (0.6 %) and *C. canis* (75.7 %), *C. felis* (5.0 %), *P. irritans* (8.3 %), *T. canis* (6.6 %). Kumsal and Mekonnen (2011) in Ethiopia, established a prevalence of 95.5 % in dogs, identifying six arthropod species: *C. felis* (82.9%), *C. canis* (73.8 %), *Heterodoxus spiniger* (4%), *Amblyomma* spp (3.5 %), *Pulex irritans* (2.5 %), *Haemaphysalis leachate* (0.5 %). Smith et al. (2011) in the UK have determined the presence of *Ixodes ricinus* in 72.1 % of cases, 21.7 % *Ixodes Hexagonus* and 5.6 % *Ixodes canisuga* of positive cases. In Brazil, Costa- Junior et al. (2012) made a study on ectoparasites infestation of dogs in rural areas, and the most common flea was *C. felis* and the main specie of tick was *Amblyomma cojennense*. While Klimpel et al. (2010) identified the *Rh. sanguineus* (100 %), *Heterodoxus spiniger*

(67.4 %) and *C. canis* (39.1 %), *C. felis* (17.4 %). In Iran, Bahrami et al. (2012) determined a prevalence of 44.26 % of ectoparasitic infestation in dogs, identifying seven parasitic species: *C. canis* (28.89 %), *Rh. Sanguineus* (29.39 %), *Linognathus setosus* (20.57 %), *C. felis* (2.44 %) and *O. cynotis* (1.83 %).

From our research results that the highest prevalence was seen in *C. canis* with a value of 88.18 %, the recorded value is much higher than in previous studies, where prevalence ranged from 33.71 % (Mateescu et al., 2012) and 45.52 % (Tudor, 2009). The differences may be caused by different animal origin, most of our study are stray animals that have not previously received a propriate care and regular deworming. Values lower than ours were registered in Albania (Xhaxhiu et al., 2009) and Iran (Bahrami et al., 2012), the characteristics can be attributed to geo-climatic conditions and different population. The high prevalence of this species is a serious problem because these parasites, besides host discomfort by repeated stinging, they can act as vectors for many microbial agents that can be transmitted to animals and humans.

The second ectoparasite prevalence was 26.36 % with *T. canis*, recent studies conducted in Romania showed a 16.99 % prevalence of lice (Mateescu et al., 2012), while in other parts of the world studies have shown a very low prevalence (1% - Jeong - Hyun Chee, 2008).

On the third place were identifed two species of ticks *I. ricinus* 19.09 % (21/110), *D. reticulatus* 14.54 % recorded values being lower compared to the values obtained by Smith et al. (2011 - 72.1 %). Instead, Tsai - Jung Wu et al. (2009), in Taipei, Taiwan reported a low prevalence of ticks, 2%. Ticks are very common worldwide and living in places where there is a rich vegetation and their hosts can ensure their life cycle progression. They are an important vector spreeding serious diseases in animals (babesiosis) and in humans (Lyme disease).

We identified two species of mange *D. canis* and *S. scabies* 17.27 % and 0.90 %, the latest representing a serious zoonosis. Our results indicate relatively higher values for *D. canis* and *S. scabies* lower compared with other studies (Mateescu et al., 2012; Bahrami et al., 2012; Xhaxhiu et al., 2009).

From the results it is clear that the predominance (57.27 %) of cases that was identified species of ectoparasites , while the two species were found in 40 % of cases, and three species in 2.72 % of cases. Previous studies performed in Romania identified species of parasites in the presence of 76.12 %, and 23.88 % in the presence of two species (Tudor, 2009), while in another study it was found polyparasitism presence in 5.57 % of cases examined (Mateescu et al., 2012). Different number of animals studied and their origin can be factors that lead to the registration of these differences.

The presence of a high ectoparasites infestations area that was studied, indicating an increased risk for both humans and animals. In addition to skin diseases that these agents produce, they can also act as vectors for bacterial and viral pathogens (Cosoroabă, 2005). Studies monitoring the health of the animals are still needed for a better understanding of the epidemiological situation in the area. It is also necessary to inform owners about conducting periodic deworming of animals they own, to avoid reinfection and limit the emergence of new cases.

CONCLUSIONS

The results showed a high prevalence of ectoparasites infestation in the studied area (70.97 %) were identified 5 species.

The main species *C. canis* has been identified with the prevalence of 88.18 %, followed by the *T. canis* to 26.36 %, of *I. ricinus* and *D. reticulatus* 19.09 % - 14.54 % with.

Infestation by ectoparasites one species has been found to 57.27 % of the time, and polyparasitism was set at 40 %.

REFERENCES

Agbolade O.M., Soetan E.O., Awesu A., Ojo J.A., Somoye O.J., Raufu D.T., 2008. Ectoparasites of Domestic Dogs in Some Ijebu Communities, Southwest Nigeria. World Applied Sciences Journal, 3 (6): 916-920.

Bahrami A.M., Doosti A., Ahmadi-Asbehin S., 2012. Cat and dogs ectoparasite infestations in Iran

and Iraq boarder line area.World Applied Sciences Journal, 18,884-889.

Cosoroabă I., 2005. Zoonoze parazitare. Editura First, Timişoara.

Costa-Junior Lm., Rembeck K., Mendonça Fl., Azevedo Sc., Passos Lm., Ribeiro Mf., 2012. Occurrence of ectoparasites on dogs in rural regions of the state of Minas Gerais, Brazil. Brazilian Journal of Veterinary Parasitology, 21 (3): 237-242.

Klimpel S., Heukelbach J., Pothmann D., Rückert S., 2010. Gastrointestinal and ectoparasites from urban stray dogs in Fortaleza (Brazil): high infection risk for humans? Parasitology research, 107(3):713-719.

Kumsa B.E., Mekonnen S., 2011. Ixodid tricks, fleas and lice infecting dogs and cats in Hawassa, southern Ethiopia. Onderstepoort Journal of Veterinary Research, 78 (1): Art. 326, 4 pages.

Jeong-Hyun Chee, Jung-Kee Kwon, Ho-Seong Cho, Kyoung-Oh Cho, Yu-Jin Lee, A. M. Abd El-Aty, Sung-Shik Shin, 2008. A Survey of Ectoparasite Infestations in Stray Dogs of Gwang-ju City, Republic of Korea. Korean Journal Parasitol, 46(1):23-27.

Mateescu C., Mateescu R., Tudor P., 2012. Study concerning ectoparasites infestation in dogs and cats in the Târgoviște - Dâmbovița area. Scientific Works, C Series LVIII (4):257-265.

Mitrea I.L., 2011. Boli parazitare la animale. Editura Ceres, Bucureşti.

Smith F. D., Ballantyne R., Morgan E. R., Wall R., 2011. Prevalence, distribution and risk associated with tick infestation of dogs in Great Britain. Medical and Veterinary Entomology, 25, 377–384.

Tsai-Jung Wu, Hui-Ju Sun, Yen-Chen Wu, Hui-Pi Huang, 2009. Prevalence and Risk Factors of Canine Ticks and Tick-Borne Diseases in Taipei, Taiwan. Journal of Veterinary Clinical Sciences, Vol. 2, No. 3, 75-79.

Tudor P., 2009. Ectoparasites infestation study in dogs from Bucharest area. Scientific Works, C Series LV(3): 258-261.

Xhaxhiu D., Kusi I., Rapti D., Visser M., Knaus M., Lindner Th., 2009. Ectoparasites of dogs and cats in Albania. Parasitology Research 105, 1577-158.