Short communication

Several cases of dirofilariosis accidentally diagnosed in dogs from Poland, including two PCR positive *Dirofilaria repens* cases

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Abstract

The aim of the present study was a description of several microfilaremia cases diagnosed in dogs from Poland. The study was conducted on cytological samples of pathologic masses and peripheral blood smears taken for diagnostic purposes from dogs showing a variety of clinical findings. The presence of the parasites in tissue samples was observed in 8 dogs, additionally, in 2 of these dogs PCR analysis of blood samples revealed the presence of *D. repens* DNA.

Key words: cytology, *Dirofilaria repens*, dog, microfilariosis

Introduction

When reviewing different published sources for veterinary practitioners it is possible to meet a considerable amount of information about dirofilariosis in Poland, however, these repeating data mostly seem uncertain or are not supported sufficiently by respectable diagnostic methods (Demiaszkiewicz and Polańczyk 2010). There are descriptions of cases of canine and human *Dirofilaria* infection accidentally brought to Poland and countries as Germany, Czech Republic and Slovakia (Svobodova et al. 2006, Cielecka et al. 2007, Miterpakova et al. 2009, Pantchev et al. 2009). In subcutaneous dirofilariosis, in the blood of infected animals larval forms of parasite are often observed, which are formed by an adult individual (female) that inhabits the subcutaneous and connective tissue. The aim of the present study was a description of several diagnosed microfilariaemia cases in dogs from Poland.

Material and Methods

The study material consisted of cytological samples (material taken during fine-needle aspiration biopsy of dermal lesions or enlarged lymph node) or peripheral blood smears taken from 8 dogs showing a variety of clinical findings, in which the presence of parasites with morphology of microfilaria was accidentally discovered. In 6 out of 8 dogs after parasite detection another sample of 4 ml of blood on EDTA was taken for further hematological (Giemsa stained smears evaluated in a light microscope) and DNA analysis (PCR). The PCR protocol was performed according to that reported by Rishniw et al. (2006) with primers targeting the internal transcribed spacer region 2 (ITS 2) of the ribosomal DNA and cytochrome oxidase subunit 1 (COI) gene for *D. immitis*, and the 5S ribosomal intergenic region and COI gene for *D. repens*.

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Results and Discussion

The presence of microfilariae was observed in microscopic samples of 8 dogs (Fig. 1). Moreover, in 6 out of 8 animals examination, of additional peripheral blood smear confirmed the presence of the parasites. The indications for the primary examination in which the parasite was accidentally detected, sample source, and confirmation methods results of microfilaria presence in the peripheral blood are summarized in Table 1. PCR positive reaction for *D. repens* was obtained in samples No. 2 and No. 5. Infections were considered native because none of the dogs was travelling abroad. In Germany, *Dirofilaria* was discovered in peripheral blood in 6.8% of 44 tested hunting dogs (Pantchev et al. 2009). Recently, data on dirofilariosis (caused by *Dirofilaria repens*) conducted on a large military and police dogs population revealed dirofilariosis occurrence of level respectively 20% and 8.4% (Miterpakova et al. 2009).

In only one of the cases (No. 5) discussed we were able to identify the site of invasion of the adult para-

![Fig. 1. *Dirofilaria repens* larvae in peripheral blood smear obtained from dogs with apocrine gland adenocarcinoma (parasite species confirmed by PCR). Material obtained by fine-needle aspiration biopsy (Giemsa stain, magnification 1000x).](image)

Table 1. Indications for the primary examination in which parasite was accidentally detected, sample source, and results of confirmation method for the presence of microfilaria in the peripheral blood in investigated the dogs.

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FNAB – fine-needle aspiration biopsy, PBS – Peripheral blood smear, LM – Light microscopy, NE – not examined
site – it was subcutaneous tissue. In remaining cases, no anamnesis or clinical examination allowed to reveal the invasion site. Particularly interesting seems to be the possible relationship between parasite infection and neoplasia. In our study, in 3 cases the presence of microfilariae in blood was accompanied by malignant tumors. However, it has to be taken into account that the presence of tumor (indication to make a biopsy) contributed to accidental discovery of parasites rather than that the parasite caused the tumor lesions. In humans, it was shown that in a list of various pathological states (cysts and granulomas) connected to D. immitis infestation, also primary malignant and benign tumors were included.

Based on the present results it seems reasonable to assume that diseases from dirofilariosis group should be considered as a potential, differential diagnosis in companion animals in Poland. Moreover, even in patients without visible clinical signs of the invasion, it is advised to treat microfilariosis pharmacologically in a perspective of breaking the epidemiological chain, and allowing the disease spread among wider dog population, and in human population as well.

References


