Prevalence of *Dipylidium caninum*, in domestic cats from the city of Thessaloniki, Greece

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**SUMMARY.** A population of seven hundred twenty-eight examined domestic cats from the Prefecture of Thessaloniki were screened for the presence of cestode parasite, *Dipylidium caninum*.

Infection in cats was diagnosed by finding the characteristic eggs and proglotids in feces, using the fecal parasitological examination, which was performed via an in-clinic test and other techniques. *Dipylidium caninum* was found in 123 (16.90%) cats.

Key words: *Dipylidium caninum*, cestode, cat, epidemiology, prevalence.

**Introduction**

*Dipylidium caninum* is the commonest tapeworm genus of domestic cats (Urguhart et al, 1996). It is not a migratory parasite of the small intestine and can differentiated from the large taeniid tapeworms by the shape of proglotids, which are oval, with easily visible genital pores midway along either margin (Chandler et al, 1991). The adult tapeworms are usually not associated with serious health problems in the most cats (Quinn et al, 1997), these are asymptomatic usually except from scooting and the detection of proglotids in their feces near the anus or in cat rest places (Urqhart et al, 1996; Ettinger and Feldman, 2000). The proglotids of *D. caninum* look like grains of rice or cucumber seeds and contain tapeworm eggs (Urqhart 1996; Ettinger and Feldman, 2000). The importance of cestodes infections lies not so much in the damage which inflicts their host, because this is fairly limited, as in hygiene and the zoonotic potential for the owners (Quinn et al, 1997). Several hundreds of *D. caninum* can be tolerated without clinical effect (Urqhart et al, 1996). The occurrence of cestode *D. caninum* depends on the requisite intermediate host such as flea and louse (Bowman, 2003; Haralampidis, 2003; Urquhart, 1996).

**Materials and methods**

Seven hundred twenty-eight domestic cats (661 Domestic shorthaired, 54 Siameses, and 13 Persians, 347 males and 381 females, 294 under one year and 434 over one year of age), which were living in the area of the Prefecture of Thessaloniki, were examined for the presence of cestode *Dipylidium caninum* parasites. This study was carried out in cats coming from the city of Thessaloniki during January 2000 to January 2005.

Infection in cats was diagnosed by finding the characteristic eggs and proglotids in feces, using the fecal parasitological examination, which was performed using an in-clinic test, Fecalyzer (Fecal Examination of EVSCO pharmaceuticals, USA) by means of the flotation technique (Stable solution of sodium nitrate, with stable special gravity 1.2). According to this method, 1cm³ of feces is collected using the interior device of the system, which is placed in the bigger exterior one. The flotation solution is poured. Then the interior device is rotated in order to mix the sample with the flotation solution and to separate the eggs of the parasites from the rest of the feces mass. The solution is then added in order to form a meniscus and a tent is placed on its surface. The eggs will float while the feces remain at the
bottom part of the pot. After 15-20 min., the tent is placed in a carrying plate and is examined under the microscope.

A very useful procedure was also used in order to identify the specific eggs of cestodes; crushing the segments on a glass slide and examining them for eggs.

**Results**

The recorded results from a total population of seven hundred twenty-eight examined domestic cats from the Prefecture of Thessaloniki, (661 Europeans, 54 Siameses, and 13 Persians, 347 males and 381 females, 294 under one year and 434 over one year of age) have shown the presence of the cestode *Dipylidium caninum* in 123 (16.90%) of examined cats.

Concerning race, sex, and age of fourteen infected cats with *D. caninum*, 117 were Domestic shorthaired, 5 Siamese and 1 Persian, 58 males and 65 females, 52 were under one year of age and 76 over one year.

**Discussion**

*D. caninum* is the most common tapeworm in cats perhaps throughout the world (Baker et al, 1989; Boreham and Boreham, 1990; Coman et al, 1981; Engbaek et al, 1984; Ettinger and Feldman, 2000; McCollm and Hatchison, 1980; Moore and O’Callaghan, 1985; Poglayen et al, 1985; Umeche and Ima, 1988) and this was also the most common parasite detected in this study.

*Dipylidium caninum* has been known to man since the time of ancient Babylonians (Venard, 1938) and is probably the most common tapeworm in cats, in town. This cosmopolitan parasite has found in many other members of Felidae and Canidae, such as foxes, dingoes, hyenas, wild cats, jungle cats, Indian palm cats, civet cats and wild dogs (Boreham and Boreham, 1990). Heavy infestations are only rarely associated with diarrhea, weight loss, and failure to thrive (Ettinger and Feldman, 2000). Usually, no clinical signs are noted except “rice grains” in the perineal area or feces (Ettinger and Feldman, 2000; Urquhart, 1996).

Regarding race, sex, and age of infected cats with *D. caninum*, 117 were (17.70% from totally 661) Domestic shorthaired, 4 (7.41% from totally 54) Siamese and 1 (7.69 % from 13) Persian race, 58 (16.71% from totally 347) males, 66 (17.32% from totally 381) females, 51 (17.35% from totally 294) young, 72 (16.59% from totally 434) adults. The prevalence of *D caninum* in this study was higher in European race than Siamese, in females than males, in young than adults. A survey (Engbaek et al, 1984) revealed higher prevalence in female than in male cats and this was attributed to the care of the kittens. In the Republic of South Africa this parasite is marginally more common in adult cats (Baker et al, 1989).

The prevalence of *Dipylidium caninum* in cats has been reported with higher prevalence than in our study, 29% in Germany (Loos-Frank and Zeyhle, 1982), 30.40% (Nichol et al, 1981b), 12.70% (Niak, 1972), in Italy 41.40% (Poglayen et al, 1986), 20.70% in Spain (Calvete et al, 1998), in Greece 27.6% (Haralampidis, 2003), and with lower 8% in Belgium (Gerin et al, 1980), 3.2% in Belgium (Thienpont et al, 1981), 14% in Denmark (Engbaek et al, 1984), 1.4% in Germany (Epe et al, 1993), 1.05% in Germany (Schneider, 2000), 2.8% in Germany (Schneider, 2000), 12% in Great Britain (Nichol et al, 1981a), 3.0% in France (Franc et al, 1997), 1.20% in Great Britain (Nichol, 1981), 0.7% in Netherlands (Robben et al, 2004), 13.51% in Spain (Negro et al, 1998), and 2% in Switzerland (Eckert, 1972).

**Conclusion**

*Dipylidium caninum* is a very common cestode in domestic cats, in the city of Thessaloniki, Greece. The prevalence of naturally infected cats recorded in this study was 16.90%.
References


