

Clinico-therapeutic and diagnostic aspects of *Diphyllidium caninum* infection in a dog

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Abstract

A 2.5 month old Bhotiap up was presented to Department of Veterinary Clinical Complex, College of Veterinary and Animal Sciences, with the history of dullness, anorexia, loose faeces and melena since last 4 days. White cucumber seed shaped segments in faeces and scooting behaviour was also noticed. Faecal sample with proglottids were collected in a sterile vial and was sent to Department of Veterinary Parasitology for coproscopic examination. The proglottids were processed by standard protocol for the identification of the endoparasite. Proglottids were noticed in chain and single. The direct faecal sample examination revealed large number of typical egg capsules which were round in shape containing large number of eggs, characteristic of *Diphyllidium caninum*. Pup was treated with praziquantal@ 5 mg/kg body weight orally and animal recovered completely.

Diphyllidium caninum infection is an ubiquitous infection among the dogs and cats. It is reported mainly from dogs and cats infected with fleas or louse (Waniet *al.*, 2015), but cases in humans are also reported (Taylor *et al.*, 2007). The intermediate host is the larval stage of *Ctenocephalides* species of dog or cat flea. Dogs and cats accidentally swallow the infected fleas and acquires infection. It is one of the commonest cestode infection in pets. Canines which are infected will shed the segments of *D. caninum* in faeces and contaminate the surrounding with these proglottids which act as a source of infection (Yasuda *et al.*, 1971). It is a disease of public health importance as children usually are in close contact with pets and they can easily contract infection. Proper diagnosis, flea control and deworming is very essential to prevent the infection in humans and animals. Children will catch infection through accidental consumption of dog fleas and in most of the cases there would not be any apparent clinical manifestations. Clinical signs in affected dogs are reduced growth rate, pot-belly, diarrhoea and anal scooting due to pruritis (Taylor *et al.*, 2007). Proglottid shedding can be noticed usually from 2 weeks after infection in dogs and cats. Diagnosis of infection can be done by direct examination of proglottid or direct faecal sample examination. The therapeutic management of disease is always successful in dogs and humans which can be done with any anticestode drugs. In this paper we are discussing a case of *Diphyllidium* infection in dog, its clinical manifestation, diagnosis and treatment.

Case History and Observations

A 2.5 month old Bhotia pup was presented to Department of Veterinary Clinical Complex, College of Veterinary and Animal Sciences, SVPUAT, Meerut (U.P) with the history of dullness, anorexia, loose faeces and melena since last 4 days. White cucumber seed shaped segments in faeces and scooting behaviour was also noticed. Anamnesis revealed that the pup was due for deworming. Close physical examination revealed presence of fleas on skin coat (Fig. 4) On clinical examination, animal was unthrifty with poor hair coat condition, infested with fleas. Mucus membranes were pale and temperature was 101.5°F. Heart rate and pulse was in normal range. No abdominal pain was elicited during palpation. Faecal sample with proglottids were collected in a sterile vial and was sent to Department of Veterinary Parasitology for coproscopic examination and identification of endoparasite. The proglottids were processed by standard protocol for the identification of the endoparasite (Soulsby, 1982).

Proglottids were noticed single or in chain (Fig.2). It was white and cucumber seed shaped which was characteristic of *D. caninum*. Microscopic confirmation of the endoparasite was done in Department of Veterinary Parasitology, COVAS, SVPUAT, Meerut. The direct faecal sample examination on microscopy revealed large number of typical egg capsules of *D. caninum*. These egg capsules were round in shape and contain large number of eggs in it (Fig. 3). Dog was treated with Tab. Praziquantal@ 5 mg/kg body weight orally for 3 days

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Fig. 1. Affected Dog



Fig. 2. Adult Worm from faecal sample

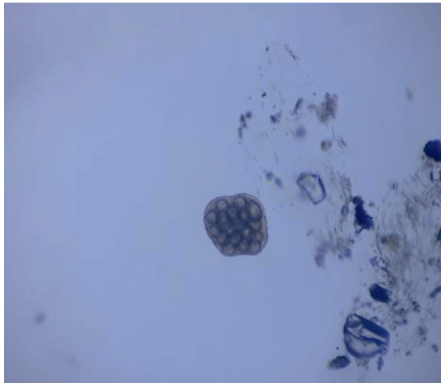


Fig. 3. Egg Capsule (x40)

Fig. 4. Dog Flea (*Ctenocephalides canis*)

with supportive fluid therapy.

Discussion

D. caninum is very common cestode infection of dogs contracted by ingestion of fleas containing the infective cysticercoid stage (Gopinath *et al.*, 2018). It is also known as flea tapeworm, cucumber tapeworm and double-pored tapeworm. Apart from the signs of worm infestation, animal frequently shows signs of flea infestation such as skin pruritis, dermatitis and anaemia (Yaphe *et al.*, 1993). In the present study, fleas were observed on the skin of dog and dog shows typical clinical manifestation of *D. caninum* infection such as anal scooting which is due to the irritation of movement of the proglottids in the anal region. The eggs were round in shapes and were inside egg capsules which is very typical of *D. caninum*. Clinical signs was successfully managed by anticestode therapy and animal recovered completely after five days of treatment. Proper and timely diagnosis of the case helps in successful management of the case. Diagnosis can be easily done at every level due to its peculiarity of eggs and proglottids. Praziquantel and epsiprantel are considered as the drug of choice for therapy against *D. caninum*.

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