Dipylidium caninum infection in dogs infested with fleas

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Abstract The present study pertains to the *Dipylidium caninum* infection in dogs infested with fleas. Twenty dogs were presented to the Division of Surgery, SKUAST-K for different surgical procedures. Majority of the dogs had a history of pruritus, loss of weight as well as rubbing their perineal region against the wall. On external examination dogs were found infested with *Ctenocephalides canis*. When dogs were anesthetized, motile segments were seen coming out of their anus, which were then identified as mature segments of *D. caninum*.

Keywords Fleas · *Dipylidium caninum* · Dogs · Pruritus

Introduction

Parasitism is the most encountered disease in dogs all over the world. Regardless of the availability of effective medications to treat parasites, most parasites of dogs have highly evolved life cycles that make their elimination impossible. In addition, dogs are routinely infected with internal parasites, sometimes without apparent evidence of

the infestation. Gastrointestinal helminthes of dogs pose serious impact both on the host and human beings. They impede the successful rearing of dogs and result in losses that are manifested by lowered resistance to infectious diseases, retarded growth, reduced work and feed efficiency and general ill health (Soulsby 1982). *Dipylidium caninum*, also called the cucumber tapeworm or the double-pore tapeworm, is a cyclophyllid cestode that infects organisms afflicted with fleas, including canids, felids, and pet-owners *D. caninum* is the most common tapeworm in of dogs it is acquired by ingesting infected fleas. The life cycle of *D. caninum* involves the ingestion of flea infected with larvae or cysticercoid by the dogs. Dogs infected with *D. caninum* sheds proglottids in their faeces, and these proglottids in the environment are consumed by flea larvae (Yasuda et al. 1971). In India extensive survey of the fleas, their morphology, life cycle, behaviour etc. has been worked out by (Joseph 1970, 1974, 1981; Joseph et al. 1984). Similar reports are available from England (Chesney 1995), France (FrancM and Cadiergues 1998) and Japan (Saito et al. 1998). Since no work has been done in this regard in Jammu and Kashmir, so the present paper deal with the occurrence of *D. caninum* infection in dogs infested with fleas.

Materials and methods

The study was carried out from April 2011 to October 2011, during which Twenty dogs were presented to Division of Veterinary surgery SKUAST-K for some surgical procedures. Only dogs parasitized by the fleas were sampled. Among the dogs sampled there were 12 males and 8 females. They were brought to the Division with the history of anorexia, loss of weight as well as scratching their

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Fig. 1 *Ctenocephalides canis* ($\times 10$)

Fig. 2 **a** Gravid segment of *D. caninum* showing egg capsules containing eggs ($\times 10$). **b** Gravid segment of *D. caninum* with egg capsules containing eggs ($\times 40$)

perineal region against the wall. On external examination, dogs were found infested with fleas. No animal had been treated with any ectoparasiticide or avermectin drug for at least 60 days prior to the first infestation with Fleas. Fleas

were collected in 70 % alcohol and were preserved. When these dogs were anesthetized for surgery, motile segments of tapeworms started coming out of anus and clusters of segments were seen scattered around the perineal region. These segments were collected, washed and preserved till further procedure. Fixation, processing and mounting was carried out as per routine methods (Soulsby 1982).

Results and discussion

Flea infestations frequently cause skin irritation and allergic dermatitis in host animals (Plant 1991; Carlotti and Costargent 1994), and may lead to infection with the tapeworm *D. caninum*, for which *Ctenocephalides* species are intermediate hosts (Dunn 1978). Flea infestations also may lead to anemia, occasionally leading to death, particularly if the host animal is small and heavily parasitized (Yeruham et al. 1989; Yaphe et al. 1993). The fleas and segments were processed as per standard protocol. After preparation of permanent mounts, the specimens were identified based on morphological criteria described by (Soulsby 1982; Bhatia et al. 2006; Urquhart et al. 1987). Fleas were identified as *Ctenocephalides canis* (Fig. 1) and segments of tapeworms revealed egg capsules containing eggs (Fig. 2). Presence of egg capsules containing eggs is characteristic feature of *D. caninum*. Occurrence of *D. caninum* infection in dogs has been reported by several authors (Kumar and Sahai 1972; Sahai 1969; Deka and Choudhary 1994). Presence of fleas in the surroundings relates it to the occurrence of tapeworm infection in dogs as these fleas act as intermediate host in case of *D. caninum*. The pioneering studies of (Joseph 1970, 1974, 1981) on fleas are a mile stone in India and our findings are in agreement with his views. The present study may be regarded as a step forward towards ecology and host parasite relationship of the genus *Ctenocephalides*.

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