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Medical management of *Dipylidium caninum* infected female cat: A case report

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Abstract

A female cat aged 2 year was presented to the Referral Veterinary Polyclinic, IVRI Izatnagar with complaint of continuous crying, weakness, inappetence, discomfort and anal rubbing. Physical examination of cat revealed flea infestation and faecal examination revealed the presence of multiple egg packets containing gravid segments. The systematic investigation showed reduced haemoglobin concentration and total erythrocyte count, but no significant changes in normal biochemical parameters. The institution of treatment to the cat with praziquantel along with the supportive therapy brought successful recovery in 7 days.

Keywords: Anal rubbing, cat flea, egg packets, praziquantel

1. Introduction

Dipylidium caninum commonly known as double pored tapeworm, a worldwide distributed cestode that can infect all domestic and wild canids and felids [3, 5, 7], and it can also infect humans [12]. *Ctenocephalides felis*, commonly known as cat flea is the main intermediate host of *D. caninum* and cat get the infection by accidentally swallowing of infected fleas while grooming [3]. The point of attachment of the parasite may lead to the creation of hemorrhage leading to gut diseases in some dogs which is clinically manifested as reduced growth rate, weakness, GIT stasis, inappetence, reduced working capacity and general ill health [9]. In humans, especially children are accidentally infected when they consumed the flea harboring the metacestode stage of the tapeworm, cysticeroid. *D. caninum* infections reported mostly in children leads to pruritis due to gravid segments which crawl out through the anus of infected host [13]. *D. Caninum* infected cat shed eggs containing gravid segments in their feces to the environment which are consumed by flea larvae. *Dipylidium* infections can be successfully treated with praziquantel in humans as well as animals. The present study deals with the diagnosis and successful management of dipylidiosis in a female cat.

2. Materials and Methods

The diagnosis is based on the history of anal rubbing and microscopic examination of faecal sample with the presence of egg packets that are round to ovoid and contain 5 to 15 or more number of eggs each from the pumpkin or cucumber seed shaped proglottids/ gravid segments passed in the stools.

2.1 Case History

A 2 year old, female cat was presented to the Referral Veterinary Polyclinic, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly (U.P) with history of severe weakness, inappetence, discomfort, constipation, reduced water intake and crying during whole night. History of anal rubbing by the cat before 2-3 days of severe weakness. History of flea infestation reported by owner and the cat was not dewormed and vaccinated as per standard regimen.

2.2 Clinical examinations and laboratory findings: Clinical examination revealed pale conjunctival and gingival mucous membrane (Fig. 1 & Fig. 2), subnormal body temperature (97.4 °F), tachycardia (250 beats per minute), tachypnoea (60 breaths per minute), enlarged popliteal lymph nodes and abdominal distension (Fig. 3).

Physical examination of cat revealed flea infestation on the skin. Haematological parameters (Table. 1) revealed reduced haemoglobin concentration and total erythrocyte count (TEC) and biochemical parameters were in normal range (Table.1). The diagnosis is based on the microscopic examination of faecal sample with the presence of egg packets that are round to ovoid and contain 5 to 15 or more eggs each (Fig.4) from the pumpkin or cucumber seed shaped proglottids/ gravid segments present in the stools.



Fig 1: Pale conjunctival mucous membrane

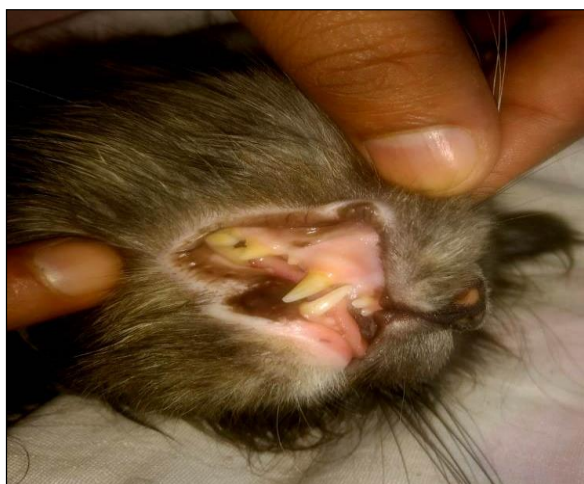


Fig 2: Pale gingival mucous membrane

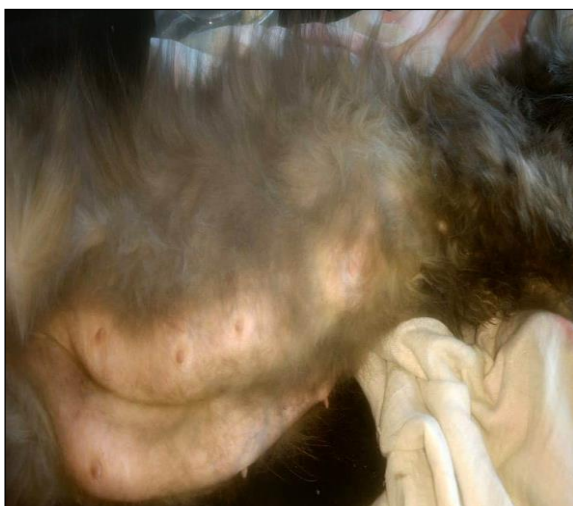


Fig 3: Abdominal distension

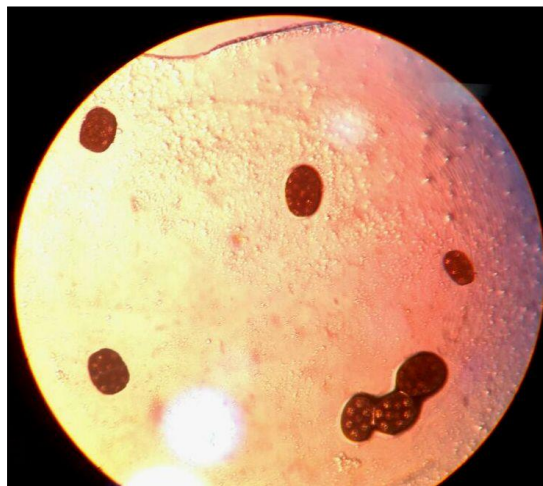


Fig 4: Egg packets of *Dipylidium caninum*

Table 1: The haemato-biochemical parameters of affected cat

Parameter	Reference range ^[9]	0 day	7 th day
Hb (g/dl)	9.8-15.4	7.68	10.1
PCV (%)	30-45	32	39
TEC (10 ⁶ /cmm)	5.0-10.0	3.96	5.34
TLC (10 ³ /cmm)	5.5-19.5	9.66	7.20
Neutrophils %	45-64	60	58
Lymphocytes %	27-36	34	34
Monocytes %	0-5	4	4
Eosinophils %	0-4	2	4
Basophil %	0-1	0	0
Platelet count (10 ⁶ /cmm)	300-800	398	450
SGPT(U/L)	25-97	23	27
SGOT (U/L)	7-38	19	21
BUN (mg/dL)	19-34	11.3	13.5
Creatinine(mg/dL)	0.9-2.2	0.7	0.5
Total Protein (mg/dL)	6.0-7.9	7.0	7.2
Albumin (mg/dL)	2.8-3.9	3.0	3.0
Globulin (mg/dL)	2.6-5.1	4.0	4.2

2.3 Treatment

Following the diagnosis of the case treatment was started with praziquantel @ 5mg/kg BW PO for 3 days orally, dexamethasone @ 1mg/kg BW IM OD, 50 mL of 5% DNS IV OD, Eldervet 1ml IV OD, Omeprazole 1 mg/kg BW IV OD on day of presentation and ½ tab. neurobion forte oral OD, omeprazole 1 mg/kg BW PO OD, Syrup Bcomplex with vitamin C (Becasule) 2.5 ml PO BID and haematinic syrup (sharkoferrol pet) 2.5 ml orally BID for 7 days.

3. Results

The Cat showed marked recovery after one week of therapy. The clinio-haematological parameters after a week of treatment revealed normal activity, appetite, defecation, abdomen returns to normal size, Hb and TEC level returns within normal range. On re-examination of faecal sample, it was negative for any parasitic egg or gravid segments.

4. Discussion

Dipylidium caninum is rarely associated with clinical signs in infected dogs and cats. *Dipylidium caninum* infection depend on the degree of infection, age, condition, and breed of host in the form of from unthriftiness, malaise, irritability, capricious appetite, shaggy coat, colic and mild diarrhea ^[9]. Infrequently, intussusception or blockage of the intestine, emaciation, and seizures are also seen ^[9]. An accurate diagnosis is required for effective therapy and preventing reinfection. In feces of

affected cat presence of egg packets that contain multiple eggs each from the pumpkin or cucumber seed shaped proglottids/ gravid segments passed in the stools ^[4]. The mature segments leaving the anus may result in anal irritation (pruritus) cause an animal to rub its bottom along the ground. In the present study, the cat was successfully managed by praziquantel therapy. Praziquantel therapy is approved for spot-on treatment of *D. caninum* infection to the cat ^[1]. In the present case, hemato-biochemical parameters before initiation of treatment revealed reduced hemoglobin concentration and total erythrocyte count. The decrease in the values of hemoglobin and TEC might be due to anemia caused by the attachment of the parasite leading to the creation of hemorrhage causing gut disorders in cat which were clinically manifested as reduced growth rate, weakness, GIT stasis, inappetence, reduced working capacity and general ill health ^[13] or stress arising from the gastrointestinal disease ^[10]. Dexamethasone has anti-inflammatory property that causes relief from pain stimuli ^[8]. The syrup (sharcoferrol) containing iron and calcium preparations useful for alleviating Hb, TEC level and maintain neurotransmitter conduction at the neuromuscular junction. To reduce the chance of gastrointestinal disorder in present case administration of omeprazole to diminish gastric acidity ^[11], vitamin B-complex act as a nervine tonic ^[10] and vitamin C as an antioxidant ^[2,10] for minimizing the oxidative stress in gastric mucosa of the cat.

5. Conclusion

The case was successfully managed by praziquantel along with supportive therapy and proper nursing, care and management. Prophylactic treatment through imidacloprid/flumethrin collars and imidacloprid in combination with flumethrin in a slow-release matrix collar can be used for effective protection against adult cat fleas ^[5,7].

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