Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2017; 5(4A):1276-1278 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjams.2017.v05i04.012

Case Report

Infection by *Dipylidium caninum* in a child: First case report from north India

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Abstract: *Dipylidium caninum* is also called as cucumber tapeworm or the double pore tapeworm. The natural lifecycle of Dipylidiasis infection occurs in cats and dogs. Humans are occasionally infected and are rarely reported in literature. We could found only three cases from Indian literature and none of them were from northern part of India. We report a rare case of human dipyliadiasis in young child from Haryana.
Keywords: *Dipylidium caninum*, cats, dogs

INTRODUCTION:

Dipylidium caninum is also called as cucumber tapeworm or the double pore tapeworm. *Dipylidium caninum* is taxonomically located in the Dilepidiidae family, order Cyclophyllidea, subclass Eucestoda. The definitive host is usually cat or dog. Dog flea (*Ctenocephalides canis*) and cat flea (*Ctenocephalides felis*) acts as intermediate hosts. Humans are accidental hosts and acquire this infection by ingestion of the fleas, which carries the larval forms [1-3]. We report a rare case of human dipyliadiasis in young child from Haryana state.

CASE REPORT:

A young girl of age ten presented to outpatient department for complaints of intensely itchy red colored transient lesions all over the body since last one year. She was also having on and off colicky abdominal pain, fullness of the epigastrium and occasional bout of nausea and vomiting since last one year. She was in a habit of handling cats and street dogs. On general examination, the child was poorly built, weighing 19 kg. Skin examination showed multiple evanescent plaques ranging in size from 1 to 3 cm in diameter. The lesions were seen predominantly on extensor surface of forearm, legs and trunk. Patient was clinically suspected of having a parasitic infection and was sent for stool examination. The stool sample was yellowish in colour, semi formed and was not foul smelling. Small ivory colored structures resembling cucumber seeds or rice grains were also observed in the stool sample [Figure 1] .A wet mount examination showed egg packets surrounded by a thin membrane. The crushed proglottids also showed similar morphology [Figure 2]. Hence the diagnosis of infection with *Dipylidium caninum* was given. The child was treated with a single dose of praziquantel palmoate (10 mg/kg bodyweight). Stool sample was examined after one month and it was free of infection.

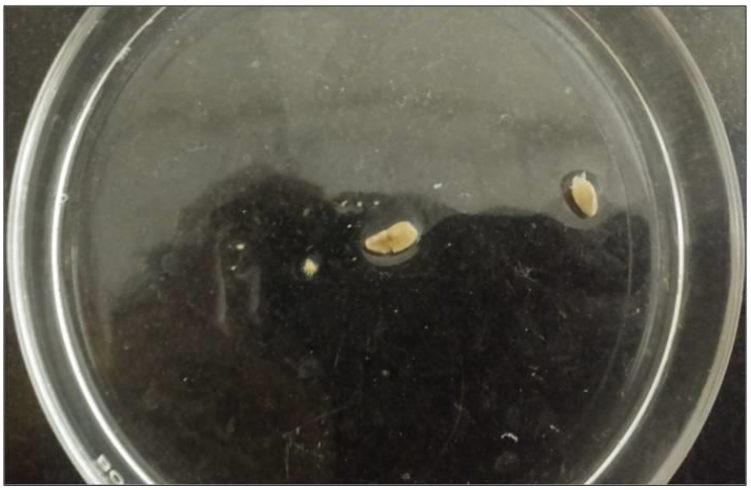

Fig 1: Gross examination showing small ivory colored structures resembling cucumber seeds or rice grains.

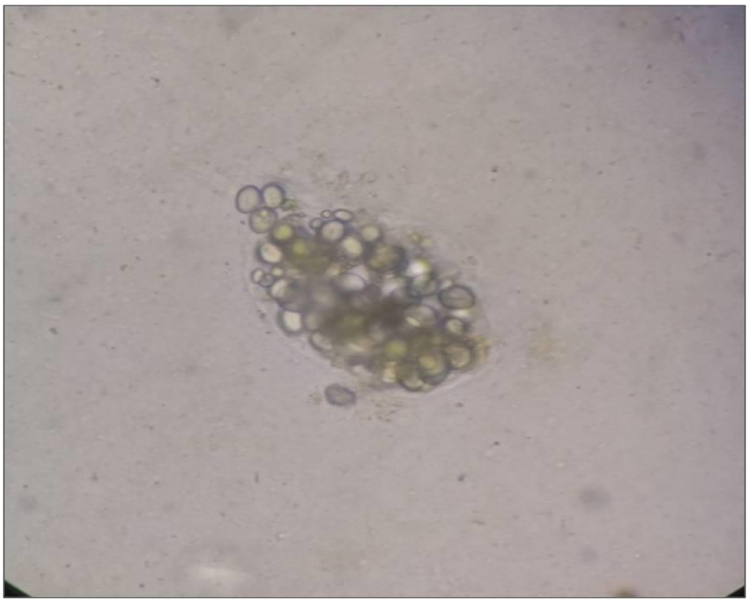

Fig 2: Microscopic examination showing eggs surrounded by a thin membrane. [Wet preparation x 40]

DISCUSSION:

Dipylidiasis infection occurs worldwide and natural lifecycle takes place in cats and dogs. Human infections are rarely reported in literature [2-4].These infections were seen mostly in children [2, 4]. Wong MH found that the patients were mainly children as in our case [4]. After a literature search we could find only 120 human cases of dipylidiasis. In India we could find out only three case reports each from central, eastern and southern parts of India [2, 5, 6].

Young children and toddlers are at a greater risk of infection due to their playing habits with dogs and cats [7]. A human may acquire an infection by accidentally ingesting an infected flea through food contamination or through the saliva of pets [1]. The infection usually presents with nonspecific systemic manifestations [7]. Most infections are asymptomatic, although mild diarrhea, abdominal colic, anorexia, restlessness, agitation, constipation, itching and pain due to emerging proglottis can occur. This infection is commonly confused with the more common infestations such as *Enterobius vermicularis* which also presents as urticaria [2, 7].

Therefore it is exceptionally diagnosed clinically [7-9]. This child also presented with urticaria which was not seen in other reported cases. Diagnosis of it relies on the accurate history given by parents or care takers of child. Diagnosis is done by observing the

characteristic cucumber seed like proglottids with egg pockets in faeces. The drug of choice is praziquantel [10]. The recommended dose is 400-600 mg in adults and 10-20 mg/kg of body weight in children, administered orally in a single dose, which kills the tapeworms within 24 hours. A second oral dose can be administered in heavy or persistent infections. The best way to prevent human infection is treating infected animals to kill the fleas, periodic deworming and preventing children from playing with stray animals [5, 7].

CONCLUSION:

There are two important points that need to be highlighted; the first one is the importance of being aware of the risk of the pet animals as source of infection. The second point is the importance of the comprehensive training of the laboratory personnel in the field of parasitology. Also prophylaxis of dipylidiasis is based on upholding cleanliness, personal hygiene and both the limitation of the spread of *D. caninum eggs in the* environment as well as protection of children in places in which dogs or cats are present.

Acknowledgements: None.

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