



**Case Report:**

**Human Dipylidiasis: A Case Report of *Dipylidium caninum* Infection from Karimnagar.**

**KV Ramana**, Dept. of Microbiology, Prathima Institute of Medical Sciences, Karimnagar,  
**Sanjeev D Rao**, Dept. of Microbiology, Prathima Institute of Medical Sciences, Karimnagar,  
**Ratna Rao**, Dept. of Microbiology, Apollo Health City, JubileeHills, Hyderabad,  
**SK Mohanty**, Dept. Of Microbiology, KIMS, Bhubaneswar, Orissa,  
**CG Wilson**, Dept of Paediatrics, Kamineni Institute of Medical sciences, Narketpally.

**Address for Correspondence:**

**K V Ramana**,  
Assistant Professor,  
Department of Microbiology,  
Prathima Institute of Medical Sciences,  
Karimnagar,  
Andhra Pradesh, India.  
**E-mail:** ramana\_20021@rediffmail.com

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**Abstract:** *Dipylidium caninum* also referred to as the double-pored tapeworm is a cyclophyllidean cestode that commonly infects dogs and cats. Mammals act as definite hosts with intermediate hosts being dog and cat flea, the *Ctenocephalides canis* and *Ctenocephalides catis* respectively. The dog lice, *Trichodectes canis* and human flea (*Pulex irritans*) also transmit *Dipylidium caninum* infection. Infants and young children are at high risk of acquiring infection. Majority of the infections are due to close association with pet dog and cats. Humans are accidental hosts who acquire infection by ingestion of infected dog and cat fleas. We report a rare case of *Dipylidium caninum* infection in a 9 year old girl who could have acquired infection by consuming food contaminated with infected fleas.

**Key Words:** *Dipylidium caninum*; Distribution; Pediatric age

**Introduction:**

*Dipylidium caninum*, commonly called as dog tape worm, is a monoecious or hermaphrodite cestode. A parasite of dogs and cats, it accidentally infects humans. Mammals act as definite hosts with intermediate hosts being dog and cat flea, the *Ctenocephalides canis* and *Ctenocephalides catis* respectively, which acquire parasite by ingesting animal faeces. The dog lice, *Trichodectes canis* and human flea (*Pulex irritans*) also transmit *Dipylidium caninum* infection.<sup>1</sup> Young and crawling children due to their playing behaviour and proximity to animals are at higher risk of contracting infection with *Dipylidium caninum*.<sup>2</sup> The adult worm of *Dipylidium caninum* measures around 18 inches long with scolex, the neck and the double pore proglottids which resemble cucumber seeds. The scolex is rhomboid in shape with four suckers and an apical rostellum with 4-6 crowns of hooks. The gravid proglottids release up to 50 packs of eggs which are packed in a thin embryonic membrane. Eggs measure up to 20-40 µm in diameter which later develops inside a hexacanth embryo.<sup>3</sup>

**Case Report:**

A 9 years old girl child was brought to the casualty of Prathima Institute of Medical Sciences, Nagunoor, Karimnagar with complaints of nausea, vomiting and diarrhoea since three days. The vomitus was not foul smelling and contained no blood and

mucus. Undigested food material was observed in the vomitus. The patient gave a history of persistent low grade fever since three days with recurrent abdominal pain. No history of similar complaints was given by the patient. The patient was staying in a social welfare hostel and going to school. General physical examination revealed patient to be moderately built and dull looking with a temperature of 99<sup>o</sup> F, pulse rate of 100/min and a respiration rate of 21/min. Blood pressure recorded on admission was found to be 100/70 mmHg.

The haematological profile of the patient showed haemoglobin of 9.3gm/dL, total Red blood cell count of 3.62 cells/cu mm. Hematocrit value was reduced to 25.6 vol% (Normal:37-47 vol %). A below normal MCV 70.3 (Normal: 82-92), MCH 23.3 (Normal: 27-32), MCHC 35.6 (Normal : 32-36) were observed. No eosinophilia (3%) was observed and ESR was found to be 10mm.

Stool for Ova and Cyst examination was sent to microbiology laboratory. Simultaneously blood was sent for culture. Macroscopy of stool revealed undigested material without any foul smell and was semi formed. White to creamish specks were observed in stool indicating the probable presence of worms. A wet mount showed the presence of egg cluster (Figure-1). Adult worm with characteristic cucumber seed shaped segments was observed (Figure-2). On repeated wet mounts single egg of the worm was demonstrated (Figure-3). Based on the morphology of eggs along with the presence of egg balls or egg clusters as well as the adult worm of the parasite with double-pore segments and cucumber seed shape of the proglottids the parasite was identified as *Dipylidium caninum*. Blood culture was found to be negative. The patient was successfully treated with praziquantel the choice of drug for tape worm infections.



**Fig. 1: Wet mount showed the presence of egg cluster**



**Fig. 2: Adult worm with characteristic cucumber seed shaped segments**



**Fig. 3: Wet mount showing single egg of the worm**

**Discussion:**

Dipylidiasis, the infection caused by *Dipylidium caninum*, is an uncommon infection in human beings. Natural infection happens to be in mammals like dogs and cats. Humans are the accidental hosts who acquire infection by ingestion of infected fleas or contact with saliva of pet animals. Young and crawling children are at high risk of getting infected with *Dipylidium caninum*. The pet dogs bite the fleas and the larval forms of the dog tapeworm stick to the teeth and contaminate the saliva. Children may get in contact with the saliva and may accidentally ingest the infective larval forms. The probable source of infection in the present case could be the food contaminated with the infected dog and cat fleas or accidental swallowing of the infected fleas while playing in the areas where there are abundant fleas. Humans though are not natural hosts there have been

growing reports of Dipylidiasis in recent times. There have been only two such reports from India and in both the cases the patients were less than five years.<sup>4,5</sup> Epidemiological studies revealed that geography of pet animals and flea infestation as the principal risk factors for humans.<sup>6</sup> Screening for prevalence of such infections and assessing the transmissibility and pathogenicity to humans has to be recommended. Eradication of the dog and cat fleas and dog lice can reduce the risk of infection to humans. Though many of the infected humans remain asymptomatic the cause of concern is the morbidity it results in the paediatric age group which needs to be addressed. The clinical microbiologists and the paediatricians must recognise the significance of such parasitic infections that are transmitted from pets to humans.

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