



**ORIGINAL RESEARCH PAPER**

**Microbiology**

**HYMENOLEPIS NANA: A COMMON CAUSE OF PAEDIATRIC DIARRHOEA:A CASE REPORT**

**KEY WORDS:** Hymenolepis Nana, Tapeworm Intestinal Parasite, Poor Hygiene

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**ABSTRACT** *Hymenolepis nana* (*H.nana*) is prevalent worldwide, and a few hundred human cases have been reported till date. It is primarily tapeworm and humans (usually children) can act as accidental hosts. Infections are usually asymptomatic but abdominal pain, diarrhoea, vomiting, irritability, pruritis, and eosinophilia is among the existing symptoms in a few of the reported cases. Here, we report a case of an 6-year-old female child from Naldurg , who presented to us with complaints of abdominal pain, diarrhoea, vomiting, fatigue and irregular episodes of fever. Routine stool examination showed characteristic eggs of *H.nana*. Patient was given a single oral dose of praziquantel (25 mg/kg) and she improved. This case is presented to emphasize that till date there are very few reports on *H.nana* and there is limited data regarding its treatment protocols (dose and duration). Furthermore, albendazole which is commonly used drug for deworming helminthic infections is less effective in these infections.

**Case report:-**

An 6-year-old female child presented to the paediatric OPD at our tertiary care centre with episodes of watery diarrhoea, projectile vomiting, dull aching abdominal pain and fatigue. Fever was of low grade and it was not associated with chills and rigor. A significant history of pica was present since almost a year. There was no past history of jaundice or bleed from any site.

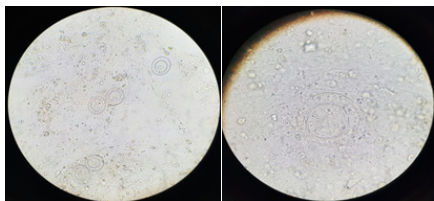
On general examination, mild pallor was present. There was no icterus, lymphadenopathy. Rest of the general examination was insignificant. Systemic examination did not reveal any relevant finding. On investigation, anaemia was present (haemoglobin - 8.6 g/dl) and Total leukocyte count was 8900/cu mm and differential leukocyte count showed mild eosinophilia. Other parameters were within normal range. Chest X-ray and ultrasound abdomen were also normal. Her stool routine microscopy showed 8-10 pus cells per high power field and stool culture yield *Escherichia coli* . Her stool routine examination also revealed – Spherical or ovoid colourless, non-bile stained eggs which were nearly 30-47 micrometre in size, oncosphere with three pair of hook lets, shell with inner and outer membranes .On inner membrane two small polar thickenings and 4-8 polar filaments [Fig-1(a) & (b),] .Her family was educated for personal hygiene, surrounding environmental hygiene, hand hygiene also awareness of neglected parasitic diseases. She was prescribed praziquantel single dose of 25mg/Kg along with iron and folic acid tablets. On follow up after two weeks, she was relieved from her symptoms to a great extent and her repeat stool examination was negative for parasitic elements.

poor hygiene and poverty.<sup>2,3</sup> *Hymenolepis nana* belongs to kingdom Animalia, Phylum Platyhelminthes, Class Cestoda with genus *Hymenolepis* and Species *nana*. Of the two forms of infection, *H. nana* (dwarf tapeworm) is the most common human tapeworm worldwide; it occurs most frequently in children, although adults may also become infected. In Mexico, *H. nana* is one of the most frequent intestinal helminthiasis,<sup>4,7</sup> and it also occurs frequently in children as in other countries.<sup>8,9</sup> This tapeworm is more commonly found in areas where large amounts of grain or other. Cases of infections with *H. nana* are more frequently seen due to person to person transmission whereas *H. diminuta* requires an intermediate host for its transmission 10. Till date, few hundreds of cases of *H.nana* infection in humans have been reported worldwide and are spread due to poor food hygiene and infestation by cockroaches, beetles and rodents 11. In our case too, the child lived in poor hygienic and improper conditions with habit of practicing open air defecation. Almost all the cases have been documented in children who belong to lower socioeconomic status<sup>11</sup>.

*Hymenolepis nana* infection rates tend to be high in regions with high temperature and low rain fall, and our place of study falls within such an environment. Although hookworm, roundworm and whipworm are the three main nematode infections associated with growth retardation of children in tropical countries, reduced growth rate in young children was also often observed in our case. Poverty, poor housing and sanitation, open air defecation improper hand hygiene, inadequate diet and other environmental factors were all contributing factors. In this setting, intestinal parasitic infections and their associated digestive disturbances, malabsorption and anaemia may be implicated in the retardation of growth.

*H.nana* infection when mild is usually asymptomatic but if heavy infection may present with abdominal pain, diarrhoea, vomiting, irritability and pruritis and fatigue<sup>2,12</sup>. Our case also presented with similar complaints.

The recommended protocols for treating such helminthic infestations are either praziquantel (10 mg/kg) as a single dose or at a higher dose (25g/kg) for 5 consecutive days or niclosamide in the doses of 1-2 gm given for 5-15 days 13. Due to better safety profile of praziquantel, it was used in single dose in our case. Along with the medications the patient and the entire family were sensitized for adequate sanitary precautions and importance of hand hygiene .Along with the above advice the family was also encouraged to use toilets instead of open defecation and its disadvantages. On follow up patient became asymptomatic and



**[Fig-1(a) & (b) showing Eggs of Hymenolepis .nana on saline mount]**

**Discussion :-**

Tapeworms are among the oldest of all human afflictions and they are an important cause of morbidity and mortality worldwide.1 although higher vertebrates may be infected by more than 400 species of the genus *Hymenolepis*, only *H. nana* and *H. diminuta* cause disease in humans. *Hymenolepiasis* has a high prevalence in populations in tropical and subtropical climates characterized by

stool examination was also negative for parasitic elements. It may be noted that most deworming prescriptions or programmes use albendazole commonly, however most tapeworms can more effectively be destroyed by praziquantel/niclosamide<sup>14</sup>.

#### Conclusion:-

Although parasitic infections such as protozoa, ascariasis and strongyloidiasis are on the rise affecting paediatric patients, other parasitic infections should not be ignored. *Hymenolepiasis* should also be considered as well in a case of paediatric patient presenting with diarrhoea. Anthelmintic therapy should be offered according to the severity of clinical manifestations, and in view of the suppressed immunity, the treatment would be beneficial to eliminate the parasite and to reduce its transmission. *Hymenolepiasis* seems to be a significant cause of parasitic diarrhoea meanwhile, good sanitation is very important to prevent faecal contamination of food and water especially in crowded areas

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