

Hymenolepis diminata Infection in a Child of 14 month

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ABSTRACT

We report a case, a 14 month old male child who presented with fever and diarrhea for a month. It was diagnosed as a case of *H. diminata* infection, which is a sole parasite of rat. Very few cases of such infection have been reported in Nepal. The treatment is done with either Niclosamide or Praziquantel, but the main concern is about the diagnosis of the condition. Since, *H. diminata* is a sole rat parasite, it is hardly ever thought about a cause of the diarrhea.

Key words: Diarrhea, *H. diminata*, Niclosamide

INTRODUCTION

H. diminata (rat tapeworm) is a sole parasite of rat and it rarely parasitizes human. Its scolex has an unarmed rostellum and four suckers.^{1,2,3} The number of proglottids varies from 800 to 1000. It has a worldwide distribution in normal hosts.^{1,2,3} Cases have been reported from Belgium, Italy, U.S.S.R, Japan, China, Philippines, India, Africa, Argentina, Brazil, Venezuela, Colombia, Ecuador, Granada, Martinique, Nicaragua, Cuba, and United states.

However, this infection is uncommon in Nepal, according to a survey done on Human Parasite Infection in Nepal in 1985. The first case was reported in 1965.⁴ Earlier report had found a case in Jiri, a hilly district.⁵ Thus we present another case of this rare infection by *H. diminata*.

CASE REPORT

A 14 month old male child from Udayapur, presented with high grade fever (102 °F) with sweating but no

rigors. He also had mild cough. He had a history of mild diarrhoea, abdominal pain, indigestion, and anorexia for a month. He also had one episode of loss of consciousness with up rolling of eyes, abnormal movements and stiff body. There was no history of febrile seizures or such episodes in past. He was found normal during physical examination. His leukocyte count was 8800/cc, with 6% eosinophils and hemoglobin 13.8 gm/dl. No abnormality was detected in urine examination. The parasitological examination of the stool specimen revealed spherical body with striated outer membrane, approximately 65 µm in diameter, thick shelled eggs that contained six central hooklets but no polar filaments. They were confirmed as the ova of *Hymenolepis diminata*. He was given oral Niclosamide; 2 gm (four tablets) as the first dose and subsequent five doses (i.e., days 2 through 6) were reduced to 1 gm daily. One month after completion of the treatment, he turned asymptomatic and subsequent parasitological examination showed no ova of *H. diminata*. Additional examination carried out three months after treatment was also found negative.

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Figure 1. Egg of *H. diminata* under 10X magnification



Figure 2. Egg of *H. diminata* under 40X magnification

DISCUSSION

Hymenolepis diminata (rat tapeworm), a sole parasite of rat, rarely parasitize human. It is relatively larger species than *Hymenolepis nana*. Approximately 200 human cases, so far primarily from India, the former Soviet Union, Japan and certain areas of the southern United States have been reported.^{6, 7, 8}

Several human cases in children living in the urban area of Rome from Italy⁹, and from Spain¹⁰ in 1998 have also been published. A case of *Hymenolepis diminata* infection in human adult was also reported in Nepal 2005.⁵

It is often asymptomatic, however, mild diarrhoea, abdominal pain, irritability and pruritus have been

associated with this condition. However, it may cause eosinophilia, a finding that was also present in this case. Though intestinal parasitic infection in our country, Nepal, is common¹¹ the diarrhoeal disease due to *H. diminata* was not reported and published before 2005.

Rats and other rodents are the principal definitive hosts and natural reservoir of *H. diminuta*.^{1,2,3} Cockroaches, beetles, fleas and other coprophilic arthropods are the intermediate hosts.^{1,2,3} Foods such as beaten rice and cereals contaminated with infected arthropods are the chief sources of infection. Beaten rice is very popular snack among children in this region and equally consumed in his home. The most likely way that this boy contracted infection was to have eaten arthropods containing the infective stages of the species. Usually children appear to be more prone to infection by this species.^{9, 10,12,13,15}

Safe and effective treatment of *H. diminuta* infection can be achieved with either Praziquantel or Niclosamide.¹⁴ Though the drug of choice for this tapeworm is Praziquantel, we used Niclosamide because of its easy availability in this region and efficacy. The present case report in this area confirms the distribution of this species in Nepal and also that the infectious agent can infect adult as well as children. Presence of clear symptoms and the condition of the patient in this case tends to support that the infection with *H. diminuta* may give rise to significant gastrointestinal illness in humans. Elimination of *H. diminuta* requires appropriate anti-helminthic treatment and it is better to re-screen the patient's stool for parasitic eggs at one and three months after therapy to ensure cure.

CONCLUSION

Thus, *H. diminuta* infection should also be considered as a possibility among children presenting with a history of diarrhea for some period. Appropriate investigations should be done to rule out or confirm the diagnosis.

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