

Moniliformis moniliformis from Ahvaz Southwest Iran

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Abstract Human moniliformiasis is rare in the world. This is the fifth case reported from Iran since 1971. The case was a one-year-old boy from a wealthy family in Ahwaz city southwest Iran. The parents of patient observed white long threads in his feces. The child had no clinical symptoms. The feces was delivered to diagnostic laboratory for further examination. In macroscopic examination of stool, segmented like adult worms and in microscopic examination ova of parasites were seen. The mean length of male was about 60 mm and female about 210 mm, and the mean size of ova was about 100 μm . Morphological study of the worms and ova indicated that the worms were *Moniliformis moniliformis*. Cell blood counts of the patient was normal. The patient was treated with levamisole (3 mg/kg/day) for 3 days and expelled totally 15 worms.

Key words Acanthocephala; *Moniliformis moniliformis*

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Introduction

Moniliformis moniliformis (*M. moniliformis*) belong to the phylum of Acanthocephala and found in many parts of the world. The worm is endoparasite and inhabit in the small intestine of the main hosts such as rodents, canine and felines.¹ The intermediate host of this parasite is beetle and cockroaches and men acquire the infection accidentally by eating the infected intermediate hosts.² The male varies from 40 to 130 mm and female 100 to 270 mm in length. The proboscis with distinct hooks is located in the anterior of the worm. The worm is white and looks to be segmented and no digestive system is present in the worm. The egg is oval shape and varies from 85 to 118 μm with clear hooks. Human infection with this worm in Iran is rare and this is the fifth case from Iran.

Case Report

The case was a one-year-old boy living in a wealthy family in Ahwaz city southwest Iran. The parents of the

child observed white long threads in his feces (Figure 1). The child had no clinical symptoms and his cell blood count was normal. The specimen was delivered to diagnostic laboratory. Macroscopic examination of the specimen revealed segmented like worms. The worms were washed with normal saline (Figure 2) and measured. The mean length of the worms was from 60 mm to 180 mm. In microscopic examination of the stool ova with the size of 100×80 μm was seen. Morphological studies of the worms and ova proved to be *M. moniliformis*. The patient was treated with levamisole (3 mg/kg/day) for 3 days. The patient expelled totally 25 worms before and after treatment within 4 months.

Discussion

Less than 6 cases were reported from Iran since 1970. The first cases reported from Zabol, southeast Iran. The patient was an eighteen months boy from Zabol, southeast of Iran who passed 15 worms.³ The second case was from Isfahan in central region of Iran. The patient was a 4 months old boy with leukocytosis, mild anaemia and 4% eosinophil and giardiasis as well.⁴ The third case was a 2-year-old girl from Taibad city in Khorasan-e-razavi province, northeast of Iran.⁵

Our case had no clinical presentation. Messina et al, reported 2 toddlers with asymptomatic passage of

*M. moniliformis*⁶ which was similar to our report. But abdominal distention, anorexia, weakness, vomiting, and foamy diarrhea were reported as the possible manifestation of infection.³ Leukocytosis, mild anemia and 4% eosinophil were reported in a 4 months old boy by Moayedi et al.⁴ Other symptoms such as abdominal pain, severe fatigue, diarrhea, dizziness, irritability, anorexia, pallor, weight loss, weakness, protuberant abdomen were reported in the literature.⁷

In our report there was no evidence regarding specific behaviour that may have caused the infection. But there was a history of pica which was seen by parents. In Messina et al, they reported history of exposure to animal and also putting insect and cockroaches in mouth.⁶ Cockroaches, most common insect, may be important in the infection. So, it is possible for our case to be infected by cockroaches. Our patient was treated with levamisole. Pyrantel pamoate and mebendazole were used by Messina et al.⁶ In the study by Richardson and Brink in laboratory-infected female Wistar rats, thiabendazole is recommended as the drug of choice.⁸

Human infection with this parasite has been reported from, Iraq,⁹ and Saudi Arabia.¹⁰ It is concluded that moniliformiasis is a cosmopolitan intestinal parasitic infection of animals, and humans can acquire the infection by ingestion of infected cockroaches and beetles or pica, especially by children. Preventive strategy should focus on cleaning home and kitchen from beetles and



Figure 1 *M. moniliformis* in the feces of the patient (original picture).



Figure 2 *M. moniliformis* worms separated from the feces of the patient and washed with Phosphate Buffered Saline.

cockroaches. Avoiding contact with dog or cat may be of value.

As seen above, this infection may be seen in different countries with different level of income, from low income countries (Iran, Egypt) to high income countries (United States of America, Saudi Arabia).

However the infection may be asymptomatic, but children with abdominal pain, severe fatigue, diarrhoea, dizziness, and weight loss may be infected with *M. moniliformis*. Evaluation and treatment of children with above symptoms may be of value.

Declaration of Interest

There is nothing to declare.

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