

Worm Infestation among Children of Rural Area of Central Punjab

UMAR FAROOQ DAR*, MUHAMMAD SHAHID IQBAL*, MUHAMMAD ZAHID LATIF, MUHAMMAD SHAFIQ JAVAID*, UJALA NAYYAR*, RAHILA NIZAMI

ABSTRACT

Aim: To determine the frequency of worm infestation among the children of Union Council Mangri, Tehsil Shakargarh, District Narowal.

Methodology: It was cross-sectional descriptive study conducted on 97 children living in Union Council Mangri, Tehsil Shakargarh, District Narowal using non-probability convenient sampling. Pretested questionnaire was used to collect demographic data and microscopic examination of stool for ova and parasite for was done. Study was conducted during months of August- September 2011.

Results: Response was collected from 97 mothers of children under 12 years of age among whom 58 (59.8%) were male and 39(40.2%) children were female. Stool microscopic examination revealed 12(12.4%) having worm infestation while no parasite or ova found in 85(87.6%) children. Among 12 infested children, hookworm ova were found in 5(41.7%), roundworms 4(33.3%), tapeworms 3(25%).

Conclusion: Despite the regular program of deworming the children during mother child week in Punjab, worm infestation still needs response and effective interventions.

Keywords: Worm infestation, children, rural area

INTRODUCTION

Worm infestation remains one of the main problems of child development. This is especially a greater health hazard in developing countries¹. Worms may be of many shapes and sizes, from microscopic "pinworms" to "tape-worms" that are several feet long.² Most of these worms live in the intestinal tract. Any of several types of worms may live in the human body as parasites (infestation), sometimes causing mild to severe illness. These worms could infest the blood, intestines or organs e.g., liver, lungs². The World Health Organization (WHO) estimates that infection with round worms (*Ascaris lumbricoides*), whipworms (*Trichuris trichiura*) and hookworms (*Ancylostoma duodenale* and *Nector americanus*) with associated morbidity, affect approximately 250 million, 46 million and 151 million people, respectively³.

Heavy hookworm burden is the major aetiology for iron deficiency anaemia in young children⁴. Worm infestation in children has been studied in various parts of Pakistan. In a study children were more infected (60%) with helminthic and protozoa than adults (30%) who had only protozoa infection⁵. Prevalence of helminthic infestation in children was

23% in Islamabad⁶, 21.7% in Bagh District⁷ and 31% in Quetta⁸. High prevalence of worm infestation in children is reported from northern areas of Pakistan but no study is available central Punjab districts⁹.

The impure drinking water, low socio-economic state, poor personal hygiene and poor sanitation coupled with low literacy rates of parents particularly the mothers are the main causes¹⁰. Worm infestation is one of the major causes of childhood malnutrition, anaemia, and stunted physical and mental growth, psychosocial problems. It also causes recurrent gastrointestinal and upper respiratory tract infection leading to high morbidity and mortality in children¹¹. The reason for being a global public health problem is that helminthic infestation have largely been overlooked by clinician, because although worms can cause severe clinical problems, patients rarely report at health centre due to its slow progress of the signs and symptoms¹².

MATERIAL & METHOD

After approval from ethical review committee of Institute of Public Health, Lahore, a descriptive cross sectional survey was conducted using non probability convenient sampling in Union Council Mangri, Tehsil Shakargarh, District Narowal. According to the 1998 census of Pakistan, population of district Narowal was 1,256,097 of which only 12.11% were urban. 97 children under 12 years of age from a rural community were included in the study without history

*Department of Infectious Diseases, Institute of Public Health, 6-Birdwood Road, Lahore.

Department of Community Medicine, Azra Naheed Medical College, Lahore

Correspondence to Dr. Umar Farooq Dar, Demonstrator
Email: umardar84@gmail.com

of worm infestation and deworming in previous one year. Demographic data was recorded on structured questionnaire by interviews of the mothers while worm infestation was diagnosed by microscopy. Early morning formed and semi formed stool sample was collected in sterile containers after briefing the mothers. Five slides from each specimen were made after thoroughly mixing the stool specimen to distribute parasites evenly from different portions of specimen. 2mg, (matchstick head amount) was mixed with the physiological saline and with the iodine and smooth thick slides were prepared. Each slide was covered with a cover glass and examined under 10X and 40X objectives with the condenser and closed sufficiently to give good contrast. All slides were examined systematically for helminthic eggs, Roundworm, Tapeworm before reporting "No parasites found". Data was analysed for description i.e. frequencies and percentages only. Age classification was done to find the distribution.

RESULTS

Out of 97 children, 22(22.6%) were 3-5 years old, 35 (36.1%) were 6-8 years old and 40(41.3%) children were 9-12 years old (Table I). Regarding the sex, 58 (59.8%) were males and 39(40.2%) children were females. Out of 97 children, 12(12.4%) stool microscopy results were found positive while 85(87.6%) children results were negative (Table II). Out of positive results, hookworm ova were found in 5 (41.7%) children and roundworms were found in 4(33.3%) children while tapeworms were found in 3 (25.0%) children (Table III).

Table I: Age distribution of Children (n=97)

Age of Children	Frequency	%age
3-5 years	22	22.6
6-8 years	35	36.1
9-12 years	40	41.3

Table II: Results of Stool Microscopy (n=97)

Stool microscopy result	Frequency	%age
Positive	12	12.4
Negative	85	87.6

Table III: Type of worm infestation (n=12)

Worm infested	Frequency	%age
Ova of hookworm	5	41.7
Roundworm	4	33.3
Tapeworm	3	25

DISCUSSION

In developing countries most of the people live without access to proper sanitation facilities and are unaware of the importance of basic hygiene practices

like hand washing after visiting toilet. Worm infestation is related to poor sanitation and lack of clean drinking water. A cohort of 97 mothers of children was included in the study. Study found that a large proportion (41.3%) of the children was 9-12 years old while rest of them 3-5 years and 6-8 years old. The findings of our study are comparable with the study conducted by Aly et al¹³ who reported that children aged 10-12 years were (40%). This may probably because of more exposure of males as compared to females.

Study revealed that majority (59.8%) of the children was males and 40.2% were females. Study conducted by Mehmood et al.¹⁴ also showed almost similar results that 62.8% children were males and 37.2% were females. Study divulged that stool microscopy was done of all children and only 12.4% children were found positive. The results of our study are better than the study conducted by Ullah et al.¹⁵ who stated that 60.0% children were found positive for worm infestation.

The children whose results were found positive, among them 41.7% children had hookworm, 33.3% children had roundworms and 25% children had tapeworm. Results of the study conducted by Ullah et al¹⁵ showed that hookworm 3.5% and Tapeworm 1.5% children. Another study conducted by Bisht et al¹⁶ showed that ova of hookworms were found in 62.5% children. Children who walk in bare foot get hook worm infestation easily.

CONCLUSION

Our study showed that despite the regular program of deworming the children during mother child week in Punjab twice in an year, worm infestation is still prevalent and highly demands active public health response. Effective interventions like health education and school nutrition program may help reduce burden of this silent disease. Government and other relevant organizations must take immediate action to improve sanitation and personal hygiene.

REFERENCES

1. Ahmed AK, Malik B, Shaheen B, Yasmeen G, Dar JB, Mona AK, et al. Frequency of intestinal parasitic infestation in children of 5-12 years of age in Abbottabad. *J Ayub Med Coll Abbottabad* 2003; 15(2): 28-30.
2. Billakshan SR, Pokharel PK, Paudel IS, Acharaya A, Jha N. A study of prevalence of worm infestation and associated risk factors among the school children of Dharan, Eastern Region of Nepal. *Inter J Medical Dental Sciences* 2013; 2(2): 121-7
3. Montresor A, Crompton DWT, Hall A, Bundy DA, Savioli L. Guidelines for the evaluation of soil transmitted helminthiasis and schistosomiasis at a

- community level. World Health Organization, Geneva, 1998.
4. Crompton DW, Nesheim MC. Nutritional impact of intestinal helminthiasis during the human life cycle. *Ann Rev Nutr* 2002; 22: 35-59.
 5. Tahir Z, Hafeez R, Zafar A, Jehnagir S. Comparison of prevalence of intestinal parasites in children and adult population. *Biomedica* 2002; 18: 74-5.
 6. Tanwani AK, Qazi SA, Hashimoto K, Khan MA. Intestinal parasites in stool samples from children at the Children's Hospital Laboratory, Islamabad. *Pak Ped J* 1995; 19: 61-4.
 7. Khan A, Sultana A, Dar AMK, Rashid H, Najmi SAA. A study of prevalence, distribution and risk factors of intestinal helminthic infestation in district Bagh (Azad Kashmir). *Pak Armed Forces Med J* 2004; 54: 243-8.
 8. Wadood A, Bari A, Rehman A, Qasim KF. Frequency of intestinal parasite infestations in school children in Skardu. *Pak Armed Forces Med J* 2007; 57: 77-81.
 9. Alam M, Khaltak AL, Talha M. Helminthic infection: a clinical review. *BMJ* 2003; 327: 431-3
 10. Okyay P, Ertug S, Gultekin B, Onen O, Beser E. intestinal parasite prevalence and related factors in school children, a western city sample- turkey. *BMC Public Health* 2004; 22(4): 64
 11. Kappus KD, Lundgren RG, Juranek DD, Robert JM, Spencer HC. Intestinal parasitism in the United States: update on a continuing problem. *Am J Trop Med Hyg* 1994; 50: 705-13
 12. Merid Y, Hegazy M, Mekete G, Teklemariam S. Intestinal helminthic infection among children at Lake Awassa Area, South Ethiopia. *Ethiopia J Health Dev* 2001; 15: 31-8
 13. Aly NSM, Mostafa MMM. Intestinal parasitic infection among children in the Kingdom of Saudi Arabia. *Australian J Bas Appl Sci* 2010; 4(9): 4200-04.
 14. Mehmood K, Sherwani MIK, Ahmed M, Hussain M, Safdar S, Baitu M. Parasitic infestation in children of District Vehari: An underdeveloped area of Pakistan. *Pak J Med Res* 2009; 48(1).
 15. Ullah I, Sarwar G, Aziz S, Khan MH. Intestinal worm infestation in primary school children in rural Peshawar. *Gomal J Med Sci* 2009; 7(2): 132-6.
 16. Bisht D, Verma AK, Bharadwaj HHD, Intestinal parasitic infestation among children in a semi-urban Indian population. *Trop Parasitol* 2011; 1(2): 104-7.