Original Article

Seasonal variability and frequency of different types of ova/cyst detected in stool sample

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Objectives: To determine the frequency of different types of parasitic infections, month in which these are most prevalent and age group of affected persons.

Methodology: It was a retrospective cross sectional study conducted by undergraduate students of Army Medical College in Armed Forces Institute of Pathology, Rawalpindi, Pakistan. Stool Samples received during January 2011 to December 2011 were included in the study. The frequency of different types of parasitic infections was noted. Data were analyzed using SPSS Version 21.

Results: A total of 122 stool samples were found to be positive for Ova/cyst during the study period. *Taenia spp*. was the most prevalent. Most patients presented in month of December. Children as well as adults were affected by the infection.

Conclusion: *Taenia spp* was the most prevalent type of parasitic infection in our study but in other geographical region different types of parasites were also seen. (Rawal Med J 2014;39: 251-253).

Key Words: Parasitic infections, stool samples, *Taenia Spp*.

INTRODUCTION

Intestinal and extra intestinal manifestation of parasitic infection is a serious public health problem throughout the world.[1] Low socioeconomic status, poor hygienic conditions, lack of sanitation, impure drinking water and low literacy rate are major risk factors in the development of such conditions. These can easily be eliminated by certain life style modifications and improving the sanitary conditions. World Health Organization (WHO) considers parasitic infections as a part of multi disease control along with Tuberculosis, Malaria, and AIDS. Children are more susceptible to parasitic infections due to carelessness, comparatively lower resistance and dependence on others. These infections can cause physical and mental growth retardation, in addition to increased susceptibility to other infections.[2-3]

Stool analysis is the investigation of choice for the diagnosis of parasitic infection. Presence of ova/cyst of a particular parasite detected on the microscopic examination of the stool sample is required for the confirmation of diagnosis. It is important to prevent and diagnose these infections as they have substantial impact on the health of the community. It is difficult to find out the prevalence of these parasitic infections in the community because of the limited number of patients reporting and being diagnosed. Aim of this study was to determine the most prevalent type of parasitic infection, the most affected age group and the month in which maximum number of people reported.

METHODOLOGY

This retrospective cross-sectional was carried out at Armed Forces Institute of Pathology (AFIP), Rawalpindi, Pakistan from January 2011 to December 2012. It included 122 stool samples which were examined and were found positive for the presence of ova/cyst. The frequency of different types of parasitic infections, age, gender and month of occurrence were noted. Data were analyzed using SPSS Version 21

RESULTS

Out of the 122 positive stool specimens, 89 (72.9%) were male and 33 (17.1%) were female. Out of 122 samples, 70 (57.4%) were positive to Taenia spp (Fig. 1).

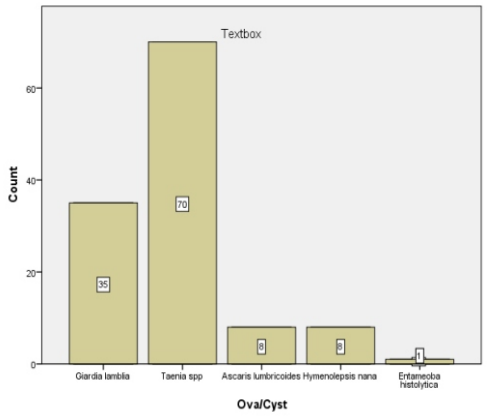

Fig. 1: Frequency of different types of Parasitic Infections.

Mean age of the samples was 31.34±19.37 years (Range 1-85). Two peaks were found; one a between 1-10 years and second between 25 to 35 years of age (Fig. 2).

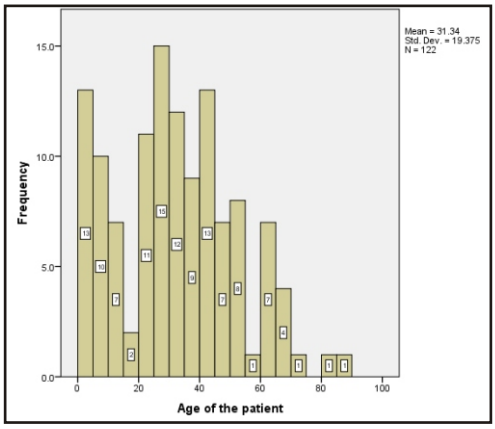

Fig. 2: Age groups of presentation of parasitic infections.

Most of the cases were noted in winter season with highest number of cases i.e. 26 in the month of December followed by 19 cases in the month of October. Least number of cases (1) was noted in month of august (Fig. 3).

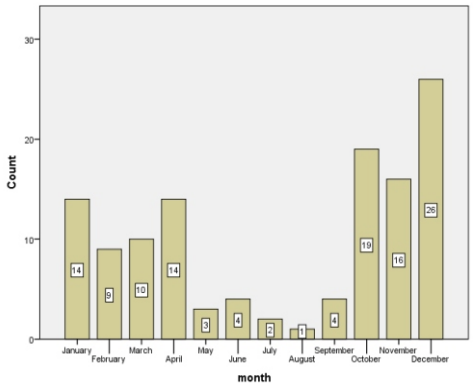

Fig. 3: Months of presentation of parasitic infections.

DISCUSSION

We found that *Taenia spp.* with the percentage of 57.4% was the most common followed by *Giardia lamblia* with 28.7%, *Ascaris lumbricoides* and *Hymenolepsis nana* had a percentage of 6.6 and *Entamoeba histolytica* was seen in only 0.8% of cases. In a study from urban slums of Karachi, *Giardia lamblia* was found to be the commonest (28.9%) followed by *Ascaris lumbricoides* (16.5%) while *hymenolepsis nana* was found to be 0.9%.[4] As in our study, no hookworm was seen, which is consistent with studiesfrom other urban localities.[5-6] Another study from Quetta showed that *Hymenolepsis nana* was the commonest (34%) in that locality.[7] This was noteworthy because no other study from Pakistan has showed such a high prevalence of a Cestode. A study from Riyadh, Saudi Arabia also showed different results with the commonest parasite being *Giardia lamblia* (48.6 %).[8] Another study from Saudi Arabia showed the commonest parasite being *Entameoeba histolytica* (75.4%) followed by *Giardia lamblia* and *Hymenolepsis nana.*[9]

These results show that there is no uniform pattern of parasitic infection. The frequency of parasitic infections varies in different geographical areas and each part of the world has its own prevalent parasitic infection. This holds true for Pakistan too, as studies from different cities have shown variable results. Environmental factors determine the type of parasite that becomes common in a locality. Moreover, being an infective disease outbreak of a particular parasite in a locality can result in an increased presentation for a short period. This can lead to increase frequency of the parasite for a short interval.

Taeniasis is common in Africa, Europe, Philippines and Latin America.[10] But it turned out as the most common parasite in our study. The life cycle of *Taenia spp*. is complex and indirect. It is completed in humans acting as definitive host and in cattle as intermediate host. The source of infection is uncooked beef. So it can be inferred that the increased percentage of *Taenia spp*. is because of the increased consumption of beef, which is not cooked

properly.

Analysis of the age group of the patients showed that the maximum number of patients who reported positive were between 20 to 40 years. The study from Saudi Arabia showed that 49.6% were in the age group of 21-40.[8] A study from Makah, Saudi Arabia reported parasitic infections were more prevalent in <5 year age group (9.1%) followed by 5 to 14 year age group (7.5%).[9] The samples of subjects aged >45 years were infected to a lesser extent (3.7%). A study from Abbottabad, Pakistan showed 81% prevalence in children.[5] Neelam valley and Bagh, Kashmir showed prevalence of 18% and 21.75% respectively, in children.[11-12] A study in Skurdu showed prevalence of 54.91% in children.[13] Another study from Karachi showed that 68.8% of the people infected were below the age of 5 years.[14] However, another study from Karachi showed 32.2% children were <5 years.[15] A study from Quetta, Pakistan showed the most prevalent age group was 9-12 years.[16] In our study, one possible reason of high prevalence of Taeniasis in adult age group was that it is transmitted through uncooked beef which is consumed by adults.

Maximum number of cases were seen in the winter season with maximum number of cases in the month of December followed by month of October. Relative less numbers of cases were reported in summer season.

CONCLUSION

Taenia spp was the most prevalent type of parasitic infection found in our study. *Giardia lamblia* was second in frequency. Parasitic infections were found to be more prevalent in age group between 20 to 30 years of age.

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Conception and design: Sairam Ahmed
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Analysis and interpretation of the data: Sairam Ahmed, Amra Rehman
Drafting of the article: Amra Rehman
Critical revision of the article for important intellectual content: Sairam Ahmed, Amra Rehman
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