

# PREVALENCE OF ASYMPTOMATIC HOOKWORM INFESTATION IN YOUNG SINGAPORE MALES

S H Tan  
S J Chew  
K W Chin

## **Pasir Laba Camp**

S H Tan, MBBS  
Medical Officer

K W Chin  
Laboratory Technician

**Medical Classification Centre  
Central Manpower Base**

S J Chew, MBBS  
Medical Officer

## **INTRODUCTION**

In a recent study of young National Servicemen with a history of abdominal discomfort unrelieved by antacids, it was found that 46% suffered hookworm infection.

This high incidence of parasitic infection was surprising in view of the high standards of hygiene, modern sanitation and urbanised environment in Singapore. It is likely that most of the cases were imported as 70% of these patients had recently travelled to offshore islands or neighbouring South East Asian countries.

With rising affluence and cheaper air fares, much of the local population would have travelled to hookworm endemic countries. Since the disease may be present in an asymptomatic form, especially in an otherwise healthy and well fed young individual, this study was undertaken to ascertain the prevalence of hookworm infestation in this local population.

## **MATERIALS AND METHODS**

177 young soldiers aged between 18 and 20 in Pasir Laba Camp were screened.

All cases were asymptomatic and their sole 'overseas' experience comprised a 3 months stay in an offshore island. None have recently been overseas.

Eosinophilia of 8 or more cells % were regarded as significant. These subjects then underwent stool ova examination.

## RESULTS

Of the 177 young male adults, 21 (11.8%) were found to have eosinophilia. All these cases were also ova positive.

All 21 ova positive cases were found to be hookworms.

## DISCUSSION

The results that we obtain seem to indicate that despite urbanisation, the problem of worms will exist in our population. Although the presence did not cause any symptoms they could lead to a general detriment of health eg. tiredness and chronic blood loss. We note that this group is a select group of people exposed to certain environmental conditions and do not represent the population at large.

All 21 of these patients were given a course of mebendazole (vermox) and reviewed at a subsequent date one to two weeks later. We believe that the rationale for treatment (although symptomless) were several fold:

- i) These patients could later develop symptoms of abdominal pain.
- ii) They could develop complications eg. Chronic blood loss, bowel obstruction etc.

The next question we would probably ask ourselves is how these group of people got infected. As we know, the spread of hookworm is through faecal contamination and the larvae penetrating the skin, in other words soil borne. These group of patients were exposed to an outdoor environment, camping and sleeping on bare ground. Sometimes they would have to prone next to bushes again coming to close contact with the ground. Human excreta could have been deposited at an earlier date on where they have been in contact with the ground. So, this could explain that despite modern sanitation available worm infestation is still a problem.

It would also be interesting to compare our results with results obtained elsewhere.

1. 467 Dacca school students were screened. 48% were found to have nematode infestation. This was of course much higher than ours 11.8%, although the population studied was different. In their study, 5% was due to hookworms which contrasted greatly of ours of 100%. (2)
2. In a study by Sinniah of Malaysian oil palm estate workers, it was found that the commonest parasites were *T. trichiria* (56%) *Ascasis lumbricoles* (52%) Hookworm (28%), *Entamoeba coli* (11.3%) and *Giardia lamblia* (11.3%). Our figure of 100% for hookworm again contrasted greatly. (3)
3. Raccurt has reported a higher incidence of parasite infestation in women (4). Ours was a study only on young Singaporean males, but we do not expect the incidence to be higher in females in view of the lack of environment exposure in this group.
4. Khan in a study on Penang Island found the highest infection of hookworms to be amongst Malays and the least amongst Chinese. (5) No attempt was

made to compare racial distribution in our study as the population studied was predominantly Chinese.

5. In a study by Feachum (6), he found no significant difference in intestinal parasitism and excreta disposal techniques or not. The population studied in our study comes from an urbanised set up with toilet facilities exposed now to an outdoor life.
6. An opinion study by Barrett in North America revealed that almost all the respondents thought asymptomatic adults with any intestinal parasites should be treated (7). We treated all our cases of asymptomatic hookworm infestation.

## CONCLUSION

Although the problem is not mammoth in scale at the moment, we can foresee a possible public health problem in the future if this is left unchecked. This study is done on servicemen who have been in active service for about six months and we are attributing this problem possibly to the environmental exposures. It would be interesting next to study the prevalence of this problem in pre-enlistees (ie. school boys) before any conclusive statement can be made. In this study, we also acknowledge certain limitations — we had screened initially for eosinophilia and then look for ova in the stools. Although the correlation is very high, the actual problem could be higher still if we had studied all the stools. All these shortfalls have been looked into and perhaps we will go into a future study of this problem in the near future.

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