doi:10.1111/jpc.15188

Dear Editor,

DIAGNOSIS OF *ENTEROBIUS VERMICULARIS* INFESTATIONS

Enterobius vermicularis (pinworm or threadworm) is considered as the most common intestinal parasitic worm infestation of humans. About 200 million people are estimated to be infested with this nematode globally, children aged 5–10 years accounting for more than 30% of cases.[1]

The adult male and female enterobius worms inhabit the caecum of the human large intestine. The gravid females migrate to the perianal area mainly at night and lay up to 15 000 eggs (ova) which is strikingly shown in the video attached (Video S1, Supporting Information). A child's fingers get contaminated with these eggs and children acquire infection through ingestion of eggs when they put their fingers into the mouth. The eggs become mature quickly in the perianal region releasing larvae that can also migrate upwards through the anus resulting in further establishment of the infestation (auto-infection). In the absence of autoinfection, infestation usually lasts only 4–6 weeks. Some eggs may detach from the perianal region and contaminate clothing, bedding and other surfaces. Poor personal hygiene and overcrowding are considered as main risk factors for the infection. The infection is prevalent among children attending day-care facilities, pre-schools and primary schools.

A majority of children with enterobiasis are asymptomatic. However, nocturnal perianal pruritus is characteristic, and may be associated with sleep disturbance, tooth grinding, bedwetting and irritability/restlessness. Rare serious complications such as appendicitis, eosinophilic enterocolitis and pelvic inflammatory disease occur due to migration of worms into adjacent anatomical sites. Figure 1 demonstrates cross sections of the worm in a biopsy taken in such instances. Stool examination detects only 5% of intestinal infestation in contrast to other common gastrointestinal helminth infections. The diagnostic test of choice is the 'cellophane tape' or 'scotch tape' test method. Direct application of clear cellophane or tape to the peri-anal region and then transfer onto to a standard glass slide can be submitted to microscopic examination to detect ova. To obtain better results specimens should be collected in early morning prior to washing the perianal area. The sensitivity of three consecutive tape collections is about 90%.[2]

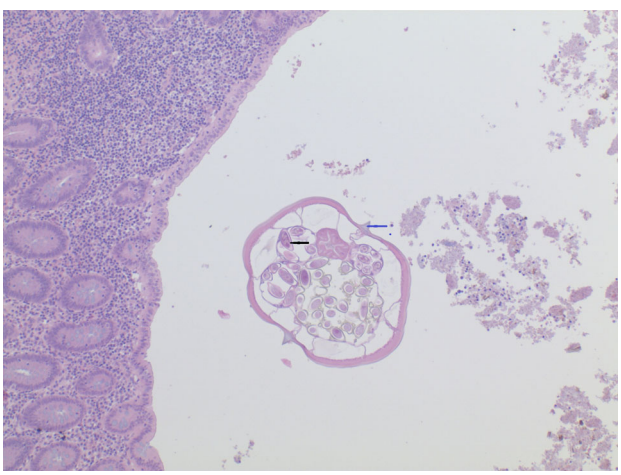

Fig 1 Demonstrates cross sections of *Enterobius vermicularis* in a biopsy specimen. Note the presence of alae (blue arrow) and characteristic eggs (Black arrow).

Acknowledgement

The authors would like to thank Tony Henwood (The Children's Hospital at Westmead, Westmead, New South Wales, Australia) for providing photograph.

Dr Gayana PS Gunaratna [1,2]
Ms Suzanne Dempsey[1]
Mrs Caylee Ho[1]
Dr Philip N Britton [1,3]
[1]Department of Infectious Diseases & Microbiology, The Children's Hospital at Westmead
[3]Discipline of Child and Adolescent Health, University of Sydney, The Children's Hospital at Westmead, Westmead, New South Wales, Australia
[2]Department of Parasitology, Faculty of Medicine, University of Kelaniya, Colombo, Sri Lanka

Accepted for publication 31 August 2020.

Conflict of interest: None declared.

References

1 Fan C, Chuang T, Huang Y *et al*. *Enterobius vermicularis* infection: Prevalence and risk factors among preschool children in kindergarten in the capital area, Republic of the Marshall Islands. *BMC Infect. Dis.* 2019; **19**: 536.
2 Remm M, Remm K. Effectiveness of repeated examination to diagnose enterobiasis in nursery school groups. *Korean J. Parasitol.* 2009; **47**: 235–41.

Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Video S1. As shown in this video, *Enterobius vermicularis* lays thousands of ova directly onto a child's perineum such that stool is not the recommended specimen for laboratory confirmation of enterobiasis infestation. All paediatric trainees should understand the rationale for the 'cellophane tape' or 'scotch tape' test.