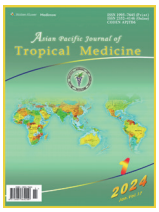

Letter to Editor

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Clinical profile and risk factors of *Strongyloides stercoralis* infection

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Strongyloides (*S.*) *stercoralis*, endemic in tropical and subtropical countries, is a soil-transmitted geohelminth human parasite belonging to a group of nematodes called roundworms. *S. stercoralis* is one of the most overlooked parasitic infections enlisted among the WHO "neglected tropical diseases"[1]. *S. stercoralis* mainly infects humans but can also be found naturally in domestic dogs, cats, and some primates. It is unique among other human nematodes in that, it has the ability to produce a generation of free-living worms from rhabditiform larvae shed in human feces, which can reproduce to form infective, skin-penetrating filariform larvae in the external environment. Humans who are infected with *S. stercoralis* can present with a range of clinical manifestations, from asymptomatic carrier state to acute strongyloidiasis and disseminated infections. Strongyloidiasis is the term used to indicate infection by *S. stercoralis*. It can cause overwhelming hyperinfection in immunocompromised individuals and the infection can last the host's lifetime due to its autoinfection life cycle[1].

Autoinfection refers to the situation in which larvae generated in the host go on to reinfect the same host, leading to a state of chronic asymptomatic infection with eosinophilia. Hyperinfection syndrome may develop in patients whose immune status is suppressed which may be due to medications such as corticosteroids or following solid-organ transplantation. Hyperinfection is characterized by an exponential increase in parasitic burden, leading to tissue invasion and life-threatening disease and associated bloodstream infections due to enteric organisms. Diagnosis of strongyloidiasis involves direct visualization of larvae in stool or other body fluids, or by serology (Figure 1). Ivermectin serves as a highly effective treatment. Patients with exposure to endemic areas and those expected to become immune suppressed should be offered screening and treated before starting immunosuppressants[2].

In a prospective clinicoepidemiological study carried out over a period of two years, we observed 20 cases of strongyloidiasis-15 males and 5 females. The mean age was 35.5 years, ranging from 18 to 52 years. Only 5 of the total cases were agricultural worker or gardener, and 11 reported walking bare foot. 40% (n=8) Of the patients belonged to rural community. Among the patients, 55% (n=11) had an underlying condition, including 4 type 2 diabetes mellitus, 3 HIV, 2 glucocorticoids, one systemic lupus erythematosus, and one leukemia. Among the presenting conditions, 90% (n=18) had anemia, 50% (n=10) had eosinophilia, 45% (n=9) had diarrhoea and 15% (n=3) had abdominal pain, nausea and vomiting. All cases received albendazole and ivermectin as part of their treatment.

In a large-scale study reported from Thailand including 6 022 patients, males constituted 70.5% of total cases, with diarrhea present in 42.6% of cases, followed by abdominal pain and nausea/vomiting in 13.8% and 14.5% of cases, respectively. Eosinophilia

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was noted in 44.3% of cases. Regarding underlying diseases, they reported diabetes mellitus, systemic lupus erythematosus, nephrotic syndrome, rheumatoid arthritis, hematological malignancy, HIV infection, with glucocorticoid/immunosuppressant treatment being more common (36.9%)[3]. *Strongyloides* is transmitted through direct penetration of skin by larvae when contact with soil, making walking barefoot is a major risk factor for acquiring the infection, which was observed in 55% of our cases.

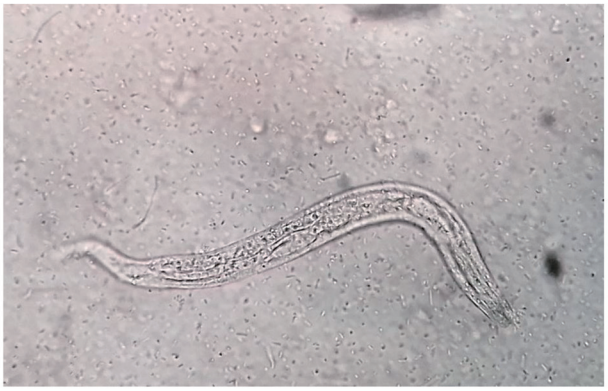

Figure 1. Wet mount of stool specimen showing larvae of *Strongyloides*.

Conflict of interest statement

The authors declare that they have no conflict of interest.

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Authors' contributions

R.C., A.A., S.G, and S.M developed the theoretical formalism, performed the analytic calculations and performed the numerical simulations. S.M. and R.C. drafted the manuscript. All authors contributed to the final version of the manuscript. T.G., N.C. and N.P. supervised the project.

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