



## Case report

# Positive fecal occult blood test as a diagnostic cue for *Schistosoma mansoni* infection in a developed country



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## ABSTRACT

The rise in eco-tourism and travel off the beaten track have increased numbers of tourists with schistosomiasis which is seldom seen in developed countries, although this disease is considered a neglected tropical disease especially in poor communities. A Guinean male living in Japan was seen complaining of severe constipation. He was positive for fecal occult blood (FOB) and underwent colonoscopy. Colonoscopy showed petechiae of the rectal mucosa, with pathologic examination of biopsy tissue showing calcified eggs of the genus *Schistosoma*. Direct examination of eggs in feces and antibody tests of serum confirmed the diagnosis of schistosomiasis. The patient was administered Praziquantel (400 mg/day for 2 days) and FOB and fecal ova tests were negative after treatment. FOB tests have been reported as a useful assessment of morbidities associated with intestinal schistosomiasis. In developed countries, positive FOB result, which is used as a main examination for bowel malignant disease, are not recognized as being due to schistosomiasis. As this tropical disease is rarely present in developed countries, it may be under-diagnosed. Schistosomiasis should be included in the differential diagnosis of patients with positive FOB tests.

## Introduction

Schistosomiasis is caused by five principal species: *Schistosoma haematobium*, *Schistosoma intercalatum*, *Schistosoma mansoni*, *Schistosoma japonicum* and *Schistosoma mekongi*. In intestinal schistosomiasis, often caused by *S. mansoni*, the most common symptoms include abdominal pain, poor appetite, diarrhea, bowel ulceration and polyps.

Schistosomiasis is a parasitic disease affecting 270 million persons annually, mainly in developing countries, and is responsible for 280,000 deaths per year [1]. This disease is considered a neglected tropical disease especially in poor communities without access to safe drinking water and adequate sanitation. Although it is seldom seen in developed countries, the rise in eco-tourism and travel “off the beaten track” increasing numbers of tourists with schistosomiasis. The predominant species has shifted from *S. mansoni* to *S. haematobium* in travelers [2].

In developed countries, fecal occult blood (FOB) tests are frequently used to evaluate gastrointestinal bleeding caused by cancers, polyps, ulcerative disease or inflammatory bowel disease. Previous study in developing country reported relation to FOB with schistosomiasis [3,4].

In developed countries, however, positive FOB results are not recognized as being due to schistosomiasis. This report describes a patient with constipation who was positive on an FOB test and found to be infected with *S. mansoni*.

## Case report

A 42-year-old Guinean male with no significant medical history presented for care with constipation and abdominal discomfort. He had lived in Japan for 10 years for work. Five years earlier, after visiting Guinea, he experienced itchiness in his lower limbs and a fever for several weeks. While in Guinea, he ate local food, drank well water and swam in fresh water. He began to experience severe constipation, with defecation once per week, about 4 years before presentation. A medical examination for severe constipation was performed, with positive results on a FOB test (Eiken Chemical Company, Tokyo, Japan). Colonoscopy showed petechiae of the rectal mucosa, with pathologic examination of biopsy tissue obtained from the rectal mucosa during colonoscopy showing calcified eggs of the genus *Schistosoma*. The diagnosis of *S. mansoni* infection was confirmed by direct examination for eggs in feces and by the results of an enzyme-linked immunosorbent assay (ELISA).

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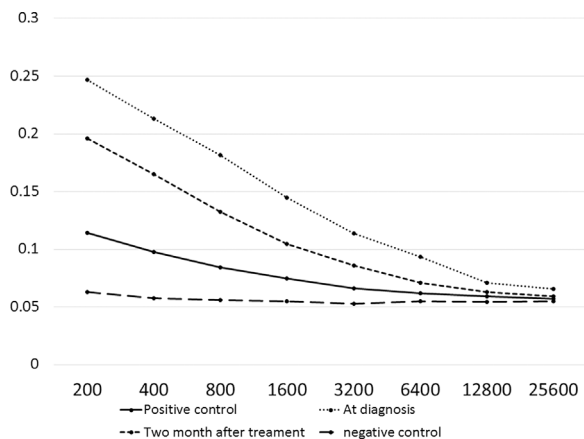


Fig. 1. Trend of antibody in serum to worm antigen. Longitudinal axis is optical density. Horizontal axis is dilution rate.

(Fig. 1)

Abdominal ultrasonography showed no evidence of hepatomegaly or splenomegaly. Urine dipstick, urinary sediment and urinary egg tests yielded normal results. Blood tests showed that liver function and biliary tract enzymes were within their normal ranges. Mild eosinophilia (7.8% of white blood cells) was present. Immunoglobulin concentrations, including IgG, IgA, IgM and IgE, were normal. Abdominal X-rays showed severe constipation throughout the entire colon. Enhanced computed tomography (CT) showed no other abnormal findings in the abdominal cavity, liver and kidneys.

The patient was administered Praziquantel (400 mg/day for 2 days). One month later, he was negative on the FOB and fecal egg tests. The titer of antibody by ELISA decreased after the treatment, although it did not tune to be negative. (Fig. 1) In contrast, severe constipation continued without improvement. A second colonoscopy found nothing abnormal, suggesting that severe constipation was caused by a functional mechanism, not by schistosomiasis.

## Discussion

Among many tropical diseases, FOB or bloody feces are reported in infection of *Tricuris trichuria* [5], Hookworm [5,6], *Ascaris lumbricoides* [6], *Strongyloides stercoralis* and *Entamoeba histortica* [7]. Although FOB is not specific diagnose test for schistosomiasis, it can be clinical cue for diagnosis. Schistosomiasis is rarely encountered in developed countries, including Japan, and is therefore not included in differential diagnoses. This tropical disease may therefore be underdiagnosed, especially since one-third of infected patients returning from schistosomiasis-endemic areas are found to be asymptomatic at diagnosis [8].

FOB tests have been found useful for assessing morbidities associated with intestinal schistosomiasis in Uganda [9]. In the Philippines, positive FOB was reported as a marker of inflammation, which was directly related to the intensity of infection [5]. In China, however, no

relationship was observed between FOB results and the intensity of *S. japonicum* infection [10]. These findings suggest that FOB may be useful in screening for schistosomiasis in endemic areas. The specificity of FOB for predicting egg-patent *S. mansoni* infection was found to range from 78.4% to 84.2%, and the sensitivity from 36.7% to 47.7% [3]. Although not sufficient for a diagnosis of schistosomiasis, FOB results may provide clues for a differential diagnosis.

FOB tests, which are frequently used in the diagnosis of patients with intestinal morbidities in developed countries, may also yield positive results in patients with tropical infectious diseases [5]. This case report shows that positive FOB results may be important for the diagnosis of these diseases in non-endemic areas.

In summary, *S. mansoni* infection should be included in the differential diagnosis of patients in developed countries with positive FOB results.

## Conflict of interest statement

The authors state that they have no conflict of interest.

## Acknowledgement

Not applicable

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