

## Case report

## Diagnosing parasitic infestation in a patient with tuberculosis

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## ABSTRACT

This report describes a case of diarrhea, abdominal pain, and strongyloidiasis in a 33-year-old woman. She had co-existing abdominal tuberculosis. The role of repeated stool microscopy in patients with a compromised immune system with a high index of clinical suspicion for the parasite is important. Strongyloidiasis was not clinically suspected in this patient and was diagnosed as part of evaluation for diarrhoea. But the case raises the importance not only of testing for strongyloidiasis in tuberculosis patients with symptoms suspicious of strongyloidiasis but also therapy for the parasite in such instances. Treatment with steroids for tuberculosis may also worsen the symptoms of strongyloidiasis.

**Keywords:** Strongyloidiasis; abdominal tuberculosis; ascitic fluid; *Strongyloides stercoralis*

## INTRODUCTION

*Strongyloides stercoralis* is an intestinal nematode which infects humans and presents with a spectrum of clinical symptoms which include asymptomatic status, pruritis, urticaria, abdominal pain, vomiting, diarrhea, anorexia, fever, and wheezing (1). Clinical signs are often non-specific. The challenge in the diagnosis of strongyloidiasis is on account of the non-specific presentation which can often misguide the clinician. The initial diagnosis for *Strongyloides* infection is by stool microscopy, however, it has a sensitivity of only 50% in detecting the parasite (2). The low sensitivity is mainly due to intermittent larval shedding even during symptomatic infection (3). Stool examination sensitivity can be increased to 60-80% by Baermann and formalin-ethyl acetate concentration technique and by using blood agar plate culture method, which may show concomitant bacterial growth along larval tracts (2). Serological methods which detect antibodies to *Strongyloides* have higher sensitivities (74 to 98%) but are not specific (2). Serological methods can be false positive in infection due to filariae or ascariasis (2). Peripheral eosinophilia is an inconsistent finding in *Strongyloides* infection and can be absent frequently in hyperinfection (1).

## Case report

A 33-year-old lady resident of Chennai, Tamil Nadu presented with abdominal pain and distension, loose stools, and weight loss for 2 months. There was no history of fever, cough, breathlessness, wheezing, headache, vomiting, rash or pruritis. She had no travel history in the recent past. Her past was unremarkable with no history suggestive of disease or drug related immunosuppression. On examination she appeared emaciated with no additional abnormalities in general examination. Pulse rate was 80 per minute, blood

pressure 110/70 mm Hg and respiratory rate 20 per minute. Her abdomen was soft, non-tender and appeared distended with no dilated abdominal veins or back veins. Shifting dullness was present indicating free fluid in the abdomen. Bowel sounds were prominent. Baseline laboratory findings were normal with no anemia, eosinophilia, renal or liver dysfunction. Chest X-ray was normal. Ultrasound of abdomen showed moderate ascites with normal liver and renal echoes. Ascitic fluid analysis revealed lymphocyte predominant exudate, positive for acid fast bacilli. These features were suggestive of abdominal tuberculosis. Stool wet mount done in view of chronic diarrhoea showed rhabditiform larvae of *Strongyloides stercoralis* characterised by the double-bulb oesophagus (Fig.1).



**Fig.1:** Larva of *Strongyloides stercoralis* showing characteristic double-bulb oesophagus

A diagnosis of abdominal tuberculosis with Strongyloidiasis co-infection was made. She received therapy for Strongyloidiasis with drug ivermectin given orally. Tuberculosis was treated with standard intensive phase therapy with isoniazid, rifampicin, pyrazinamide, and ethambutol. No steroids were administered. No adverse effects due to anti-tuberculosis therapy occurred. However, the patient despite therapy succumbed to the illness 2 weeks after

hospitalization.

## DISCUSSION

Chronic diarrhoea is the presenting symptom in patients with abdominal tuberculosis and strongyloidiasis (2). There is paucity of data on concurrent infection due to *Mycobacterium tuberculosis* and *Strongyloides*. A systematic review analysing co-infection of parasites with tuberculosis mentions a 5% prevalence of *Strongyloides* co-infection in tuberculosis in Ethiopia based on 2 small case series study (4). *Strongyloides* infection in a patient with tuberculosis is known to produce adverse outcome on the immunology of tuberculosis. While the inference of this immunological interference is complex, *Strongyloides* infection changes the cytokine profile to cause increased T helper cell response. This has the potential to sustain tuberculosis infection which can complicate response to therapy (5). Furthermore, the parasite can also blunt the immunological response to Bacille-Calmette-Guerin (BCG) vaccination (5). Supporting literature on clinical outcome in abdominal tuberculosis with strongyloidiasis could not be found. Attention is drawn to the common practice of administering empirical therapy for strongyloidiasis in endemic regions while treating patients with tuberculosis or prior to BCG vaccination (4). Hence the case raises the importance of testing for *Strongyloides* larval forms in tuberculosis patients with symptoms suspicious of strongyloidiasis. It also stresses the need for therapy for the parasite in such instances. Another

fact which has a significant clinical implication in abdominal tuberculosis patients with concurrent strongyloidiasis is the practice of using steroids for treatment of tuberculosis. This may worsen strongyloidiasis leading to risk of hyper infection which is a severe form of the parasite disease.

## CONCLUSION

Strongyloidiasis was not clinically suspected in our patient since it is not endemic to this region. However, it was diagnosed in the patient during the course of an evaluation for diarrhoea.

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