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Strongyloidiasis in a seronegative patient: A Case Report

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ABSTRACT

Strongyloidiasis, also named as dwarf thread worm is caused by Strongyloides stercoralis. It is the smallest pathogenic nematode to cause infection in man. Rate of infection is high in immunosuppressed patients. We reported a female patient of 38 years who came with complaints of intermittent fever, abdominal pain and frequent episodes of loose motions since 4 days. She had similar history of such episodes from past 5 months. On physical examination pallor was noticed. On wet mount of stool, rhabditiform larvae of strongyloides stercoralis were seen. Patient was seronegative and also on screening for HbsAg she was negative. Peripheral blood picture showed microcytic hypochromic anemia.and a probable diagnosis of strongyloidiasis was made. She was started with Ivermectin.

Key words: Strongyloides stercoralis, Rhabditiform, Ivermectin

1. INTRODUCTION

Strongyoidiasis also known as dwarf thread worm which is caused by a smallest pathogenic nematode Strongyloides stercoralis, which causes infection in man. It is unique as it has both parasitic and free living generations. It is an ovoviviparous nematode. The filariform larvae are the infective stages of the parasite (Parija 3rd edition, 2011). The parasitic female inhabits the mucosa of small intestine (especially duodenum and upper jejunum) of man. The female lies in the tunnels between the enterocytes of the intestinal mucosa (Siddiqui et al., 2001).

It is widely distributed throughout the tropical and the subtropical regions than in the temperate parts of the world. Warm, moist climatic conditions and improper disposal of human faeces favours the rapid multiplication by free living generations of parasite and spread of infection in tropics and subtropics. Rate of infection is remarkably high in sub-Saharan Africa (Getachew et al. 2004). In India it is increasingly reported from states of Andhra Pradesh, North eastern states, Tamil Nadu, Karnataka and other parts of India. The soil contaminated with human faeces is the main source of infection for humans. Man acquires infection mainly by penetration of the skin by filariform larvae.

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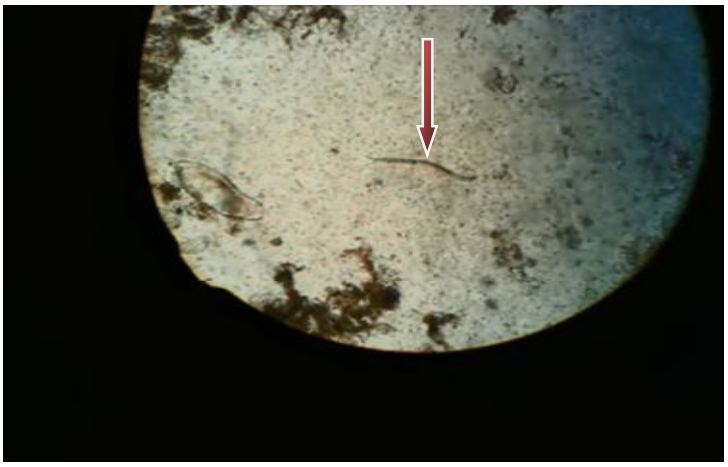

Figure 1
Strongyloides larva on wet mount

Figure 2
Agar plate method on Blood agar plate showing visible tracks of strongyloides larva

Also there is trans mammary transmission, where infant gets infection through mother's milk. It is also caused by ingestion of food and drinks contaminated with larvae (oral transmission).

Rate of infection is very high in immunocompromised an patient which reduces the resistance of the body, leading to an extensive tissue invasion by the adult worm. An infected person when exposed to reinfection responds by tissue hypersensitivity with eosinophilia and urticaria. Pulmonary manifestations like pneumonitis, bronchopneumonia, dyspnoea, wheezing and intestinal manifestationslike profuse watery diarrhoea, abdominal pain, indigestion, nausea and vomiting is seen in strongyloidiasis. Hyperinfection syndrome is seen with immunodeficiency, hypogammaglobunemia, patientson anti-cancerchemotherapy and corticosteroids (Ghoshal et al. 2006).

The parasitological methods based searches for larvae in the faeces are still the commonest choice of laboratory procedure for the diagnosis of this helminth. The stool sample is examined for saline mount which reveals the rhabditiform larva with a short buccal cavity. Three consecutive stool samples increases sensitivity to 70%-80%. Formalin –ether or zinc flotation methods are also used to concentrate strongyloides larvae in the stool (Jucelene et al. 2003). Stool culture is equally important in suspected cases of strongyloidiasis which are not confirmed either by direct smear or concentration methods and is done routinely. Stool is cultured either by Harada –Mori filter paper, Baermann funnel method using charcoal and agar plate method (Arakaki et al. 1990). Even screening for immune status is mandatory.

Also serological tests, skin tests and imaging techniques are used for the confirmation of diagnosis of strongyloidiasis. Ivermectin is the drug of choice for acute and chronic strongyloidiasis as it kills the parasite by binding selectively with glutamategated ion channels in muscles and nerve cells, resulting in cessation of cells (Tripathi, 2011). Malabsorption ,haemorrhage and intestinal perforation are the commonest complications of strongyloidiasis. Important control measures should be taken which includes sanitary disposal of faeces, improved personal hygiene.

2. CASE REPORT

A 38 year old female patient came to the outpatient department of Shadan Hospital with complaints of intermittent fever, abdominal pain, frequent episodes of loose motions since 4 days. She had similar history of such complaints from past 5 months. On general physical examination pallor, pedal edema was noticed. Abdominal examination did not reveal distension, tenderness, organomegaly, lump or ascites. Blood picture showed haemoglobin 7g/dl(normal 12-15g/dl) with microcytic hypochromic anaemia, total leukocyte count of $4.7x10^9$/polymorphs 64%, lymphocytes 32%,eosinophil 2% and monocytes 2%; ESR was 50mm/hr(normal<30). Her serum total protein and albumin were 60 and 30 respectively; creatinine was 53µmol/L(normal 50-110), serum alanine and aspartate were 47 and 57U/L resp, alkaline phosphatase 170U/L. Her CD4 count was normal and her HIV, HbsAg and HCV status was also negative. CT scan of abdomen and pelvis showed non-specific thickening of the intestinal wall. On X-ray patchy alveolar infiltrates were seen. In wet mount of stool, a Rhabditiform larva of Strongyloides stercoralis was identified by a short buccal cavity. Agar plate method done on blood agar plate, trackingof the larva was demonstrated, suggestive of strongyloidiasis. Patient was treated with Ivermectin 2mg/kg in four divided doses for 2 days (Figures 1 & 2; Ref: Video in online).

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3. DISCUSSON

In a study done by Jucelene et al. (2003), among 424 patients,33 patients (7.8%) were positive for strongyloidiasis ; out of which 21 patients (4.9%) were seropositive and 12 patients (2.8%) were seronegative. Another study done by Hailemariam et al. (2004), among 104 patients, 5 patients (4.8%) was positive for strongyloidiasis; out of which 4(3.8%) were seropositive and 1(1.04%) patient was seronegative. A case reported by Ghoshal et al. (2006) stated that a 23 year old male with two years history of bloody diarrhoea and abdominal pain was positive of strongyloides stercoralis. Patient was seronegative and the cause of parasitic infestation established to be corticosteroid therapy as the patient was being treated for ulcerative colitis. In the present study the diagnosis of strongyloidiasis was done by microscopy which revealed the rhabditiform larvae of the parasite. The agar plate method showed the tracking of the strongyloides stercoralis larva. Patient was seronegative and was treated with Ivermectin. The detection of strongyloidiasis in both seropositive and seronegative individuals is a reflection of the poor environmental sanitation and personal hygiene practices, which emphasises the need for intervention measures at community level to decrease the burden of risk factors of acquiring intestinal parasites.

4. CONCLUSION

Strongyloidiasis is one of the common parasitic intestinal infection and the prevalence of the disease is seen mainly in seropositive patients than seronegative. The magnitude of intestinal parasitic infection is high both in seropositive and seronegative patients. Routine examination of stool samples for parasites can significantly benefit both infected and uninfected immunocompromised individuals by contributing to reduce morbidity and improved quality of life.

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