Case Report
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Pulmonary Strongyloidosis: A Case Report

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Abstract

In patients with immunosuppression, Strongyloideshyperinfection syndrome may occur producing pulmonary symptoms. We report a case of a young male patient who presented with symptoms of intestinal obstruction followed by hemoptysis and breathlessness. He had no evidence of immunosuppression. Sputum and stool examination showed Strongyloides larvae and the patient had complete recovery with treatment.

Keywords: Strongyloidiasis • Abdominal pain • Parasitic • Immunodeficiencysyndrome • Pulmonary

Introduction

Strongyloidiasis is a parasitic disease endemic in tropical and sub tropic region. It is caused by nematode, Strongyloidesstercoralis. It can complete its life cycle entirely within the human host which enables it to cause autoinfection [1]. In an immunocompetent person the parasitic burden remains controlled, but when cell-mediated immunity becomes impaired (i.e., corticosteroid use, malignancy, acquired immunodeficiency syndrome), the parasite burden will grow, disseminate, and cause hyperinfection [2]. Patients with hyper infection syndrome often develop severe respiratory distress and Gram-negative sepsis, which may be caused by the migration of larvae studded with gram-negative bacilli from the gastrointestinal tract to the pulmonary system [3]. Although most infected individuals are asymptomatic, S. stercoralis is capable of transforming into a fulminant fatal illness under certain conditions associated with a compromise of host immunity [4].

Here we report a case of pulmonary strongyloidosis with initial presentation as intestinal obstruction.

Case Report

A 21-year-old male presented to surgery OPD with complain of sudden onset abdominal pain. At the time of admission the vitals were stable and the laboratory investigations showed a raised total leukocyte count. A diagnosis of small intestinal obstruction was made and a Contrast-Enhanced computed tomography abdomen was done which confirmed the diagnosis as there was presence of small bowel faeces sign and reactive mesenteric lymphadenopathy. Exploratory laparotomy was done and findings were suggestive of abdominal tuberculosis and biopsy was taken from the enlarged lymph nodes. The immediate post op period was uneventful.

On the second post-operative day the patient developed breathlessness and hemoptysis and was put on high flow oxygen at 2l/min. Chest X-ray was done which showed bilateral nodular shadows (Figure1). The patient was not able to maintain saturation and was intubated and kept under sedation with fentanyl and dexmedetomidine. CECT thorax was done and findings were suggestive of strongyloidisstercoralis infection (Figure 2).

Sputum sample was sent to the microbiology department for Zeihl-Neelsen (ZN) staining. However, there were no acid-fast bacilli seen during light microscopy but larvae of some parasite were observed. Those larvae were having a worm-like configuration with one rounded and thicker end (Figure 3). Then, a wet mount of sputum was prepared and motile larvae were seen (Figure 4). A fixed smear of sputum sample was stained with Giemsa stain to see the morphology of the larvae (Figure 5). Patient was asked to send the stool specimen for further confirmation of diagnosis. On examination of stool specimen, broken larvae were seen (Figure 6). This may have occurred under the effect of drug.

After considering all the facts, history of patient, symptoms and morphology of larvae, infection of Strongyloidesstercoralis, and a nematode was diagnosed. Other investigations such as blood film, tracheal aspirate larvae and blood culture were negative. The patient was seronegative in terms of HIV, HbsAg and HCV. Following the confirmation of diagnosis the patient was started on albendazole 400 mg BD and ivermectin 8 mg OD. The patient recovered and started maintaining the saturation and was subsiquently weaned off the ventilator by 10th post-operative day. The follow up x-rays showed complete clearance.

Figure 1: Chest X-ray with B/L nodular shadows.

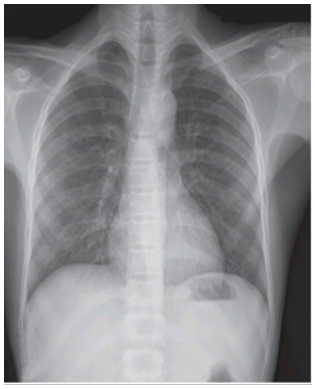

Figure 2: Chest X-ray post recovery showing clearance of nodular shadows.

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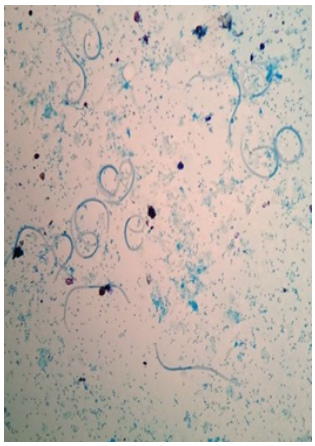

Figure 3: Zn stain: larva under 10X.

Figure 4: Sputum wet mount under 10X.

Figure 5: Giemsa staining: Strongyloides larva.

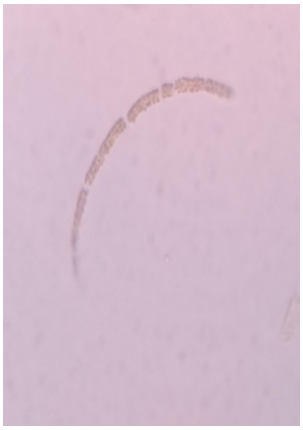

Figure 6: Stool wet mount under 40X.

Discussion

Strongyloidiasis caused by Strongyloidesstercoralis, is an endemic disease in tropical and subtropical regions [5]. The pulmonary manifestation of Strongyloidesstercoralis may induce bronchospasms, cough, and respiratory failure [6]. The most important clinically significant pulmonary syndrome induced by Strongyloidesishyperinfection, as a rule this syndrome occurs in patients with compromised cell-mediated immunity, although it is occasionally encountered in normal persons. It should be recalled that infection with Strongyloides is lifelong and that reactivation with suppression of cell-mediated immunity can occur decades after initial exposure [7]. But in this case, neither such type of chronic illness nor endemicity was seen. The diagnosis of Strongyloidiasisis always established based on the visualization of larvae in the stool specimens or in the respiratory secretions [8]. In this case, initial findings of larvae in sputum specimen provided the hint for diagnosis. Further findings of larvae in stool provided the confirmatory diagnosis of Strongyloidiasis.

In the present case, the patient showed pulmonary manifestation and lacking of eosinophilia. In a study by Newberry et al., three of seven patients with strongyloideshyperinfection died, and all of the fatal cases had eosinophil counts <400/mm3. In addition, blood counts in chronic infection often show eosinophilia, but the condition of eosinophilia is often absent in hyperinfection syndrome. Therefore, the absence of eosinophilia in patients cannot exclude the diagnosis.

Conclusion

The Clinical manifestations of Strongyloidesstercoralis infection are diverse. The patients can present with gastrointestinal and respiratory symptoms even without immunosuppression. Therefore, the main tool for the diagnosis of Strongyloidiasisis based on thorough examination of sputum and stool specimens.

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