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Strongyloides stercoralis infections in patients attending a tertiary care Hospital: Series of seven cases

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ABSTRACT

Strongyloides stercoralis infection is widely prevalent all around the world. Risk factors for strongyloides infection include HIV, malignancy, immunosuppressive therapy, diabetes and malnutrition .Infection can result in asymptomatic chronic disease of the gut, which can remain undetected for decade but in immunocompromised patients specially those receiving long-term corticosteroid therapy, hyperinfection can occur, resulting in high mortality rates (up to 87%).

One year data was analysed to study the Strongyloides stercoralis infections, clinical presentations, treatment and the outcome in patients attending a tertiary care hospital.

Strongyloides stercoralis was diagnosed in 7 patients. Three of these patients were on corticosteroid therapy and two were malnourished, others apparently did not have any high risk factor for the infection. All were HIV negative. Corticosteroid therapy is an important risk factor for Strongyloides stercoralis infection. Strongyloides Co infection with other helminths can occur so it should always be kept in mind. Hyperinfection with Strongyloides stercoralis results in high mortality despite of treatment.

Introduction:

Strongyloidiasis is endemic in several parts of the world particularly Southeast Asia, and also including Latin America and sub-Saharan Africa, as well as temperate areas such as Spain and the Appalachian region of the U.S. It is an extremely common cause of morbidity and mortality worldwide. [1, 2]

Fulleborn was the first to describe strongyloidiasis in 1926. The disease is caused by the parasitic helminth Strongyloides stercoralis. This nematode is unique in its ability to complete its life cycle in humans. It may cause infection over a period as long as several decades. Individuals with an intact immune system may have minimal or no symptoms. In contrast, those with a compromised immune system may develop a rapidly fatal infection like hyperinfection syndrome and disseminated strongyloidiasis.

In developed countries, almost all deaths attributable to helminthic infections occur secondary to strongylodiaisis hyperinfection or dissemination.[3] Although once thought rare, disseminated strongyloidiasis may be relatively common in high risk populations and frequently misdiagnosed as isolated gram negative sepsis or acute respiratory distress syndrome.[4] This iatrogenic complication from corticosteroid therapy generally presents with diffuse, non-specific gastrointestinal, dermatologic, or respiratory symptoms.[5]

Material and Methods: One year data for stool microscopy was analyzed to study the Strongyloides stercoralis infections. During this period samples received for diagnosis of parasitic infections were processed by saline and lugol's iodine mount preparation. Each sample is thoroughly examined for15-20 minutes before reporting negative for any ova or cyst. Patients' records were screened to know the clinical presentations, treatment provided and the prognosis.Total four hundred nineteen stool samples were screened for ova, cyst, trophozoites and larvae .Of these 16(3.81%) were positive for ova /cyst or larvae.Strongyloides stercoralis larvae are observed in seven stool samples.

Case reports:

Case 1-A 36 year male with history of pain abdomen -10 days associated with vomitings, fever with chills and rigor-1day.Not hypertensive but diabetic since 1 year. He was alcoholic and a smoker. Patient was treated with ivermectin 12.5mg stat and albendazole 450mg OD for five days followed by ivermectin 12.5mg OD for five days .

Case2-A 65 year old male presented with history of headache for 6 months and urinary incontinence-2months, blurred vision-1 week and fever-4 days. No history of vomitings.MRI brain showed enhancing lesion in the frontal lobe. Western blot for HIV was indeterminate.

Case 3-50 year male, labourar by occupation with history of fever -2 months and pain in the right hypochondrial region associated with vomitings and nausea. He had been treated for multiple liver abscesses and splenomegaly previously. Pedal edema was present and icterus present.Ultrasonography abdomen revealed multiple liver abscesses with hepatomegaly.He was treated with albendazole 400mg BD. Pus aspirated from liver was cultured and Sreptococcus pyogenes was on culture.

Case 4-A 29 year old male complained of fever followed by generalized body pains and multiple joint pains in both lower limbs for 9 months. Blood picture revealed eosinophillia (15%).He was started on albendazole 400mg BD,Ivermectin 12mg OD.He recovered well.

Case 5-A 55 year old female with history of low grade intermittent fever associated with chills and rigor for 20 days. She also had loose motions and vomitings for 1 week. Facial puffiness was present. There was history of joint pains. Patient was on steroids for joint pains .Her white blood cell count was high. She was treated with albendazole and responded well.

Case 6-A 29 year old male laborer by occupation came with history oh facial puffiness, pedal edema and decreased urine output for 5 months. He complained of loose motions since 5 days and vomiting since 2 days. He was diagnosed as having membraneous nephropathy. Patient was on steroids. His blood picture was normal.Larve were present in stool and sputum sample. Patient expired despite starting ivermectin therapy.

Case7-A 60 year old male, farmer by occupation presented with vomiting and loose motions for -2 days and decreased urine output for 1 day. There was no fever, abdominal pain or breathlessness. He was diagnosed with acute gastroenteritis with acute renal failure. His stool examination showed Hookworm eggs and Strongyloides stercoralis larvae. He was treated with antibiotics, IV fluids and metronidazole. He recovered well and was discharged within 2 days.

Discussion:

Strongyloides stercoralis infects 30 million people in 70 countries. Strongloidiasis is a helminthic infection commonly reported in HIV patients and other immunocompromised hosts.

Strongyloidiasis in immunocompetent individuals is usually an indolent disease and infection usually results in asymptomatic chronic disease of the gut, which can remain undetected for decades. [5] Four of our patients had gastrointestinal symptoms, one had membranous glomerulonephitis and others had joint pains and other nonspecific symptoms.

Awareness regarding the prevalence of the infection and varied manifestations is important for timely specific treatment as it has been reported that primary care physicians who were unaware of strongyloidiasis prevalence in USA treated patients presenting with wheezing with corticosteroids for "asthma" with subsequent development of hyperinfection but clinicians familiar with immigrant health or travel medicine evaluated their patients for strongyloidiasis, with appropriate treatment, and confirmatory follow-up evaluation. [6]

The term "hyperinfection" is often used to denote autoinfection, a phenomenon in which the number of worms increases tremendously and the worms are detectable in extraintestinal regions, especially the lungs. This hyperinfective syndrome can have a mortality rate of close to 90% if disseminated. [7, 8] One of our patient who had hyperinfection syndrome succumbed despite of starting treatment.

Immunosuppressive drugs and diseases such as HTLV-1 (Human T-cell Lymphotropic Virus 1), can increase the rate of autoinfection to the point where there is an overwhelming number of larvae migrating through the lungs, and in many cases this can prove fatal. [8]

Corticosteroids were a common factor among three of our patients who were on corcosteroids for management of joint pains and one for membraneous glomerulonephritis.

Multiple helminthic infections can occur in rural areas where sanitary conditions are not proper and hygiene is not maintained well. In our patients coinfection with strongyloides and hook worm was seen in one patient. [9]

Definitive diagnosis of strongyloidiasis is usually made on the basis of detection of larvae but it is difficult to diagnose due to low parasite load irregular larval output. Results of a single stool examination by use of conventional techniques fail to detect larvae in up to 70% of cases [5]. Eosinophilia, clinical features and positive serological tests are said to be indicators of strongyloidiasis. But the clinical features are nospecific, eosinophilia is not evident in all cases and serological tests are not available in most of the centres in India. Only one of our patients had eosinophilia. In others the blood picture was inconclusive. [1, 2]

In a study in asymptomatic travellers the significance of eosinophilia for four helminthic infections namely strongyloidiasis,sh istosomiasi,toxocariasis and filariasis was reported to be of no value. [10]

Therefore high index of clinical suspicion and knowledge of epidemiology of the parasitic infections is the key to early and adequate diagnosis with better outcome.

In conclusion corticosteroid treatment as a is considered as a common denominator in the list of immunosuppressive diseases associated with hyperinfection.Therefore it is extremely important to remember the association of strongyloidiasis with corcosteroid intake as has been reported from all around the world. Timely diagnosis and aggressive treatment is necessary to prevent the development of hyperinfection syndrome which is associated with high mortality despite treatment.

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