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## A Vital Role in Human Life by Worms - “Strongyloidiasis”

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### **Abstract:**

*Strongyloidiasis is a human parasite disease caused by strongloides. It is present mainly in tropical and subtropical regions. People catch this infection when their skin comes in contact with soil contaminated with the worms. Abdominal pain, rash, weight loss, diarrhoea, vomiting and wheezing are the signs and symptoms of this illness. Stool examination, complete blood count, blood test analysis for antigen and duodenal aspiration are the following investigations for identifying this disease. Ivermectin, thiabondazole are the drug of choice to treat this infection. Septicemia, malnutrition, Eosinophil pneumonia are the complication may occur during this illness. Good personal hygiene can reduce the risk of this disease.*

**Keywords:** Strongyloidiasis, host, worms, tropical area

### **1. Introduction**

Before presenting individual diseases, consideration is given to the patterns of disease in tropical and developing countries, as they may differ materially from those encounters elsewhere. It will be seen that ill health in the tropics does not consist only of a battle between human hosts and pathogens. It is important that the health problem of the world should be widely appreciated and that doctor should be reliably informed whether or not they proposed work in the tropics.

### **2. Background to Disease in the Tropics**

#### *2.1. Genes and Race*

The best example of genetically determined disease is sickle cell anemia in which homozygous producers of hemoglobin S become anemic and often die in infancy. The heterozygous carrier of haemeoglobin S on the other hand is healthy and enjoys measures of protection against the severe complication of malaria. Regarding the nutrition and agriculture the presence or absence of malnutrition depends on availability of food, its cost and correctness of its use. Traditional practices and taboos may limit the use of available food, e.g.: the banning of egg and milk in pregnancy. Malnutrition impairs both the cellular and humoral components of immune response and predisposes children to infection which further drains the bodies nutritional reserves

It is a human chronic parasitic disease caused by the nematode (round Worm strongyloides, stercoralis or sometimes S.Julleborni. An estimated 30-100 million people are infected world, recise data on prevalence are unknown in epidemic countries. Transmission occurs mainly in tropical and subtropical regions but also in countries with temperate climates. It can cause a number of symptoms in people, principally skin symptoms, abdominal pain, diarrhoea and weight loss. . The diagnosis is made by blood and stool tests. The drug Ivermectine is widely used in the treatment of strongyloidiasis.

### **3. Special Programmes for Research and Training in Tropical Disease**

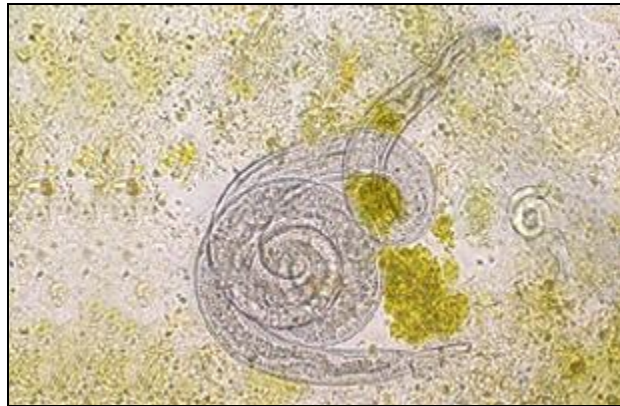
In 1975 a special programme for Research and Training in Tropical Diseases was established to focus on neglected infectious diseases which disproportionately affect poor and marginalized population in develop regions of Africa, Asia ,central America and south America. It was established at the world health organization which is the executive agency and this co-sponsored by the United Nations fund. United Nations development programmes the World Bank and the World Health Organization.

#### *3.1. Definition*

It is a Human Parasite disease caused by strongloides, stercoratis. Transmission occurs mainly in tropical and sub tropical region. A helminthes present mainly in tropical and subtropical regions but also in temperate climates.

### 3.2. Structure

*Strongyloides stercoralis* is very small nematode (2mm X40microns)



Figure

### 3.3. Causes

*S. Stercoratis* is a round worm that is fairly common in warm areas.

In rare cases, it can be found as far north as Canada. People catch the infection when their skin comes in contact with soil contaminated with the worms.

The tiny worm is barely visible to the naked eye. Young worms can be moving through a person's skin and in to the blood stream to the lungs and airways.

They then move up the throat where they are swallowed in to the stomach. The worms then move to the small intestine, where they attached to the wall. Later they produce eggs which hatch tiny larvae and pupa out of the body.

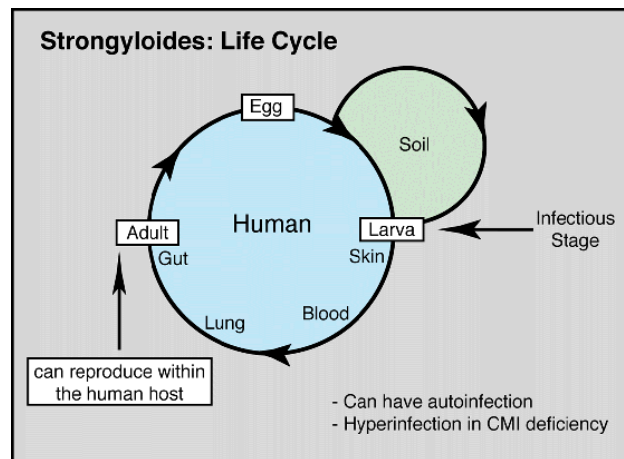


Figure 2: Life cycle of *Strongyloides*

- The worm's lifecycle includes the following stages:
  - The tiny worms penetrate the skin and enter the blood stream.
  - The worms then move through the blood stream and pass through the right side of the heart and in to the lungs.
  - The parasites travel from the lungs up the wind pipe and in to the mouth.
  - The infected person unknowingly swallows the worms in to his or her stomach.
  - The worms move in to the small intestine of the human host.
  - The worms lay eggs which hatch in to larvae.
  - The larvae are expelled from the host's body in his or her feces.
  - The larvae can infect the body by penetrating the skin around the anus or they can develop in to mature worms and infect another host on contact.

The worms can also live and reproduce in the soil without the host. Rarely, the worms can modify their lifestyle such that the larvae penetrate the intestine of the host rather than pass out of the body through the feces. This type of infection can be serious in patients with weakened immune system, such as those with the HIV/ AIDS virus.

#### 4. Risk for Strongyloidiasis

Those who travel to or live in South America, Africa, or other tropical regions are at risk for infection. You are at a much higher risk if you travel to rural areas, areas with unsanitary living conditions, or areas without adequate public health services. If you don't practice good personal hygiene, you are also at an increased risk.



Figure 3

#### 4.1. Signs and Symptoms

- Abdominal pain
- Cough, wheezing, Chronic Bronchitis.
- Diarrhea is intermittent and persistent
- Rash
- Red -Hive-like areas near the anus
- Vomiting
- Weight Loss
- Eosinophil Pneumonia

#### 4.2. Diagnosis

According to National Institute of Health (NIH) the following tests may be performed to diagnose an infection with Stercoralis.

##### 4.2.1. Duodenal aspiration

In this test fluid will take from the first section of the small intestine to examine under a microscope for the presence of stercoralis.

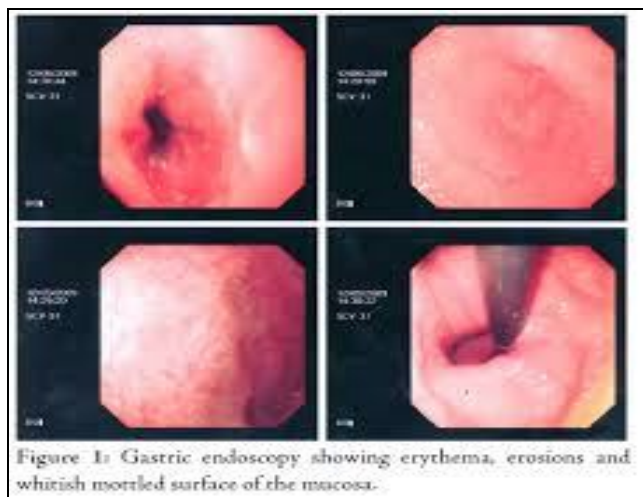


Figure 4: Gastric endoscopy showing erythema, erosions and whitish mottled surface of the mucosa.

Figure 4

##### 4.2.2. Sputum culture

In a sputum culture, analyzes fluid that comes from the lungs or airways for *S.stercoralis*

##### 4.2.3. Stool examination

The test check for *S.stercoralis* larvae in feces, you may require repeat testing for accurate results.

#### 4.2.4. Complete blood count

Test with differential blood count may help to rule out other causes of symptoms.

#### 4.2.5. Blood test analysis for antigen

This test is conducted when an infection is suspected but the parasite cannot be found in a duodenal aspiration or in several stool samples. Antibody test results cannot be used to tell the difference between a past and current *S.stercoralis*.

#### *4.3. Treatment*

The goal of the treatment is to eliminate the worms with anti-Worm medications such as Ivermectin, Thiabondazole and albendazole.25mg/kg body weight twice daily for 2 to 4 days.

In case people with no symptoms are treated. This includes people who take drugs that suppresses the immune system

#### *4.4. Complication*

The following complication may occur during and *S. stercoralis* infection.

- Disseminated strongyloidiasis, especially in person with HIV or on otherwise immune System.
- Neurological complication
- septicemia
- Malnutrition
- Eosinophilic pneumonia

#### *4.5. Prevention*

Good personal Hygiene can reduce the risk of disease public health services and sanitary facilities provide good infection control. It has almost disapproved in countries where sanitation and human waste disposal have improved.

In areas where mass treatment with Ivermectin has been used to control lymphatic Filariasis,. The prevalence of Strongylocliasis is probable reduced but further investigation is needed.

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