JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 02, February 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

THE MEDICAL SIGNIFICANCE OF HUMAN ASCARIS

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Abstract: This article provides information on the medical significance of human Ascaris. It discusses the life cycle of Ascaris, personal prevention measures, how and under what conditions it infects the human body, and pathological changes that occur in patients infected with Ascaris. Additionally, the article covers preventive measures to avoid this widespread parasitic infection and the treatments used for infected patients.

Keywords: Human Ascaris, Ascaris lumbricoides, Ascariasis, Parasitic infection, Life cycle, Personal hygiene, Intestinal parasites, Prevention, Antihelminthic therapy.

Human Ascaris (Ascaris lumbricoides) is a widely distributed parasite. Ascaris develops without changing its host. Adult Ascaris live, mature, and reproduce in the small intestine.

Ascariasis is a helminthic disease caused by roundworms (Ascaris). These worms are relatively large and parasitize the human small intestine. The disease is more common in children. An infected person is the primary source of Ascaris transmission. The disease spreads through vegetables contaminated with Ascaris eggs, unboiled water, and dirty hands. In its early stages, the disease often presents with general symptoms such as weakness, cough, fever, and urticaria (rash). Later symptoms may include dizziness, headaches, gastrointestinal disturbances (nausea, vomiting, excessive salivation), extreme fatigue, and nighttime anxiety. Children may experience teeth grinding during sleep, anemia, nervousness, and other complications. If Ascaris invades the bile ducts or gastrointestinal tract, it may cause complications such as purulent cholecystitis, liver abscess, peritonitis, sepsis, acute pancreatitis, appendicitis, and intestinal obstruction.

Egg Development and Infection Pathway:

Egg Formation: Female Ascaris lay eggs in the intestine. These eggs are excreted with feces and mature in the soil for 2-3 weeks before becoming infectious.
Infection: Ascaris eggs enter the human body through contaminated water, vegetables, and fruits.
Larval Stage: Larvae hatch in the intestine, enter the bloodstream, and migrate to the lungs. They travel to the mouth via coughing and are swallowed back into the intestine.
Maturation: The larvae mature in the intestine and begin to reproduce. A single female Ascaris can lay up to 200,000 eggs per day.

Transmission of Human Ascaris
Sources of Infection: Contaminated food and water, poor personal hygiene (failure to wash

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hands), and contact with contaminated soil.
Conditions for Transmission: The risk of infection is high in unsanitary environments. Children frequently acquire the infection through soil contact while playing.

To prevent any disease transmitted through feces, proper hygiene practices and effective waste treatment systems are required. This is especially crucial for A. lumbricoides, as its eggs are among the most difficult pathogens to kill (second only to prions) and can survive for 1-3 years. A. lumbricoides resides in the intestine, where it lays eggs. INFECTION occurs when these microscopic eggs are ingested. When improperly processed feces from infected individuals are used as fertilizer for food crops, the eggs can contaminate vegetables. Infection may also occur when food handlers, contaminated hands, clothing, hair, raw vegetables/fruits, containers, or other surfaces transfer viable eggs into cooked food without eliminating them. Bleach does not easily kill A. lumbricoides; instead, it removes the sticky layer on the eggs, allowing them to be washed away. A. lumbricoides eggs can be reduced through hot composting methods, but complete destruction requires alcohol, iodine, special chemicals, cooking heat, or extreme composting temperatures (e.g., above 50°C or 122°F for 24 hours).

Pathological Changes in the Human Body

Intestinal Damage: Adult Ascaris worms cause irritation and damage to the intestinal wall, leading to intestinal obstruction (ileus).

Lung and Allergic Reactions: During larval migration through the lungs, inflammation, coughing, and asthma-like symptoms may appear.
Nutrient Absorption Disorders: Parasites consume essential nutrients, leading to vitamin and mineral deficiencies in infected individuals.

Other Complications: Migration of Ascaris to the liver and bile ducts may cause jaundice and pain. Egg migration can also impact the nervous system.

Prevention Strategies:

Personal Hygiene: Washing hands thoroughly before and after meals, and washing fruits and vegetables properly.
Sanitary Measures: Preventing open defecation and using clean water sources.
Medication Prophylaxis: In high-risk areas, periodic administration of antihelminthic drugs (e.g., Albendazole or Mebendazole) can prevent infections.

Treatment and Medical Interventions
Medications: Antihelminthic drugs such as Albendazole and Mebendazole are effective in eliminating Ascaris larvae and adult worms.
Monitoring: Regular stool analysis to detect the presence of Ascaris eggs.
Surgical Interventions: In severe cases, such as intestinal obstruction, surgical treatment may

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be required.

Antihelminthic Therapy-Antihelminthic therapy is a treatment method used to expel or eliminate parasitic worms (helminths) from the body. Antihelminthic drugs work by inhibiting the growth of parasites or killing them. These drugs are effective against Ascaris, hookworms, Trichinella, and other helminths.


Human Ascaris is a medically significant parasite that causes serious pathological changes in the human body. Understanding its life cycle and transmission pathways is crucial for effective prevention and treatment. The widespread prevalence of Ascariasis poses a global public health challenge, emphasizing the importance of hygiene, improved sanitation, and antihelminthic therapies.

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