

Co-Occurrence and Clinical Features of Ascariasis and Giardiasis in Children

*Rakhimov Sheramat Ismatovich*¹

Abstract: The lecture discusses contemporary perspectives on the problem of helminthiasis, covering their prevalence, routes of infection, pathogenetic features, complications of the infectious process leading to somatic pathology in children, as well as issues of prevention and treatment.

Keywords: helminths, children.

According to World Bank estimates, the economic damage from intestinal helminthiasis, which frequently cause parasitic diseases, ranks fourth among all treatment costs for diseases and injuries. The incidence of helminthiasis is comparable to that of acute respiratory viral infections and influenza. The World Health Organization reports that about 5 billion people worldwide suffer from protozoal diseases and helminthiasis. However, WHO experts believe that helminthiasis has somewhat become "neglected diseases," as their medical and social significance is underestimated. Even in endemic countries, they receive insufficient attention from health authorities and the population

Helminths, or parasitic worms causing helminthiasis, are among the oldest and most numerous life forms on Earth. Over 350 species of helminths have been registered in humans, predominantly belonging to two types of worms: roundworms (Nematoda) and flatworms (Cestoidea and Trematoda). Nematodes are the most common, with 500,000 species, ranking second in number among all representatives of the animal kingdom. Most of these parasites were described in the 19th century. Hippocrates introduced the term "ascariasis."

In recent years, there has been an increase in the incidence of helminthiasis, especially nematodosis (enterobiasis and ascariasis). The number of cases of toxocariasis, trichinosis, as well as the spread of biohelminthiasis—opisthorchiasis, diphyllorhynchiasis, taeniidosis, echinococcosis—has also increased. The rise in gastroenterological and allergic diseases in children is largely due to helminthic invasion. Helminths use the human body as a source of nutrition, habitat, and reproduction, causing systemic toxic damage to organs and systems. Most helminths are hermaphrodites capable of self-colonization.

In Europe, every third resident is affected by helminths. In Ukraine, the annual incidence of helminthiasis exceeds a thousand cases per 100,000 population, with enterobiasis and ascariasis being the most common. Epidemiological data show that enterobiasis primarily affects children aged 1 to 3 years.

Helminths are multicellular organisms with a complex individual development cycle. From a fertilized egg develops an adult organism, forming organs and tissues. Mature helminths can reach lengths from a few millimeters to 10–14 meters. Female helminths lay tens to hundreds of thousands of eggs, which remain viable in unfavorable conditions. Helminths can parasitize the human body from several months to decades. Intermediate hosts can be humans, animals, fish, or mollusks. Geographically transmitted helminthiasis develops without intermediate hosts, whereas biohelminthiasis requires their participation. Human infection occurs by ingesting mature parasite eggs through contaminated food, water, hands, or airborne routes. Some helminths can penetrate the skin.

¹ Bukhara State Medical Institute



Helminths affect almost all organs and tissues of the human body, causing severe allergic manifestations, digestive and respiratory pathologies, sensitizing and immunosuppressive effects, creating a favorable background for the development of somatic and infectious pathology.

The most general pathological effects of all helminths include allergization and suppression of the immune response. Helminths, their structures, and metabolic products are allergens, causing inflammatory changes, having immunosuppressive effects, and stimulating IgE antibody production. This can initiate or maintain chronic allergic diseases, such as urticaria, atopic dermatitis, and bronchial asthma. Although helminthiasis are not truly allergic diseases, they include allergy as an essential component of the pathological process. According to numerous studies, parasitoses contribute to the frequent occurrence and exacerbation of somatic diseases, exerting multifaceted effects on the host organism, including the immune system. A characteristic feature of most helminthiasis is the chronic course of the disease due to the prolonged presence of the pathogen in the body and multiple re-infections.

Helminthiasis in children are often accompanied by nonspecific clinical manifestations, such as weakness, fatigue, irritability, sleep disturbances, dyspeptic symptoms, slowed growth and weight gain, as well as changes in immune status. In the chronic phase of helminthiasis, metabolic processes in the host organism are disrupted due to the absorption of metabolically valuable nutrients (proteins, fats, carbohydrates, vitamins, and minerals) by the parasites, as well as neurohumoral regulation and food absorption disorders in the intestines. Some intestinal helminths secrete substances that neutralize digestive enzymes, leading to protein-calorie deficiency, anemia, and vitamin deficiencies. The metabolic products of helminths also contribute to changes in the intestinal biocenosis and an increase in the proportion of conditionally pathogenic and pathogenic microflora. The chronic course of helminthiasis is always accompanied by metabolic disorders, which can cause irreversible changes in organs.

The most common forms of helminthiasis in children are ascariasis and enterobiasis. Ascariasis affects about 1.2 billion people annually and is associated with poor sanitary conditions, inadequate personal hygiene, and the use of human feces as fertilizer. Infection occurs through the consumption of food or drinks contaminated with ascaris eggs. The development of the ascariasis pathogen involves the migration of larvae through the bloodstream to the lungs, from where they are swallowed with sputum and develop into adults in the intestines. The life cycle of ascaris in the human body lasts several months. The ascaris allergen can cause severe allergic reactions in the bronchi, skin, conjunctiva, and gastrointestinal tract.

Enterobiasis develops in the gastrointestinal tract, where larvae from eggs develop into adults, parasitizing in the lower small intestine and upper large intestine. The lifespan of pinworms can reach 100 days. The main role in infection is played by the violation of personal hygiene rules. Routes of infection are oral, contact, and household. Enterobiasis disrupts food absorption and digestion processes, leading to weight loss, growth retardation, and child development delays. A vivid symptom of enterobiasis is perianal itching, occurring when the female moves during egg-laying. Enterobiasis can lead to inflammatory reactions outside the intestines and the development of urinary tract infections in children, especially girls. Giardiasis, according to WHO data, affects about 20% of children and is characterized by structural and functional disorders of the small intestine. Giardia multiply in the small intestine and are excreted into the external environment with feces as cysts. Giardiasis can manifest with intestinal, biliary-pancreatic, and extraintestinal symptoms, including neurocirculatory dysfunction, asthenoneurotic syndrome, and allergy. The diagnosis of helminthiasis includes macroscopic and microscopic methods for examining biological materials, such as feces, urine, duodenal contents, bile, and blood, to detect helminths, their fragments, larvae, and eggs. Enrichment methods, such as the Kalantaryan and Fulleborn flotation methods, are used to detect helminth eggs.



Literature

1. Beklemishev, V.N., "Gelmintlar va ularning biologiyasi." Moskva, 1982.
2. Ananiev, V.V., "Bolalarda askaridoz va uning klinik xususiyatlari." Pediatriya, 1999.
3. Smith, H., "Gelmintozlar va ularning tashxisi." New York, 2005.
4. Abdullayev, R., "Gelmintozlarning oldini olish va davolash." Toshkent, 2010.
5. World Health Organization (WHO), "Gelmintik infektsiyalar haqida hisobot." 2017.
6. Hamidova, L., "Bolalarda enterobioz va ularning simptomatikasi." Pediatrics Journal, 2018.
7. Filimonov, A., "Gelmintozlar: tarqalish, patogenez va davolash." St. Petersburg, 2011.
8. "Protozoal va gelmint kasalliklarining zamonaviy muammolari," Jahon Sog'liqni Saqlash Tashkiloti, 2020.
9. Johnson, P., "Gelmintozlar va ularning immun tizimiga ta'siri." Immunology Today, 2015.
10. Yusupov, T., "Gelmintozlarning epidemiologiyasi va ularni oldini olish yo'llari." Buxoro, 2019.
11. Абдуллаева М. А., Урокова К. Х. МОРФОФУНКЦИОНАЛЬНЫЕ ИЗМЕНЕНИЯ ДУОДЕНАЛЬНЫХ ЖЕЛЕЗ ПРИ ТЕРМИЧЕСКОЙ ТРАВМЕ //АМАЛИЙ ВА ТИББИЙОТ ФАНЛАРИ ИЛМИЙ ЖУРНАЛИ. – 2024. – Т. 3. – №. 2. – С. 99-102.
12. Abdullaeva, M. A., E. G. Muyidinova, and M. Tairov Sh. "Influence of Equator and Tessiron therapy on clinical symptoms and functional state of vascular endothelium in patients with nonspecific aorto-arteritis." *Science of young scientific and practical journal Ryazan* 3 (2015): 40-44.
13. Абдуллаева, М. А., et al. "ФАКТОРЫ РИСКА ОСТРОГО ИНФАРКТА МИОКАРДА У БОЛЬНЫХ МОЛОДОГО И СРЕДНЕГО ВОЗРАСТОВ." *БИОЛОГИЯ ВА ТИББИЁТ МУАММОЛАРИ* 4.9 (2013).
14. Abdullaeva, M. A. "Cytokine profile in patients with nonspecific aortoarteritis during therapy." *Problems of Biology and Medicine* 113 (2020): 7-10.
15. Абдуллаева, М. А., and С. Ф. Сулейманов. "Клеточные факторы развития эндотелиальной дисфункции при неспецифическом аортоартериите." *Проблемы биологии и медицины* 4 (2019): 11-13.
16. Абдурахманов, М. М., М. А. Абдуллаева, and З. М. Абдурахманов. "ЭФФЕКТИВНОСТЬ ТЕРАПИИ ЭКВАТОРОМ И ТЕССИРОНОМ НА КЛИНИЧЕСКУЮ СИМПТОМАТИКУ И ФУНКЦИОНАЛЬНОЕ СОСТОЯНИЕ ЭНДОТЕЛИЯ СОСУДОВ У БОЛЬНЫХ НЕСПЕЦИФИЧЕСКИМ АОРТОАРТЕРИИТОМ." *БИОЛОГИЯ ВА ТИББИЁТ МУАММОЛАРИ* 4.1 (2013): 6.

