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ECTOPARASITES AND THEIR IMPACT ON CHILDREN'S HEALTH

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Abstract. This article provides a comprehensive overview of the main types of ectoparasites commonly found in children, highlighting their morphological and biological characteristics. The impact of parasites on the child's body, including itching, allergic reactions, skin diseases, and the mechanisms of transmission of dangerous infectious diseases, is analyzed from a scientific perspective. The article also emphasizes the role of hygiene practices in protecting children's health, preventive measures against parasites, and the significance of modern treatment methods in pediatric practice. This study is useful for students specializing in pediatrics, medical professionals, and general readers, as it helps strengthen both theoretical and practical knowledge in the fight against ectoparasites.
Keywords: allergic reaction, dermatitis, endoparasite, ectoparasite, Anopheles, epidemiology, hygiene, insecticide, intermediate host, transmissible disease

Main Objective.

Today, malaria remains one of the most widespread and life-threatening diseases globally. The primary vector of this disease is the Anopheles mosquito, known as the malaria mosquito. While these mosquitoes are common in tropical and subtropical regions, in recent years they have also been observed in other areas due to climate change. Therefore, it is crucial to study these mosquitoes in depth, including their habitats and living conditions.

Although the Anopheles mosquito may seem harmless to humans, it is of significant epidemiological importance as a carrier of the malaria pathogen, Plasmodium. Every year, thousands of people, particularly children and pregnant women, die as a result of malaria. Consequently, effective control of Anopheles mosquitoes and prevention of malaria transmission remain among the most urgent tasks in medicine.

The relevance of this research is further highlighted by the highly adaptable nature of Anopheles mosquitoes, which can quickly adjust to environmental changes. Factors such as water pollution, rising temperatures, and increased humidity accelerate their reproduction, thereby increasing the risk of malaria outbreaks. Therefore, monitoring ecological factors and reducing mosquito populations are essential directions of this study.

Current Global and Local Relevance of Malaria Control. Currently, efforts to combat malaria are ongoing worldwide. The World Health Organization (WHO) and other scientific centers are working on the development of new vaccines, medications, and innovative vector control methods. However, for these measures to be effective, it is first necessary to conduct a thorough study of the life cycle, habitat, and reproductive conditions of the malaria mosquito. This research is particularly relevant for Uzbekistan. In some regions of the country, mosquitoes are present, making prevention and control of malaria resurgence an urgent public health issue. Therefore, an in-depth study of the malaria mosquito and the development of effective control measures hold significant scientific and practical importance.

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●Materials and Results of the Study. The malaria mosquito (Anopheles spp.) is one of the most dangerous ectoparasites to human health worldwide. It transmits Plasmodium parasites, which cause malaria. Although malaria is primarily widespread in tropical and subtropical regions, climate change and human activity have led to its emergence in new areas. This study extensively examined the biology, ecology, distribution, and impact on human health of Anopheles mosquitoes.

●Biological Characteristics. Anopheles mosquitoes are small and have spotted wings. Female mosquitoes require blood meals to lay eggs, while males feed exclusively on nectar. Their life cycle consists of four stages: egg → larva → pupa → adult (imago). Temperature and humidity directly affect the duration of the life cycle. In warm and humid climates, the cycle is completed in 10–14 days, while in cold and dry conditions, development slows. Egg-laying sites, water bodies, and muddy environments directly influence mosquito population growth.

●Distribution and Ecological Factors. Mosquitoes are distributed across Africa, Asia, South America, and Oceania. Humidity, water sources, and temperature determine their habitat range. In tropical forest regions, Anopheles populations remain active throughout the year, whereas in dry and cold areas, activity is limited. Human activities, urbanization, and water management directly affect mosquito population density and behavior. Climate change and increased rainfall accelerate mosquito development and facilitate malaria spread to new regions.

●Mechanism of Disease Transmission. Malaria is transmitted through Plasmodium parasites. When a mosquito feeds on human blood, the parasite enters the bloodstream. Within the human body, the parasite multiplies in liver cells and subsequently infects red blood cells. This process triggers malaria attacks and associated clinical symptoms. The severity of malaria depends on the individual's immune status, living conditions, and preventive measures. Children and pregnant women are particularly at high risk.

●Diagnostics and Monitoring. Laboratory tests and clinical observations are used to detect malaria. Epidemiological analysis allows the creation of malaria distribution maps, which guide effective preventive measures. Monitoring mosquito populations is also critical, as it helps predict potential outbreaks and implement timely interventions.

●Symptoms and Attacks. Malaria attacks are typically characterized by high fever, chills, headache, muscle pain, and fatigue. Nausea and vomiting may also occur. The severity and duration of the disease depend on immunity, living conditions, and preventive care. Pregnant women, young children, and individuals with weakened immunity are especially vulnerable.

●Effectiveness of Control Measures. Effective strategies for controlling malaria mosquitoes and malaria include:

Insecticide-treated nets and mosquito protection: Reduces human contact with mosquitoes indoors and in surrounding areas.

Prophylactic drugs: Prevent malaria and inhibit the development of parasites.

Ecological control: Cleaning water bodies and establishing proper drainage systems reduce mosquito breeding.

Public education: Informing the population about disease symptoms, risk factors, and preventive measures.

The results of the study indicate that regular monitoring and preventive measures significantly reduce malaria incidence. Local environmental conditions, climate change, and human activity directly influence the effectiveness of control strategies.

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Conclusion

The above findings demonstrate that the malaria mosquito (Anopheles species) is one of the most serious biological threats to humanity. Today, in-depth research into the life cycle, habitat, and distribution characteristics of this parasite remains one of the most urgent public health priorities. The development cycle and population dynamics of Anopheles mosquitoes are strongly influenced by climate, humidity, water bodies, and anthropogenic factors. Thorough analysis of these factors allows for the prediction of disease spread and the development of effective control strategies. Cleaning natural water bodies, improving drainage systems, and promoting hygiene awareness among the population are among the most important ecological measures for reducing mosquito populations.

In summary, combating malaria mosquitoes is not only a matter of insecticides or medication but requires a comprehensive approach based on scientific research, ecological balance, public awareness, and international cooperation. Only through such an integrated strategy can humanity control malaria and ensure a healthy living environment for future generations.

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