

ASCARIS LUMBRICOIDES ASSOCIATED EPILEPSY**Ishanhodjayeva G.T., Kakharova N.M, Kakharov F.M.**

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Abstract

Epilepsy has a significant impact on public health. This article provides an overview of helminthiasis and epilepsy separately, explains the relationship between them, and discusses both the diagnostic challenges of identifying this condition and treatment options for helminthiasis associated epilepsy associated. Also, prevention and control measures are the most important aspect. Finally, the conclusion summarizes the main findings and highlights the need for future research in this area.

Keywords: *Ascaris lumbricoides, epilepsy, seizures.*

Introduction

Heartworm-related epilepsy refers to seizures, which are repeated changes in a person's behavior caused by abnormal electrical activity in the brain associated with neuroinflammation. This is a type of “symptomatic” epilepsy, referring to epilepsy caused by an underlying disease, rather than “idiopathic” epilepsy, the cause of which is unknown.

Ascaris lumbricoides is transmitted by ingestion of embryonated eggs from fecal-contaminated material. Predisposing factors include poverty, poor sanitation, inadequate wastewater disposal and poor personal hygiene. The highest prevalence is observed in children under 5 years of age.

Epilepsy in general has a major impact on public health. Because of the great burden it places on patients and healthcare providers, such as the cost of treatment, the importance to the economy due to lost work time, the impact on families, caregivers and friends, and the risks to the patient's future. Patients may be afraid to leave the house for fear that they may have a seizure or be injured in a public place. This can lead to social isolation.

Roundworms are known to carry bacteria that can cause inflammation in infected tissues. When the worms die, a strong inflammatory response begins to destroy and remove the parasite. This "dying worm" effect has been proposed as an

important mechanism underlying the occurrence of epilepsy. Because the brain often fails to stop this inflammation, known as “sterile inflammation,” long-term damage to nerve cells and the subsequent development of seizures become more likely. Thus, the inflammation and seizure activity caused by ascariasis is due to the brain's response to the emergence of a pro-inflammatory environment due to the death of the parasite and the subsequent release of pathogen-associated molecules.

Chronic infections with large numbers of adult worms in the intestine can lead to significant eosinophilic inflammation, thereby inducing immune responses such as activation of microglia and astrocytes in the brain and production of cytokines and chemokines. Also, against the background of ascariasis, activation of lymphocytes and production of parasitic antigen-specific immunoglobulin G and E are observed.

In most patients with intestinal ascariasis, the disease is asymptomatic. People with symptoms often experience anorexia, nausea, bloating, abdominal discomfort, intermittent abdominal pain, and intermittent diarrhea.

Purpose of the study. In patients with epilepsy, increased levels of antibodies to *Ascaris lumbricoides* and helminth eggs were observed during coproovoscopy. Our goal was to determine whether there was any association between these agents and epilepsy in our cohort.

Materials and methods of research. A total of 25 patients were included in the study, of which 12 were boys and 13 were girls. The criteria for inclusion in the study were children of preschool age (up to 5 years), with complaints of seizures, nighttime EEG monitoring and MRI of which were without pathologies and without any complaints or a history of previous seizures either in themselves or in their family members. The patients were examined using MRI, EEG, coproscopy and ELISA studies in the department of pediatric neurology of the multidisciplinary clinic of the Tashkent Medical Academy.

Results and discussion. Because helminthiasis-associated epilepsy is caused by an underlying condition of helminthiasis, it was diagnosed as symptomatic

epilepsy. Patients' seizures were both generalized and partial, and were usually resistant to treatment and seizures associated with helminthiasis were intense.

Peripheral eosinophilia was observed in 96% of the studied patients and was a common hematological pathology in patients with ascaris-associated epilepsy. The incidence of positive stool tests for *Ascaris lumbricoides* eggs and roundworm antibodies among patients with epilepsy varied from one series to another and appears to be related to the severity of infection. EEG overnight monitoring and MRI of the brain were without pathologies.

EEG	Without changes
Brain MRI	Without changes
Koproovoscopy	1-4,999 EPG 5,000-49,999 EPG
Antibodies to roundworms IgG	+++ More than 1.05

These patients were prescribed drug therapy based on taking anthelmintic drugs - albendazole (200 mg for 6±1 days). To prevent the effect of the “dying worm” from intensifying the child’s seizures, anticonvulsant therapy was prescribed, and the main drug of choice was lamotrigine (2 mg/kg/day) due to its wide spectrum of action. The effectiveness of the therapy was determined by the improvement in the clinical condition of the patients:

Clinic improvement
Disappearance of abdominal pain
Disappearance of headaches
Disappearance of nausea and vomiting
Improvement of intellectual abilities
No seizures for 6 months
Stool examinations were performed every 2 weeks for 2 months.

Conclusions

After courses of anthelmintic therapy, the children studied experienced a decrease in epileptic seizures, which provides evidence of a positive association between *Ascaris Lumbricoides* and epilepsy. On this basis, it is strongly recommended that public health strategies be developed to reduce exposure to *Ascaris Lumbricoides* species. Further studies are needed to better understand the physiopathological mechanisms of roundworm-associated epileptogenesis.

Health education, personal hygiene, improved sanitation, proper disposal of human excreta, and stopping the use of human feces as fertilizer are effective long-term preventive measures.

In areas where *A. lumbricoides* is common, targeted deworming and mass anthelmintic therapy should be considered.

Future successful research may lead to new treatments for human cerebral infections caused by parasites. Such advances will not only optimize the fight against epilepsy in regions, but will also help manage the associated economic and social consequences.