



Clinical and Epidemiological Features of Hymenolepidosis and Teniarichosis in Children

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Abstract: The analysis of the distribution of patients by age showed that hymenolepidosis was registered mainly in children from 4 to 11 years (70.8%), and teniarichosis from 16 to 18 years (48.3%). When comparing the clinical signs in the patients studied in the article, memory loss, increased nervousness, depressed mood, eyelid cramps and blinking due to asthenovegetative symptoms were significantly higher ($P < 0.001$) in patients with hymenolepidosis than in patients with teniarichosis. It was reported that in patients with teniarichosis, symptoms such as weight loss, discomfort, fainting, abdominal pain and vomiting were significantly high ($P < 0.001$).

Keywords: helminthiasis, hymenolepidosis, teniarichosis, children, clinic.

Relevance. According to statistics from the World Health Organization (WHO), there are more than 4.5 billion people in the world. people are infected with various parasites, many of which are helminths [1, 2].

According to WHO, of the 50 million people who die in the world every year, more than 16 million people die from infectious and parasitic diseases (WHO, 2005). Parasitic diseases occupy the fourth place in the structure of infectious diseases [3, 4].

Recently, in many countries, including the countries of the Central Asian region, due to the deterioration of the epidemiological situation under the influence of anthropogenic factors (hypermigration of the population, hyperurbanization, deterioration of the socio-ecological situation, etc.), the risk of infecting children has increased [5, 6].

Helminths are multicellular eukaryotic invertebrates that may have tubular or flattened bodies. They are divided into two main groups: nematohelminths and platyhelminths [7]. The latter is divided into other subgroups, of which the most medically significant is the class Cestoda with such species as *Taenia solium*, *Taenia saginata*, *Taenia asiatica*, *Taenia multiceps*, *Hymenolepis nana*, *Diphyllobothrium latum* and *Echinococcus* species [8].

Helminthiasis is one of the most common diseases in Uzbekistan, accounting for more than 90% of the total number of parasitic diseases. The level of long-term infestation of the population remains

consistently high. Every year, more than 200 thousand infected people are registered in the country. The prevalence of certain types of helminths varies by region. Enterobiosis and hymenolepidosis are widespread everywhere, both in urban and rural areas. The incidence of teniarinchosis among children is low, but the Khorezm region is an intensive focus of teniarinchosis. [9, 10]. Parasitic diseases are characterized by relatively slow development, chronic course, often long-term compensation. These features are mainly the reason for underestimating the medical and social significance of these diseases [11]. Parasitic diseases cause a delay in the mental and physical development of children [12] reduce resistance to infectious and somatic diseases [13], cause allergization of the body, inducing secondary immunodeficiency [14]. Under the influence of helminths, homeostasis is disturbed in the body, pathological and immunopathological processes that are adaptive in nature develop [15].

Purpose. To study the differential diagnostic features of hymenolepidosis and teniarinchosis in hospitalized children of different ages.

Materials and methods. To solve these tasks, a clinical examination of 178 patients with intestinal parasitosis in children aged 4 to 18 years was conducted in the Bukhara, Khorezm regional Infectious Diseases Hospital and the private clinic "Amal". The diagnosis of hymenolepidosis and teniarinchosis was confirmed by the detection of *Hymenolepis nana* eggs and *Taenia saginata* eggs during triple coproscopy; in some cases, teniarinchosis was diagnosed when a *Taenia saginata* segment was detected (actively or passively) from the anus. Parasitological examination of the stool was performed 3 times with a break for 3-4 days. The diagnosis of hymenolepidosis was confirmed by the detection of helminth eggs in freshly excreted feces. The diagnosis of teniarinchosis was confirmed by the detection of eggs during coproscopy and isolated segments.

Results and discussion. To solve these tasks, clinical and epidemiological examinations of 178 patients with intestinal cestodosis (hymenolepidosis and teniarinchosis) in children aged 4 to 18 years were conducted. They were divided into 2 groups based on the etiological factor. In the group of hymenolepidosis (group 1) out of 120 patients, children were distributed by age as follows: 52 children from 4 to 7 years, 33 children from 8 to 11 years, and 19 from 12 to 15 years, 16 years to 18 years (Fig. 1). Boys 54 (45.0%) and 66 girls (55.0%).

In the teniarinchosis group (group 2), 58 children were distributed by age from 8 years to 11 years-13 and from 12 years to 15 years-17, from 16 years to 18 years-28 (Fig. 2) By gender were distributed as follows: 22 (37.9%) boys and 36 (62.1%) girls.

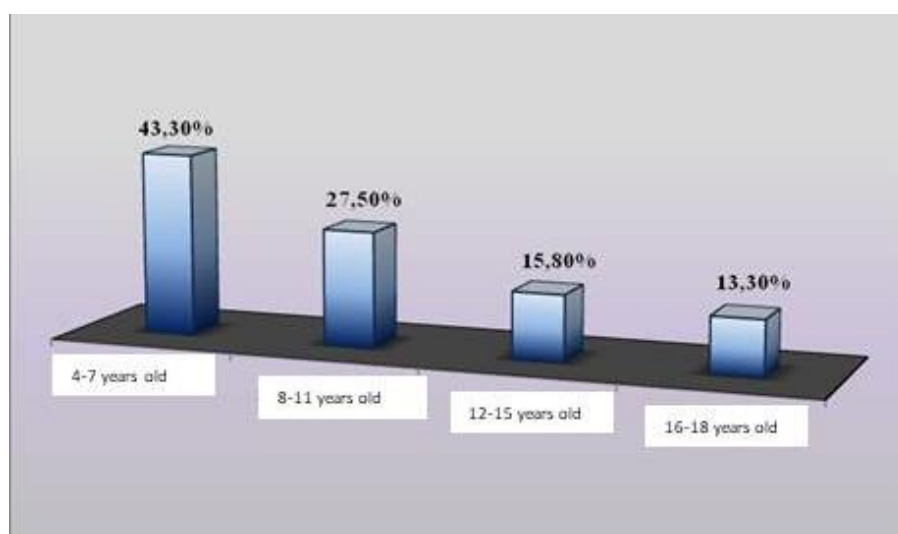


Fig. 1. Distribution of patients with hymenolepidosis by age

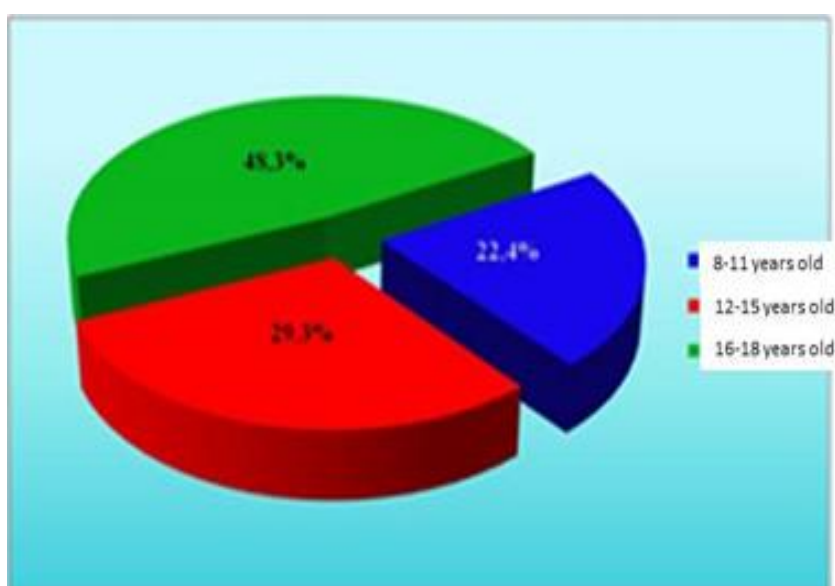


Fig. 2. Distribution of patients with teniarinhosis by age

Thus, the analysis of age distribution showed that hymenolipidosis was registered mainly in children from 4 to 11 years of age, 70.8%, and teniarynchosis from 16 years -1 to 18 years of age 48.3%.

Of the total number of patients in group 1, 68 (56.7%) patients were urban and 52 (53.3%) were rural residents, and groups 2 were respectively 19 (32.8%) and 39 (67.2%). All the observed patients were hospitalized a few months after the onset of the disease. In all cases, the diagnosis was confirmed parasitologically.

In all children, the medical history, epidemiological history, previous and concomitant diseases of the child and parents were studied in detail, the somatic status of the child was determined. According to the testimony, the children were examined by consultants of different specialties and underwent special studies depending on their pathology. Laboratory methods of research included a general analysis of blood, urine, feces. The analysis of the results of the epidemiological history in sick children of group 1 showed that the main way of spreading enterobiosis is contact – household. The epidemiological history showed that 2 groups of patients prevailed over the use of raw meat, when cutting carcasses, when using not enough thermally spent meat and meat products.

In these patients, parasites were detected microscopically during a routine examination, but a detailed examination revealed mild symptoms characteristic of parasites. The frequency of detection of clinical signs is given in the table.

Table 1. The frequency of clinical signs in patients with hymenolepidosis and teniarynchosis.

Symptoms	Hymenolipidosi s (abc.%)	Teniarihoz (abc.%)	Symptoms	Hymenolipidosi s (abc.%)	Teniarihoz (abc.%)
General weakness	110 (91.7%)	55 (95.0%)	Epileptiform seizures	14 (11.7%)	-
Malaise	78 (65.0%)	54 (93.1%)	Nausea	27 (22.5%)	9 (15.6%)
Утомляемость	57 (47.5%)	56 (96.6%)	Vomiting	5 (4.2%)	12 (20.7%)

Sleep problems	62 (51.7%)	31 (53.4%)	Heartburn	10 (8.4%)	16 (27.6%)
Bad memory	96 (80.0%)	23 (39.7%)	Weight Loss	76 (63.3%)	56 (96.6%)
Vertigo	71 (59.2%)	30 (51.7%)	Hypersalivation	82 (68.3%)	52 (89.7%)
Headache	82 (68.3%)	32 (55.2%)	Abdominal pain	62 (51.7%)	54 (93.1%)
Increased irritability	76 (63.3%)	23 (39.7%)	Instability of the chair	32 (26.7%)	18 (31.0%)
Depressed mood	69 (57.5%)	21 (36.2%)	Allergic dermatoses	64 (53.3%)	15 (25.9%)
Blinking of the eyes	18 (15.0%)	2 (3.4%)	Absent-mindedness	15 (12.5%)	10 (17.2%)
Chills	17 (14.2%)	4 (6.9%)	Eosinophilia	100 (83.3%)	45 (77.6%)
Frowning of the eyebrows	21 (17.5%)	5 (8.6%)	Leukopenia	87 (72.5%)	52 (89.7%)
Fainting spells	6 (5.0%)	18 (31.0%)	Anemia	110 (91.7%)	57 (98.3%)
Convulsive muscle twitching	32 (26.7%)	6 (10.3%)	Brittle nails and hair	52 (43.3%)	31 (53.4%)
Bruxism	66 (55.0%)	14 (24.1%)	Onychophagy	32 (26.7%)	18 (31.0%)

The table data show that the majority of children with hymenolipidosis had astheno-neurotic symptoms, which are distributed as follows: 80.0% of patients had poor memory, 68.3% had hypersalivation during sleep, 63.3% had increased irritability, 57.5% of patients had a depressed mood, 55.0% of patients had bruxism, and symptoms such as blinking of the eyes, convulsions, frowning of the eyebrows, epileptiform seizures were recorded in the median of 11.7% - 26.7%.

Dyspeptic symptoms such as nausea were registered in 22.5%, vomiting in 4.2%, diarrhea in 8.4%, abdominal pain in 51.7%, stool instability in 26.7% of group 1 patients.

Of the symptoms of intoxication, headaches were observed in 68.3% of children, general weakness in 91.7%, fatigue in 47.5%, dizziness in 59.2% of patients. Indicators of allergic manifestations such as eosinophilia were 83.3%, allergic dermatoses were 53.3% of patients with hymenolipidosis.

Several studies on the clinical course of hymenolipidosis have reported nonspecific symptoms such as abdominal pain, loss of appetite, diarrhea, flatulence, weight loss, irritable behavior, anal itching, nasal itching, and growth retardation [16, 17].

The analysis of clinical manifestations in patients with teniarynchosis revealed that the majority of children had astheno-neurotic symptoms, which are distributed as follows: 39.7% of patients had poor memory, 89.7% had hypersalivation during sleep, 39.7% had increased irritability, 36.2% of patients had a depressed mood, 24.1% of patients had bruxism, and symptoms such as eye blinking, convulsions, frowning eyebrows were recorded in the median of 3.4% - 24.1%. Epileptiform seizures have not been recorded in more than one case.

Dyspeptic symptoms such as nausea were registered in 15.6%, vomiting in 20.7%, unstable stools in 31.0%, abdominal pain in 93.1% of group 2 patients.

Of the symptoms of intoxication, headaches were observed in 55.2% of children, general weakness in 95.0%, fatigue in 96.6%, dizziness in 51.7% of patients. Indicators of allergic manifestations such as eosinophilia were in 77.6%, allergic dermatoses in 25.9% of patients with teniarynchosis.

A number of scientists have studied the clinical features of teniarichosis, Webb C. and the co-authors came to the conclusion that the human disease, known as cestodosis, is asymptomatic or has non-specific symptoms [18]. However, some reported signs, symptoms and consequences include weight

loss, abdominal pain [19, 20], decreased school performance, dropout, malignant anemia [18], gallbladder perforation, appendicitis [21] and intestinal obstruction [22].

When studying the clinical manifestations in two observed groups of patients, astheno-neurotic symptoms – poor memory, increased irritability, depressed mood, eye blinking and seizures were significantly higher ($P<0.001$) in patients of group 1 than in patients of group 2. Symptoms such as weight loss, shortness of breath, fainting, abdominal pain, vomiting were significantly higher ($P<0.001$) in patients with teniarynchosis than in patients of the first group.

Conclusions. Thus, the analysis of age distribution showed that hymenolepidosis was registered mainly in children from 4 to 11 years (70.8%), and teniarynchosis from 16 years -1 to 18 years (48.3%). The analysis of clinical manifestations showed that astheno-neurotic symptoms that were noted in helminthiasis were more pronounced in patients with hymenolepidosis than in teniarynchosis. Symptoms such as abdominal pain, weight loss, malaise, fatigue were often observed in patients with teniarynchosis.

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