

Analysis of Clinical and Epidemiological Indicators of Hymenolepidosis Among the Children's Population of Bukhara

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ABSTRACT

The data showed that the proportion of hymenolepiasis in different age groups of children about the same and vary from $19,0 \pm 3,9$ to $31,4 \pm 7,8$ %. In this rather alarming high rate among children aged less than 4 years ($19,0 \pm 3,9$ %). Indicators symptomatic clinical form hymenolepiasis had severe confinement and age ranged from $21,5 \pm 5,1$ to $30,8 \pm 5,7$ %, with subclinical form hymenolepiasis ranged from $12,3 \pm 5,5$ to $31,4 \pm 7,8$. Symptoms such as regular acute abdominal pain due to trauma of the mucous membrane of the intestinal wall hooks embedded parasite, subfebrile body temperature (usually marked increase to $37,5^\circ$, at least until $38,0^\circ$), moderately expressed normal and hypochromic anemia (marked reduction hemoglobin in the blood to 100 g / l or less), moderate enlargement of the liver pr., observed with high frequency in many children - up to $65,7 \pm 8,1$; $83,1 \pm 4,7$ %.

KEYWORDS: *hymenolepiasis, helminthiasis, children.*

Relevance. Hymenolepidosis is one of the most widespread human helminthiasis, it is one of the urgent problems for practical health care, due to the imperfection of the complex of health measures. Currently, there are no scientifically based measures for its prevention [1, 2, 3,9]. Features of the mechanism of transmission of hymenolepidosis (contagious helminthiasis) make it difficult to control the disease. Even in a relatively safe hygienic environment, it is very widely distributed.

The widespread decrease in the immune status among children, on the one hand, and the acquisition of resistance to anthelmintics by pathogens, on the other hand, contributes to the fact that the clinical picture of hymenolepidosis is undergoing changes [4, 5, 6, 7, 8]. Some symptoms weaken or fade away altogether, other symptoms appear instead. [11,14]. As a result, timely and reliable clinical diagnosis of hymenolepidosis and especially differentiation of its main forms by practitioners is complicated. [10, 15].In this regard, the purpose of our study was to study the clinical forms of hymenolepidosis among the children's population of Bukhara [12, 13].

Materials and methods of research. The work was carried out among 65 children with manifest and 35 children with subclinical forms of hymenolepidosis aged 4-15 years, identified during a parasitological examination in preschool institutions in the city of Bukhara. As a result of repeated observations and examinations, detailed questioning of children and their parents, clinical symptoms of various forms of hymenolepidosis were recorded.

Diagnosis of hymenolepidosis was performed by coproovoscopy. The collection of feces was carried out 3 times with an interval of 2-3 weeks due to the peculiarities of the development cycle of the causative agent of hymenolepidosis - dwarf tapeworm. Moreover, it is necessary to examine fresh material (morning stool sampling). Statistical analysis of the data was carried out using the Microsoft Excel spreadsheet program, which were formed in accordance with the requests of the conducted

research.

The results of the study and their discussion. It is customary to judge the state of the provision of qualified medical care for parasitic invasions by the age distribution of diseases among children. We also used this method and the identified children with hymenolepidosis were divided into age groups (Table 1). At the same time, statistical data (outpatient charts) are not informative enough, since they cannot be used to judge the true prevalence of hymenolepidosis among children. The analysis of objective clinical symptoms of hymenolepidosis revealed by a thorough clinical and parasitological examination of children is given in Table 1.

Table No. 1. Specific gravity of different forms of hymenolepidosis based on the analysis

Age groups, years	Hymenolepidosis					
	Total($n = 100$)		Manifest form($n = 65$)		Subclinical form($n = 35$)	
	abs.	%	abs.	%	abs.	%
< 4	19	$19,0 \pm 3,9$	14	$21,5 \pm 5,1$	5	$12,3 \pm 5,5$
4-7	26	$26,0 \pm 4,4$	18	$27,7 \pm 5,6$	8	$22,9 \pm 7,1$
8-11	24	$24,0 \pm 4,3$	13	$20,0 \pm 4,9$	11	$31,4 \pm 7,8$
12-15	31	$31,0 \pm 4,6$	20	$30,8 \pm 5,7$	11	$31,4 \pm 7,8$
	100	100,0	65	$65,0 \pm 4,7$	35	$35,0 \pm 4,7$

There is no definite pattern in the data shown in the table. Thus, the specific gravity of hymenolepidosis in different age groups is approximately the same and varies from 19.0 ± 3.9 to $31.4 \pm 7.8\%$ ($C_2 = 2.50$; $p > 0.05$). However, a rather high rate among children aged less than 4 years ($19.0 \pm 3.9\%$) is alarming, which is associated with the contact mechanism of transmission.

The indicators of the manifest clinical form of hymenolepidosis also do not have a pronounced age-related and vary from 21.5 ± 5.1 to $30,8 \pm 5,7\%$ ($\chi^2 = 3,36$; $p > 0.05$). Although this form, as the age of children increases, should increase due to the accumulation of pathogens, in addition, with this form, the indicator is too high among children under the age of 4 years ($21.5 \pm 5.1\%$). The above fully applies to the subclinical form of hymenolepidosis, varying from 12.3 ± 5.5 to 31.4 ± 7.8 ($\chi^2 = 0.36$; $p > 0.05$). Hence, it is obvious that there are flaws in the diagnosis of hymenolepidosis, especially in the differentiation of their clinical forms. Based on this, the state of helminthological care for children as a whole can be assessed as satisfactory. However, the lower appeal of the population to medical institutions and the preference for treatment at home should seriously alert and therefore it is necessary to identify the causes of this situation. Even more unsightly is that cases of self-treatment by parents of children with helminthiasis have become more frequent. And only after repeated unsuccessful attempts, according to polyclinics

Objective clinical symptoms, as well as subjective, are also very informative in the diagnosis of hymenolepidosis. Symptoms such as regular acute abdominal pain as a result of traumatization of the mucous membrane of the intestinal walls by the hooks of an embedded parasite, subfebrile body temperature (usually an increase to 37.5°C , less often to 38.0°C), moderate normal and hypochromic anemia (there is a decrease in the level of hemoglobin in the blood to 100 g/l or less), moderate liver enlargement, etc., were observed with high frequency in many children - from 65.7 ± 8.1 to $83.1 \pm 4.7\%$ ($\chi^2 = 3.87$; $p < 0.05$). In addition, this symptomatology is available to doctors of the parasitological service and with careful examination of children, the diagnosis of helminthiasis is not associated with great difficulties and should not lead to erroneous results. In addition, Table 2 shows indicators of symptoms, which, along with the diagnosis of hymenolepidosis, also allow differentiating its clinical forms.

In the manifest form, such symptoms include epileptiform seizures, frequent diarrhea with an

admixture of blood, dysbacteriosis, which were recorded in most children - from 67.7 ± 8 to $87.7 \pm 4.1\%$ of cases ($c^2 = 7.50$; $p < 0.01$). The occurrence of these symptoms in the subclinical form is much less ($c^2 = 7.16$; $p < 0.01$), and therefore their significance in diagnostic terms is small - from 8.6 ± 4.8 to $40.0 \pm 8.4\%$ ($C^2 = 9.40$; $p < 0.01$).

Table 2. Analysis of objective clinical symptoms among children with different forms of hymenolepidosis

The symptom	Clinical forms				Validity of the difference	
	Manifest form ($n = 65$)		Subclinical form ($n = 35$)			
	aбс.	%	aбс.	%	c^2	p
Subfebrile body temperature	53	$81,5 \pm 4,9$	26	$74,3 \pm 7,5$	0,53	$> 0,05$
Dyspeptic manifestations:						
nausea, vomiting	10	$15,4 \pm 4,5$	3	$8,6 \pm 4,8$	0,93	$> 0,05$
diarrhea with an admixture of blood	44	$67,7 \pm 5,8$	10	$28,6 \pm 7,7$	14,02	$< 0,01$
loss of appetite, thirst	21	$32,3 \pm 5,8$	22	$62,9 \pm 8,3$	8,66	$< 0,01$
Astheno - neurotic syndrome:						
asthenia, irritability	31	$47,7 \pm 6,2$	6	$17,1 \pm 6,5$	9,11	$< 0,01$
headache	27	$41,5 \pm 6,2$	10	$28,6 \pm 7,7$	1,64	$> 0,05$
dizziness	7	$10,8 \pm 3,9$	19	$54,3 \pm 8,5$	22,39	$< 0,01$
Allergic manifestations:						
urticaria rash	23	$35,4 \pm 6,0$	12	$5,7 \pm 4,0$	10,68	$< 0,01$
vasomotor rhinitis	36	$55,4 \pm 6,2$	21	$34,3 \pm 8,1$	4,06	$< 0,05$
skin itching	6	$9,2 \pm 3,6$	2	$60,0 \pm 8,4$	29,75	$< 0,01$
Dysbiosis	53	$81,5 \pm 4,9$	3	$8,6 \pm 4,8$	49,16	$< 0,01$
Unstable chair	12	$18,5 \pm 4,9$	32	$91,4 \pm 4,8$	49,16	$< 0,01$
Traumatization of the intestine	54	$83,1 \pm 4,7$	29	$82,9 \pm 6,5$	0,01	$> 0,05$
Moderate anemia	52	$80,0 \pm 5,0$	27	$77,1 \pm 7,2$	0,36	$> 0,05$
Epileptiform seizures	57	$87,7 \pm 4,1$	14	$40,0 \pm 8,4$	25,13	$< 0,01$
Weight loss	21	$32,3 \pm 5,8$	29	$82,9 \pm 6,5$	23,25	$< 0,01$
Abdominal cramps	3	$4,6 \pm 2,6$	33	$94,3 \pm 4,0$	79,40	$< 0,01$
Moderate enlargement of the liver	47	$72,3 \pm 5,6$	23	$65,7 \pm 8,1$	0,74	$> 0,05$

The following symptoms are also significantly frequent in the manifest form - asthenoneurotic syndrome: general asthenia, headache, dizziness - from 41.5 ± 6.2 to $55.4 \pm 6.2\%$ ($c^2 = 2.49$; $p > 0.05$). It is noticeably less in the subclinical form ($c^2 = 0.86$; $p > 0.05$) - from 17.1 ± 6.5 to $34.3 \pm 8.1\%$ ($c^2 = 1.14$; $p > 0.05$).

Specific, diagnostically significant symptoms are also characteristic of the subclinical form of hymenolepidosis. So, among children, symptoms are very common - the presence of weight loss, itching, loss of appetite, unstable stools - from 60.0 ± 8.4 to $91.4 \pm 4.8\%$ ($c^2 = 9.40$; $p < 0.01$). The frequency of these symptoms in the manifest form was lower, and therefore they are not suitable in diagnostic terms ($c^2 = 7.16$; $p < 0.01$) - from 9.2 ± 3.6 to $32.3 \pm 5.8\%$ ($c^2 = 10.52$; $p < 0.01$). We have already focused on the remaining symptoms of the subclinical form, which are less common. It

is especially necessary to focus on the most common objective symptom of this form - abdominal cramps, which are acute attacks with interruptions of several days or constant dull aching pain, which occurs in $94.3 \pm 4.0\%$ of children.

Conclusion. The revealed symptoms of hymenolepidosis are a clear indication of how much this invasion is systemic in nature, has a pathogenic effect on the organs and systems of the body. It is not difficult to guess (and recent literature data indicate this) that such a high incidence of hymenolepidosis and its pronounced pathogenic effect on the body is possible with a weakened immune system of children, weakness of non-specific protective functions of their body.

The importance of timely and reliable diagnosis of helminthiasis, including hymenolepidosis, is well known, since the earlier its qualified treatment is carried out, the higher the therapeutic effect achieved. Even more important is the timely differentiation of clinical forms of this invasion. The fact is that if the advanced stages of the subclinical form of invasion can be cured with the right specific selection of specific anthelmintic agents, then the advanced forms of its manifest form are difficult to treat, pose a serious threat to the health of children. In this regard, practical parasitologists should be armed with accessible and objective cadastral indicators that allow, when examining children, both on an outpatient basis and at home, to diagnose not only the type of helminthiasis itself, but also its clinical forms, and do not slow down to start treating the invasion, and in its severe cases send children to specialized children's medical institutions. It should be added to the above that the work of parasitologists at the polyclinic level should be of an active preventive nature, i.e. as sick children seek medical help or call doctors at home. Our experience shows that with periodic visits to geographically confined children's institutions, it is possible to identify a significant number of children with helminthiasis who, for various reasons, currently do not seek medical help. The effectiveness of such a statement of work is due to the fact that most children under the age of 7 attend preschool institutions and almost all children aged 7-15 years attend schools. In addition, when visiting territorial children's institutions, it is possible to cover the parents of children with appropriate sanitary and educational work, who willingly make contact and subsequently bring even healthy children to parasitological examination themselves.

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