WEEKLY EPIDEMIOLOGICAL REPORT

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Pinworm infection

Introduction

Pinworm infection is caused by a small, thin, white roundworm called *Enterobius vermicularis*. Although pinworm infection can affect all people, it most commonly occurs among children, institutionalized persons, and household members of persons with pinworm infection. Pinworm infection is treatable with over-the-counter or prescription medication, but reinfection, which occurs easily, should be prevented.

Epidemiology

Pinworm infections are more common in families with school-aged children, in primary caregivers of infected children and in institutionalized children. A person is infected with pinworms by ingesting pinworm eggs either directly or indirectly. These eggs are deposited around the anus by the worm and can be carried to common surfaces such as hands, toys, bedding, clothing, and toilet seats. By putting anyone's contaminated hands (including one's own) around the mouth area or putting one's mouth on commonly contaminated surfaces, a person can ingest pinworm eggs and become infected with the pinworm parasite. Since pinworm eggs are so small, it is possible to ingest them while breathing. Once someone has ingested pinworm eggs, there is an incubation period of 1 to 2 months or longer for the adult gravid female to mature in the small intestine. Once mature, the adult female worm migrates to the colon and lays eggs around the anus at night, when many of their hosts are asleep. People who are infected with pinworms can transfer the parasite to others for as long as there is a female pinworm depositing eggs on the perianal skin. A person can also reinfect themselves or be re-infected by eggs from another person.

Risk Factors

The people most likely to be infected with pinworm are children under 18, people who take care of infected children and people who are institutionalized. In these groups, the prevalence can reach 50%. Pinworm is the most common worm infection in the United States. Humans are the only species that can transfer this parasite. Household pets like dogs and cats cannot become infected with human pinworms. Pinworm eggs can survive in the indoor environment for 2 to 3 weeks.

Agent

The nematode (roundworm) *Enterobius vermicularis* (previously *Oxyuris vermicularis*) is also called a human pinworm. (Adult females: 8 to 13 mm, adult male: 2 to 5 mm). Humans are the only hosts of *E. vermicularis*. A second species, *Enterobius gregorii*, has been described and reported from Europe, Africa, and Asia. For all practical purposes, the morphology, life cycle, clinical presentation, and treatment of *E. gregorii* are identical to *E. vermicularis*. Eggs are deposited on perianal folds. Self-infection occurs by transferring infective eggs to the mouth with hands that have scratched the perianal area. Person-to-person transmission can also occur through the handling of contaminated clothes or bed linens. Enterobiasis may also be acquired through surfaces in the environment that are

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contaminated with pinworm eggs (e.g., curtains, carpeting). Some small number of eggs may become airborne and inhaled. These would be swallowed and follow the same development as ingested eggs. Following ingestion of infective eggs, the larvae hatch in the small intestine and the adults establish themselves in the colon. The time interval from ingestion of infective eggs to oviposition by the adult females is about one month. The life span of adults is about two months. Gravid females migrate nocturnally outside the anus and oviposit while crawling on the skin of the perianal area. The larvae contained inside the eggs develop (the eggs become infective) in 4 to 6 hours under optimal conditions. Retro-infection, or the migration of newly hatched larvae from the anal skin back into the rectum, may occur but the frequency with which this happens is unknown.

Disease

The most common clinical manifestation of a pinworm infection is an itchy anal region. When the infection is heavy, there can be a secondary bacterial infection due to the irritation and scratching of the anal area. Often the patient will complain of teeth grinding, and insomnia due to disturbed sleep or even abdominal pain or appendicitis. Infection of the female genital tract has been well reported.

Diagnosis

A person infected with pinworm is often asymptomatic but itching around the anus is a common symptom. Diagnosis of pinworm can be reached from three simple techniques. The first option is to look for the worms in the perianal region 2 to 3 hours after the infected person is asleep. The second option is to touch the perianal skin with transparent tape to collect possible pinworm eggs around the anus first thing in the morning. If a person is infected, the eggs on the tape will be visible under a microscope. The tape method should be conducted on 3 consecutive mornings right after the infected person wakes up and before he/she does any washing. Since anal itching is a common symptom of pinworm, the third option for diagnosis is analysing samples from under fingernails under a microscope. An infected person who has scratched the anal area may have picked up some pinworm eggs under the nails that could be used for diagnosis. Since pinworm eggs and worms are often sparse in stool, examining stool samples is not recommended.

Treatment

The medications used for the treatment of pinworm are mebendazole, pyrantel pamoate and albendazole. All three of these drugs are to be given in 1 dose at first and then another single dose 2 weeks later. The medication does not reliably kill pinworm eggs. Therefore, the second dose is to prevent reinfection by adult worms that hatch from any eggs not killed by the first treatment. Health practitioners and parents should weigh the health risks and benefits of these drugs for patients under 2 years of age. The safety of drugs used to treat pinworm has not been studied for pregnant women. If the infection is compromising the pregnancy (i.e., weight loss, sleeplessness) then treatment can be considered but should be withheld until the 3rd trimester when the risk, if any, to the foetus is likely to be reduced. Breastfeeding should not be withheld during mebendazole therapy. Only about 2%-10% of an oral dose is absorbed and as expected, the amounts of the drug excreted in milk are below the level of detection and appear to be clinically insignificant. Excretion in the breast milk of the other drugs used to treat pinworm is not as well characterized. Repeated infections should be treated by the same method as the first infection. In households where more than one member is infected or where repeated, symptomatic infections occur, it is recommended that all household members be treated at the same time. In institutions, mass, and simultaneous treatment, repeated in 2 weeks, can be effective.

Prevention & Control

Washing hands with soap and warm water after using the toilet, changing diapers and handling food is the most successful way to prevent pinworm infection. To stop the spread of pinworm and possible re-infection, people who are infected should bathe every morning to help remove a large amount of the eggs on the skin. Showering is a better method than taking a bath because showering avoids potentially contaminating the bath water with pinworm eggs. Infected people should not co-bathe with others during their time of infection. Also, infected people should comply with good hygiene practices such as washing their hands with soap and warm water after using the toilet, changing diapers and handling food. They should also cut fingernails regularly and avoid biting the nails and scratching around the anus. Frequent changing of underclothes and bed linens first thing in the morning is a great way to prevent the possible transmission of eggs in the environment and the risk of reinfection. These items should not be shaken and should be carefully placed into a receptacle and laundered in hot water followed by drying in the hot sun to kill any eggs that may be there. In institutions, day-care centres and schools, control of pinworm can be difficult, but mass drug administration during an outbreak can be successful. Teach children the importance of washing hands to prevent infection.

Source

Parasites-Enterobiasis, available at http://www.cdc.gov/ parasites/pinworm/

Compiled by Dr H.H.W.S.B Herath of the Epidemiology Unit

Table 1: Selected notifiable diseases reported by Medical Officers of Health 04th– 10th Dec 2021 (50th Week)

RDHS	Dengue Fever		Dysentery		Encephaliti		Enteric Fever		Food Poi-		Leptospirosis		Typhus		Viral Hep-		Human		Chickenpox		Meningitis		Leishmania-		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	34	5978	0	12	0	1	0	5	1	4	8	221	0	3	0	2	0	3	1	25	2	14	0	1	45	100
Gampaha	24	3488	0	5	0	7	0	1	0	0	1	330	0	8	0	4	0	5	0	28	0	16	0	13	22	74
Kalutara	93	1540	2	14	0	2	0	3	0	5	15	696	0	3	0	1	0	1	2	76	0	23	0	0	33	90
Kandy	47	888	1	23	0	1	0	5	0	15	3	282	0	43	0	4	0	0	4	45	1	21	0	31	55	100
Matale	11	252	0	13	0	4	0	0	0	0	3	92	0	6	0	3	0	1	1	13	0	8	12	281	49	100
NuwaraEliya	2	57	0	17	0	2	0	5	0	0	0	72	0	43	0	4	0	0	0	30	0	8	0	1	28	100
Galle	22	501	0	12	0	1	0	5	0	7	18	766	0	28	0	2	0	0	1	59	0	36	0	2	38	100
Hambantota	12	370	2	19	0	2	0	2	0	9	8	281	0	75	1	8	0	0	0	54	0	34	17	500	66	100
Matara	14	558	2	8	0	1	0	1	0	0	14	345	0	17	0	3	0	0	0	59	0	11	10	329	41	100
Jaffna	40	198	2	49	0	3	13	28	0	27	1	24	23	498	0	0	0	6	1	34	1	4	0	2	20	88
Kilinochchi	1	30	0	26	0	0	0	2	0	10	0	57	0	84	0	1	0	0	0	10	0	0	0	1	51	100
Mannar	63	130	0	8	0	1	0	4	0	0	0	30	0	2	0	0	0	0	0	6	0	19	0	1	34	100
Vavuniya	3	51	0	4	0	2	0	1	0	2	2	25	0	2	0	1	0	0	0	6	0	2	0	1	37	100
Mullaitivu	0	7	0	3	0	0	0	0	0	1	0	34	0	9	0	0	0	0	0	9	3	10	0	0	21	100
Batticaloa	28	3084	2	41	0	7	0	4	0	36	1	52	0	0	0	1	0	0	2	17	0	26	0	0	47	100
Ampara	10	60	1	11	0	0	0	1	0	7	7	72	0	1	0	3	0	0	4	48	1	20	0	14	55	100
Trincomalee	10	204	0	2	0	0	0	0	0	2	0	5	0	0	0	2	0	0	0	19	0	2	0	1	25	100
Kurunegala	64	1441	0	20	0	4	0	0	0	11	12	545	0	32	0	4	0	2	2	57	0	97	6	392	34	100
Puttalam	30	414	0	2	0	1	0	0	0	1	1	30	1	17	0	2	0	1	0	19	1	38	0	11	38	96
Anuradhapur	2	220	2	16	0	2	0	1	0	3	12	251	0	27	0	6	0	0	0	34	0	50	11	311	22	91
Polonnaruwa	5	88	0	8	0	1	0	3	1	10	9	140	0	3	0	3	0	0	0	31	0	3	11	499	36	100
Badulla	46	602	0	13	0	0	0	3	0	0	5	329	2	52	2	48	0	0	0	46	0	19	0	24	41	100
Monaragala	4	150	1	18	0	0	0	3	0	6	31	424	0	37	2	107	0	1	1	30	0	67	4	50	49	100
Ratnapura	25	570	0	32	0	8	0	0	0	5	34	859	0	24	0	10	0	1	1	56	1	88	1	114	32	95
Kegalle	36	526	0	4	0	11	0	0	0	2	38	604	0	15	0	3	0	0	0	90	0	34	1	32	40	100
Kalmune	8	318	1	32	0	2	0	4	0	4	1	22	0	1	0	2	0	2	1	18	1	19	0	2	43	100
SRILANKA	11	21725	16	412	0	63	13	81	2	167	224	6588	26	1030	5	224	0	23	21	919	11	669	73	2613	39	97

Source: Weekly Returns of Communicable Diseases (esurvillance.epid.gov.lk). T=Timeliness refers to returns received on or before 10th Dec , 2021 Total number of reporting units 361 Number of reporting units data provided for the current week: 348 C**-Completeness

Table 2: Vaccine-Preventable Diseases & AFP

04th– 10th Dec 2021 (50th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2021	Number of cases during same week in 2020	Total number of cases to date in 2021	Total number of cases to date in 2020	Difference between the number of cases to date in 2021& 2020
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	00	01	00	00	00	01	00	69	38	81.5,%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	00	01	00	01	00	01	00	00	01	04	03	69	167	- 58.6 %
Measles	00	00	00	00	00	00	00	00	00	00	00	13	50	- 74.%
Rubella	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Tetanus	00	00	00	00	00	00	00	00	00	00	00	05	07	-28.5 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	00	04	31	- 87 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	01	00	09	- 100%
Tuberculosis	14	09	00	02	04	07	05	02	08	51	148	4868	6104	- 20.2 %

Key to Table 1 & 2

Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: East, **NC**: North Central, **NW**: North Western, **U**: Uva, **Sab**: Sabaragamuwa.

RDHS Divisions: **CB**: Colombo, **GM**: Gampaha, **KL**: Kalutara, **KD**: Kandy, **ML**: Matale, **NE**: Nuwara Eliya, **GL**: Galle, **HB**: Hambantota, **MT**: Matara, **JF**: Jaffna, **KN**: Killinochchi, **MN**: Mannar, **VA**: Vavuniya, **MU**: Mullaitivu, **BT**: Batticaloa, **AM**: Ampara, **TR**: Trincomalee, **KM**: Kalmunai, **KR**: Kurunegala, **PU**: Puttalam, **AP**: Anuradhapura, **PO**: Polonnaruwa, **BD**: Badulla, **MO**: Moneragala, **RP**: Ratnapura, **KG**: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS =**Congenital Rubella Syndrome

NA = Not Available

Covid-19 Prevention & Control

For everyone's health & safety, maintain physical distance, often wash hands, wear a face mask and stay home.

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to **chepid@sltnet.lk. Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

ON STATE SERVICE

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