WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health

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Toxoplasmosis

Introduction

Toxoplasmosis It is found throughout the world and it has been shown that up to 95% of some populations have been infected with *Toxoplasma*. Infection is often highest in areas of the world that have hot, humid climates and lower altitudes.

Agent

Toxoplasmosis is caused by the protozoan parasite *Toxoplasma gondii*. It infects most species of warm blooded animals including humans. The only known definitive hosts for Toxoplasma gondii are members of family Felidae (domestic cats and their relatives)

Transmission

Unsporulated oocysts are shed in the cat's faeces. Although oocysts are usually only shed for 1-2 weeks, large numbers may be shed. Oocysts take 1-5 days to sporulate in the environment and become infective. Intermediate hosts in nature (including birds, rodents, animals bred for human consumption and wild game) become infected after ingesting soil, water or plant material contaminated with oocysts. Oocysts transform into tachyzoites shortly after ingestion. These tachyzoites localize in neural and muscle tissue and develop into tissue cyst bradyzoites. Cats become infected after consuming intermediate hosts harbouring tissue cysts. Cats may also become infected directly by ingestion of sporulated oocysts.

Humans can become infected by any of the several routes:

Food borne transmission

The tissue form of the parasite (a microscopic cyst consisting of bradyzoites) can be transmitted by:

- Eating/accidental ingestion of raw/ undercooked, contaminated meat (e.g. after handling meat-*Toxoplasma* cannot be absorbed through intact skin).
- Eating food that was contaminated by knives, utensils, cutting boards or other foods that had contact with raw, contaminated meat

Animal-to-human (zoonotic) transmission

People can accidentally swallow the oocyst form of the parasite. People can be infected by accidental ingestion of oocysts after touching or ingesting anything that has come into contact with a cat's faeces that contain *Toxoplasma* (e.g., not washing hands after gardening or eating unwashed fruits or vegetables from a garden or drinking contaminated water)

Mother-to-child (congenital) transmission

A woman who is newly infected with *Toxoplasma* during pregnancy can pass the infection to her unborn child (congenital infection). The woman may not have symptoms.

Rare instances of transmission

Organ transplant recipients/ recipients of infected blood can get infected. Laboratory workers who handle infected blood can also acquire infection through accidental inoculation.

Disease

Healthy people (nonpregnant)

Healthy people who become infected often do not have symptoms because their immune system usually keeps the parasite from causing illness. When illness occurs, it is usually mild with "flu-like" symptoms (e.g., tender lymph nodes, muscle aches, etc.) that last for several weeks and then go away. However, the parasite remains in their body in an inactive state. Toxoplasma forms tissue cysts, most commonly in skeletal muscle, myocardium, brain and eyes; these cysts may remain throughout the life of the host. It can become reactivated if the person becomes immunosuppressed.

Mother-to-child (congenital)

If a woman is pregnant and becomes newly infected with *Toxoplasma* during or just before pregnancy, she can pass the infection to her unborn baby (congenital transmission). The damage to the unborn child is often more severe when the infection occurs earlier in pregnancy . Potential results can be

- a miscarriage
- a stillborn child

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- a child born with signs of toxoplasmosis (e.g. abnormal enlargement or smallness of the head)

Infants infected before birth often show no symptoms at birth but may develop them later in life with potential vision loss, mental disability and seizures.

Persons with ocular disease

Eye disease (most frequently retinochoroiditis) from *Toxoplasma* infection can result from congenital infection or infection after birth by any of the modes of transmission mentioned. Eye lesions from congenital infection are often not identified at birth but occur in 20-80% of infected persons by adulthood. Eye infection leads to an acute inflammatory lesion of the retina, which resolves leaving retinochoroidal scarring. Symptoms of acute disease include

- eye pain
- sensitivity to light (photophobia)
- tearing of the eyes
- blurred vision

The eye disease can reactivate months or years later, each time causing more damage to the retina. If the central structures of the retina are involved there will be a progressive loss of vision that can lead to blindness.

Persons with compromised immune systems

Persons with compromised immune systems may experience severe symptoms if they are infected with *Toxoplasma* while immune suppressed.

Immunocompromised persons who were infected with *Toxoplasma* at some point before they become immunosuppressed are particularly at risk for developing a relapse of toxoplasmosis.

Toxoplasma infection can reactivate in immunocompromised pregnant women who were infected with *Toxoplasma* before their pregnancy, and this can lead to congenital infection.

Diagnosis

Diagnosis of toxoplasmosis is usually made by detection of *Toxoplasma*-specific IgG, IgM or IgA antibodies. There are several tests available that detect these immunoglobulin antibodies within several weeks of infection:

- Dye test (DT)
- Indirect fluorescent antibody test (IFA)
- Enzyme immunoassays (ELISA, immunoblots)

If acute infection is suspected, the patient's serum should be tested for IgG and IgM *Toxoplasma*-specific antibodies.

Serologic tests are sometimes unreliable in immunosuppressed patients. Because of the persistence of *Toxoplasma* cysts and antibody in asymptomatic chronic latent infections, immunosuppressed persons with both positive PCR and serologic results should have their diagnostic test results interpreted in relation to clinical features of an active infection. A negative PCR does not rule out active infection. PCR can also be performed on amniotic fluid which can be helpful in determining foetal i nfection following acute acquired infection of the mother.

Diagnosis can be made by direct observation of the parasite in stained tissue sections, cerebrospinal fluid (CSF) or other biopsy material. These techniques are used less frequently because of the difficulty of obtaining these specimens. Parasites can also be isolated from blood or other body fluids (for example, CSF) but this process can be difficult and requires considerable time.

Treatment

Healthy people (nonpregnant)

Most healthy people recover from toxoplasmosis without treatment. Persons who are ill can be treated with a combination of drugs such as pyrimethamine and sulfadiazine, plus folinic acid.

Pregnant women, newborns and infants

Pregnant women, newborns and infants can be treated, although the parasite is not eliminated completely. The parasites can remain within tissue cells in a less active phase; their location makes it difficult for the medication to completely eliminate them.

Persons with ocular disease

Persons with ocular toxoplasmosis are sometimes prescribed medicine to treat active disease by their ophthalmologist. Whether or not medication is recommended depends on the size of the eye lesion, the location, and the characteristics of the lesion (acute active, versus chronic not progressing).

Persons with compromised immune systems

Persons with compromised immune systems need to be treated until they have improvement in their condition. For AIDS patients, continuation of medication for the rest of their lives may be necessary.

Prevention & Control

Reduce Risk from Food

To prevent risk of toxoplasmosis and other infections from food:

- Cook food to safe temperatures. (e.g.74°C or above)
- Do not sample meat until it is cooked.
- Freeze meat for several days at sub-zero (0° F) tem peratures before cooking to reduce chance of infection.
- Peel or wash fruits and vegetables thoroughly before eating.

Wash cutting boards, dishes, counters, utensils, and hands with hot soapy water after contact with raw meat, poultry, seafood or unwashed fruits or vegetables.

Reduce Risk from the Environment

To prevent risk of toxoplasmosis from the environment:

- Avoid drinking untreated drinking water.
- Wear gloves when gardening or wash hands with soap and warm water after gardening/ touching soil or sand.
- Do not feed raw or undercooked meats to cats.
- Remove cat faeces daily if you own a cat. The *Toxoplasma* parasite does not become infectious until 1 to 5 days after it is shed in a cat's faeces.

If you are pregnant or immunocompromised:

- Avoid removing cat faeces if possible. If no one else can perform the task, wear disposable gloves and wash your hands with soap and warm water afterwards.
- Keep cats indoors.
- Do not adopt or handle stray cats, especially kittens. Do not get a new cat while you are pregnant.

Source

Toxoplasmosis, available from *http://www.cdc.gov/parasites/toxoplasmosis/gen_info/faqs.html*

Compiled by Dr. Madhava Gunasekera of the Epidemology Unit

Table 4: Selected notifiable diseases reported by Medical Officers of Health 01th – 07thMay 2013 (23rd Week)

RDHS	Dengue Fever		Dysentery		Encephaliti		E Fever*		F Poison*		Leptospiros		T Fever		V Hepatitis		Hu Rabies*		Chickenpox		Meningitis		Leishmaniasis		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	169	3793	6	86	0	11	1	58	2	17	3	121	0	5	1	37	0	0	5	226	1	26	0	0	**77**	**23**
Gampaha	23	1592	0	59	0	9	1	20	1	17	0	168	0	9	0	108	0	0	0	88	0	50	0	2	**40**	**60**
Kalutara	25	785	3	69	0	11	5	42	0	12	1	202	0	1	1	11	0	0	6	147	1	37	0	1	**85**	**15**
Kandy	40	821	4	59	0	6	1	12	0	7	1	40	2	68	1	54	0	0	1	80	1	5	0	2	**96**	**4**
Matale	5	208	1	37	0	1	0	6	0	0	3	33	0	2	1	23	0	0	1	26	2	16	0	2	**92**	**8**
NuwaraEliya	10	116	1	79	0	2	0	5	0	3	3	17	1	40	0	11	0	0	0	45	1	2	0	0	**77**	**23**
Galle	13	373	0	40	1	9	0	2	0	70	2	116	0	24	0	6	0	1	5	143	0	23	0	0	**95**	**5**
Hambantota	3	158	1	23	0	2	0	7	0	9	2	130	0	37	1	64	0	0	2	58	1	14	2	130	**75**	**25**
Matara	4	254	5	35	0	9	1	13	0	27	0	105	0	37	4	109	0	2	3	162	0	31	1	48	**88**	**12**
Jaffna	7	452	2	101	0	5	7	239	7	75	1	6	0	314	7	10	0	0	0	109	1	29	0	0	**83**	**17**
Kilinochchi	0	27	0	13	0	0	0	6	0	2	0	9	0	15	0	0	0	0	0	2	0	6	0	5	**75**	**25**
Mannar	1	55	3	25	0	1	1	52	0	11	1	11	0	16	0	1	0	0	1	11	0	4	0	1	**100**	**0**
Vavuniya	2	43	1	23	0	10	1	6	0	8	0	44	0	2	0	1	0	2	0	18	0	19	0	4	**100**	**0**
Mullaitivu	5	79	0	6	0	1	0	6	0	4	1	23	0	5	0	0	0	2	0	3	0	3	0	8	**40**	**60**
Batticaloa	9	370	10	129	0	3	0	0	0	7	0	23	0	2	0	8	0	0	3	19	0	2	0	0	**93**	**7**
Ampara	2	69	0	44	0	0	0	4	0	2	0	17	0	0	1	2	0	0	0	45	0	7	0	1	**43**	**57**
Trincomalee	3	147	0	36	0	2	0	4	0	1	0	47	0	5	0	3	0	1	3	21	1	2	0	12	**75**	**25**
Kurunegala	28	1830	1	89	2	25	3	26	0	7	4	171	0	17	0	30	0	1	7	200	0	66	0	23	**81**	**19**
Puttalam	3	560	0	26	0	4	0	11	0	35	1	15	0	10	0	1	0	0	1	46	1	10	0	3	**62**	**38**
Anuradhapura	5	324	4	40	0	12	1	3	2	4	3	257	0	15	0	13	0	0	3	90	0	56	17	180	**74**	**26**
Polonnaruwa	2	191	0	37	0	1	1	11	0	0	4	128	0	2	0	19	0	1	5	82	0	9	2	73	**100**	**0**
Badulla	10	223	12	77	1	3	1	9	0	7	1	18	4	40	0	25	0	0	4	71	6	16	0	3	**88**	**12**
Monaragala	1	120	2	50	0	3	1	11	0	18	2	172	1	26	3	45	0	1	0	32	0	10	1	6	**73**	**27**
Ratnapura	52	1010	8	209	1	78	1	29	0	15	4	210	1	18	6	135	0	1	1	82	0	43	0	8	**72**	**28**
Kegalle	24	554	0	37	0	10	1	10	0	4	9	89	1	50	6	125	0	0	4	177	6	58	0	0	**91**	**9**
Kalmune	2	461	4	69	0	1	0	3	0	60	0	4	0	2	0	4	0	0	1	50	0	6	0	1	**77**	**23**
SRI LANKA	**448**	**14615**	**68**	**1498**	**05**	**219**	**27**	**595**	**12**	**422**	**46**	**2176**	**10**	**762**	**26**	**845**	**00**	**12**	**56**	**2033**	**22**	**550**	**23**	**513**	**80**	**20**

Source: Weekly Returns of Communicable Diseases (WRCD).

***T=**Timeliness refers to returns received on or before 06th june , 2013 Total number of reporting units 339. Number of reporting units data provided for the current week: 269** Completeness

A = Cases reported during the current week. **B** = Cumulative cases for the year.**H Rabies***= Human Rabies, **E Fever***=Enteric Fever, **F Poison*** =Food Poisoning, **T Fever***=Typhus Fever, **V Hepatitis***=Viral Hepatitis

Table 1: Vaccine-Preventable Diseases & AFP

01th – 07thMay 2013 (23rd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2013	Number of cases during same week in 2012	Total number of cases to date in 2013	Total number of cases to date in 2012	Difference between the number of cases to date in 2013 & 2012
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	01	04	01	00	00	00	01	00	07	02	39	38	+ 02.6 %
Diphtheria	00	00	00	00	00	00	00	00	00	-	-	-	-	-
Mumps	06	01	01	05	01	02	03	00	03	22	07	735	1951	- 62.3 %
Measles	23	16	09	02	00	01	02	02	02	57	00	615	20	+ 2975.0 %
Rubella	01	00	00	00	00	00	00	00	00	00	-	12	-	-
CRS**	00	00	00	00	00	00	00	00	00	00	-	05	-	-
Tetanus	00	00	00	00	00	00	00	00	00	00	00	10	05	+ 100.0 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	-	00	-	-
Japanese Encephalitis	00	00	01	00	00	02	00	01	01	05	-	219	-	-
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	34	33	+ 03.0 %
Tuberculosis	96	13	01	01	13	20	02	01	06	153	88	3753	3756	+ 0.08 %

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

AFP and all clinically confirmed Vaccine Preventable Diseases except Tuberculosis and Mumps should be investigated by the MOH

Dengue Prevention and Control Health Messages

To prevent dengue, remove mosquito breeding places in and around your home, workplace or school once a week.

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