Texas Preventable Disease NEWS

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contents:

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VISCERAL LARVA MIGRANS

Visceral larva migrans (VLM) refers to the migration of a larval parasite in the internal organs of an abnormal host, usually man. The larvae of the dog and cat ascarids, Toxocara canis and Toxocara cati, may cause this condition in man. Children are infected more frequently with VLM than adults. Children with pets are likely to come in contact with dog or cat feces while playing. Crawlers and toddlers who are constantly putting things in their mouths may be infected if they eat contaminated dirt. Children, while playing in sandboxes, may also acquire the infection since cats may use these sites for defecation.

The clinical and pathological picture of VLM was first recognized in 1947 by Perliniero and György.[1] The etiology of VLM was established as Toxocara spp. by Beaver et al in 1952.[2]

Cutaneous larva migrans (CLM), a similar disease, involves the canine and feline hookworms, Ancylostoma caninum and Ancylostoma brasiliense. This disease presents as a dermatitis often called "creeping eruption." It is seen mostly among gardeners, seabathers, and children who come in contact with soil or sand that is contaminated with dog and cat feces. The larvae enter the skin and, unable to penetrate deeper tissues, migrate intracutaneously. The self-limited disease heals spontaneously after several weeks or months. Therapies such as freezing of the affected area or the use of topical thiabendazole have been effective.

During the fiscal year 1982-1983, the Bureau of Laboratories, Texas Department of Health, received 162 serum specimens for VLM serologies. Of these titers, 69 (42.6%) were serologically positive. In fiscal year 1983-1984, the laboratory received 142 specimens; 65 (45.8%) of these had positive serologies (Table 1).

A positive EIA (enzyme-linked immunosorbent assay) $\geq$1:32 is indicative of infection with Toxocara spp. Cypess et al (1977) obtained a sensitivity of 78% with the EIA in patients with clinically diagnosed VLM as compared to 18% for indirect hemagglutination, 26% for bentonite flocculation, and 65% for double diffusion techniques.[3] EIA specificity at titers of $\geq$1:32 is 90%. Clinicians should evaluate any titer in relation to eye lesions and chorioretinitis or peripheral retinitis. The antigen for the EIA can be prepared by culturing larvae of T. canis in tissue culture. The supernatant of the tissue culture is the antigen.[4]

MODE OF TRANSMISSION: T. canis and T. cati are the common, large intestinal roundworms of canines and felines. In dogs and cats, Toxocara infections usually are acquired by ingestion of eggs that develop to the infective stage in soil. Animals may also acquire the infection prenatally.

People acquire infection by ingesting Toxocara eggs that are deposited in the soil by dogs and cats. Infection may also be transferred from animal to man through direct contact and thence hand to mouth.

After ingestion by humans, embryonated eggs hatch in the intestine; the larvae penetrate the mucosa, enter the blood stream or lymphatics, and migrate to the liver and lungs. From the lungs, the larvae may spread via the systemic circulation to various organs, causing subsequent damage by their migration.[5]

SYMPTOMATOLOGY: Clinical manifestations are extremely variable, depending in part on the number of eggs ingested, the specific sites of dissemination, and the patient's allergic response to the larvae. In lightly parasitized individuals, infections are generally asymptomatic. When symptoms are present, the disease is characterized by a marked eosinophilia, fever, pulmonary manifestations (cough, rales, wheezing), and hepatomegaly. The white cell count may reach 80,000 or more, with 80% to 90% eosinophilia.[5] Liver function tests are usually normal, but the erythrocyte sedimentation rate is elevated, and there may be albuminuria. Additional, though less common, symptoms can include nausea and vomiting, abdominal pain, weight loss, splenomegaly, lymphadenopathy, skin lesions, muscle pains, and central nervous system manifestations.[6-8] Rarely, larvae may invade the eye, causing choroiditis, iritis, and hemorrhage. Ocular VLM should be considered in any diagnosis of retinoblastoma before surgical enucleation occurs. Ocular involvement usually occurs years after the initial infection. Deaths are very rare and are most often due to pulmonary or central nervous system involvement during the acute phase of the infection.

PROGNOSIS: The disease is self-limited. The larvae become encapsulated in dense fibrous tissue and are unable to continue their development. The encapsulated larvae eventually die, though this may take several months.

TREATMENT: Thiabendazole (25 mg/kg of body weight, twice daily for five days) and diethylcarbamazine (2 mg/kg of body weight, three times daily for 7 to 10 days) are reported to be effective in treating VLM. Corticosteroids may be helpful in relieving symptoms caused by muscle and joint pain.[9]

PREVENTION: Prevention is the key to minimizing the chance of infection with T. canis and T. cati. Pet owners should have their dogs and cats screened routinely by a veterinarian. Dogs and cats that are infected with T. canis and T. cati should be treated wth antihelminthics. Pet owners should remove dog and cat feces from their yards regularly. Sandboxes in which children play should be kept covered when not in use. Most importantly, larval transmission from animal to man can be prevented by training children not to eat dirt and by emphasizing the importance of handwashing after petting animals, especially prior to eating.

Physicians needing information on serological testing for visceral larva migrans should contact the Specimen Acquisition Staff, Bureau of Laboratories, Texas Department of Health, 1100 West 49th Street, Austin, Texas 78756; telephone (512) 458-7598 or STS 824-9598.

This report was prepared by Keith Malkani, BS, Bureau of Laboratories, Texas Department of Health.

Table 1.
VLM Titers, Texas,
Fiscal Years 1982-83 and 1983-84.

Titer	FY 82-83 (n)	FY 83-84 (n)	Titer	FY 82-83 (n)	FY 83-84 (n)
1:8	12	17	1:256	18	0
1:16	8	17	1:512	1	3
1:32	7	12	1:1024	0	1
1:64	11	5	1:2048	2	5
1:128	10	5			

(References on Page 4)

MONTHLY SUMMARY OF REPORTABLE DISEASES IN TEXAS

Dates of Onset: September 1 to September 28, 1985

REPORTABLE DISEASE	PHR 1	PHR 2/12	PHR 3	PHR 4	PHR 5	PHR 6	PHR 7/10	PHR 8	PHR 9	PHR 11	WEEKS 36 - 39 1984	WEEKS 36 - 39 1985	CUMULATIVE 1984	CUMULATIVE 1985
AIDS					5				1	1	23	7	190	257
Amebiasis		3		5	2	11			1		25	22	207	204
Botulism											1	0	7	4
Brucellosis											5	0	25	30
Campylobacteriosis	7	2	7		3	3	3	5	2	9	36	41	92	491
Coccidioidomycosis											0	0	2	8
Encephalitis	1		1		1				2	1	19	6	79	83
Hansen's Disease										1	2	1	18	16
Hepatitis A	13	16	10	4	51	31	1	7	22	18	230	173	1,429	1,861
Hepatitis B	3	9	1	2	31	16	4	10	7	17	118	100	816	1,018
Hepatitis, NA-NB			1		3	1					18	5	92	125
Hepatitis, U		3	9	2	38	4	4	23	1	5	174	89	984	980
Histoplasmosis								1			0	1	4	17
Legionellosis											4	0	16	18
Leptospirosis											1	0	4	1
Malaria						1				2	5	3	64	69
Measles						1					38	1	569	391
Meningococcal Infections							1	2		1	6	4	129	89
Meningitis, Aseptic		2	2	1	16	10	2	1	4	6	72	44	466	698
Meningitis, H. influenzae		1	1		12	3	2	1	4	6	36	30	333	380
Meningitis, Other Bacterial					4	1		1		1	22	7	193	215
Mumps		1	3		5		1	1	4	4	19	21	129	245
Pertussis		4			6		1		7	1	6	19	47	247
Plague											0	0	1	0
Psittacosis											2	0	9	1
Rabies											0	0	1	1
Relapsing Fever											0	0	3	0
Reye Syndrome											0	0	15	10
RMSF					1						6	1	53	20
Rubella		1	1	1							6	3	60	37
Salmonellosis	7	1	12	4	41	13	19	23	21	35	301	176	1,549	1,645
Shigellosis	10	10	17	3	27	20	8	15	20	25	224	155	986	1,237
Tetanus											1	0	8	3
Toxic Shock Syndrome											2	0	17	16
Trichinosis											0	0	13	2
Tularemia											0	0	8	6
Typhoid										1	1	1	24	24
Typhus, Endemic											7	0	31	17
Chickenpox		7	42	4	9	5	3	10	4	14	162	98	14,017	18,035
Influenza	95	93		241	233	79	71	683	19	70	2,143	1,584	161,323	76,824
Strep Infections	19	137		210	618	40	89	283	172	107	1,740	1,675	28,164	24,748
Scarlet Fever		1			3	2	6	11	1		48	24	398	714

NOTE: There have been no reported cases of: Anthrax, Cholera, Dengue, Diphtheria, Polio, Q Fever, or Yellow Fever

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CUMULATIVE TOTALS FOR DISEASES REPORTED TO THE BUREAU OF COMMUNICABLE DISEASE SERVICES THROUGH SEPTEMBER 1985

REGION	1	2/12	3	4	5	6	7/10	8	9	11	STATEWIDE 1984	STATEWIDE 1985
TUBERCULOSIS	10	24	54	20	289	62	85	163	117	482	1233	1306
P&S SYPHILIS	26	22	104	22	1261	209	287	152	310	917	3776	3310
GONORRHEA	877	1561	2128	834	16174	4613	4589	1373	2720	14020	47932	48889

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TEXAS POPULATION BY PUBLIC HEALTH REGION - 1985*

PHR	POPULATION	PHR	POPULATION	PHR	POPULATION
1	396,332	5	3,646,773	9	1,497,951
2/12	758,838	6	1,533,122	11	3,916,969
3	573,592	7/10	1,627,381		
4	696,565	8	1,480,872	TOTAL	16,128,395

*Texas Department of Health Population Data System

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