

Does the zoonotic risk of *Toxocara* in Ontario justify deworming dogs & cats 12 times a year ?



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Dogs & cats > 6 months:

“Administer year-round treatment with broad-spectrum heartworm anthelmintics that have activity against parasites with zoonotic potential.”

Toxocara canis - dogs

Toxocara cati - cats

- most common roundworms of dogs and cats
- both have zoonotic potential
- patent infections in all ages, particularly juveniles



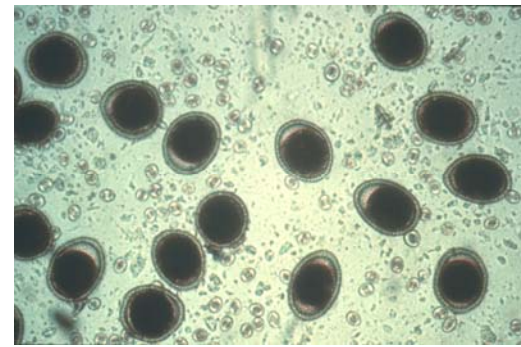
Toxocara canis - dogs

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Toxocara canis



How common is infection in Ontario ?

Dogs	Number of samples	% (n) positive*	Reference
Hospital visitation dogs	102	2% (2)	Lefebvre et al 2006
AHL submissions	1110	4.0% (44)	McEwen 2008
Niagara practice	70	14% (10)	Shukla et al 2006
Ontario/Quebec shelters	49	6% (3)	Blagburn et al 2008

*samples analysed using centrifugal flotation

Toxocara cati



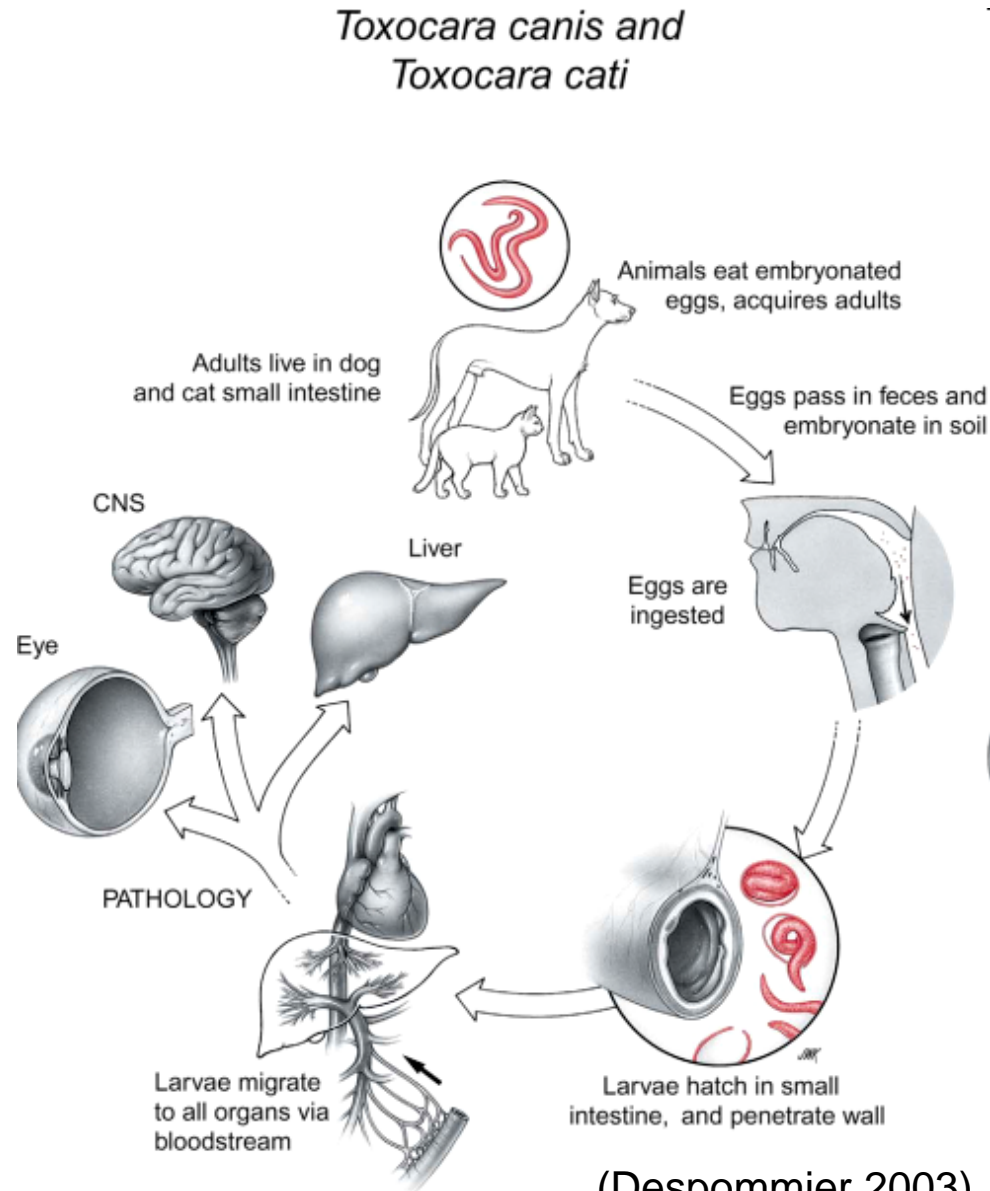
How common is infection in Ontario ?

Cats	Number of samples	% (n) positive*	Reference
AHL submissions	360	4.7% (17)	McEwen 2008
Niagara practice	41	12% (5)	Shukla et al 2006
Ontario/Quebec shelters	47	11% (5)	Blagburn et al 2008

*samples analysed using centrifugal flotation

Toxocara in Humans

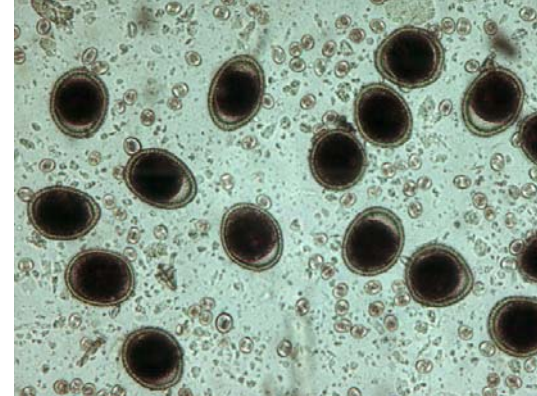
- Clinical disease:
 - Results from human exposure to environmental embryonated eggs
 - Ingestion of eggs
 - Hatching of larvae
 - Pathology due to larval migration through tissues
 - Visceral larva migrans (VLM)
 - Ocular larva migrans (OLM)



Zoonotic risk in Ontario vs USA ?

USA:

- *Toxocara* cases = 10,000 / year
- population = 280,563,000 (2002)



If same risk in Ontario as USA:

- # cases in Ontario = 450 / year



Toxocara in Humans

Visceral larva migrans (toxocariasis) in Toronto



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- 27-year review of toxocariasis at SickKids (Fanning, 1981) found only 18 cases of visceral and 3 possible cases of ocular disease:

In view of the small number of cases found in 27 years at this large pediatric hospital with a broad referral base, it is concluded that visceral larva migrans poses little risk to the health of children in the Toronto area.

- 2008/2009 - Poll of pediatric ID & ophthalmologists in Toronto/Ottawa – no cases seen in Toronto, 2 in Ottawa, in last 10 years

(Fanning, 1981; personal communication)

Toxocara in Humans



Seroprevalence in Ontario:

- In past decade, 2052 serum samples in ON submitted for *Toxocara* serology:
 - all testing in ON done by central provincial public health laboratory
 - 205 / 2052 (~10%) samples = seropositive
 - >80% of positive samples were low-level positive (ie. titres of 1:100 – 1:400) – suggestive of either past infection or false positive

Toxocara in Humans



Seroprevalence in Ontario:

- 33/205 over last 10 years were high titres suggestive of acute *Toxocara* infection (3.3/year).
- Little data on patients – symptoms; some were repeat samples from same patient, some confirmed to be travel-related.
- While these data represent only cases where sample was sent for testing, suggests that *Toxocara* is a very rare infection in Ontario.

Summary



- *Toxocara canis/cati*:
 - Canadian epidemiology appears different from USA
 - appears to be a rare diagnosis in people in Ontario, possibly relating to:
 - environment (winter)
 - hygienic differences (pooper scoopers)?
 - current pet deworming practices?

Deworming 12 times a year ?

Canadian paediatric infectious disease, travel medicine and public health experts do not believe it is justifiable.

- Not considered a significant issue by CIHR
- Still being endorsed in Ontario because of the zoonotic risk of *Toxocara*

What would help ?

Consensus statement on issue from Ontario public health community

Acknowledgements

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Questions ?

