

VISCERAL LARVA MIGRANS

Larva migrans

- Group of conditions caused by larvae of nematodes that usually parasitise animals (i.e. **zoonotic** infections)
- Humans are unnatural hosts
- Larvae cannot mature - wander around in the tissues and die after some time
- Two main types:
 - Cutaneous larva migrans – animal hookworm
 - Visceral larva migrans – animal roundworm

Visceral larva migrans

- Caused by animal roundworms
 - *Toxocara canis* (dog roundworm)
 - *Toxocara cati* (cat roundworm)
- Known also as toxocariasis
- Larvae invade visceral organs: liver, lungs, brain, eye, spinal cord etc
- Found in tropics and subtropics, including Sri Lanka (seroepidemiology suggests about 40% of children have been exposed to infection in SL)

Morphology and life cycle

- Adult worms very similar to *Ascaris lumbricoides*
- Natural habitat: small intestine of dogs and cats
- Eggs (similar to *Ascaris* eggs) passed out in faeces; require period of maturation in soil
- New infections follow ingestion of infective eggs

Life cycle ctd

- In **cats and dogs**, larva emerges from egg in SI, penetrates gut wall and migrates through liver and lungs before returning to SI to become mature adult
- In **humans**
 - Ingested eggs hatch in small intestine
 - Larvae penetrate intestinal wall and enter portal circulation
 - May migrate in any visceral organ for weeks or months before dying
 - Chronic inflammation occurs around dead / dying larvae

Pathology

- Liver is the most commonly involved organ; also spleen, lungs, brain, eye, etc
- Granulomata with eosinophils (characteristic cell in immune response to helminths), lymphocytes, epithelioid cells, and foreign-body giant cells
- Larva may or may not be present in the centre of the granuloma

Clinical features

- Infection seen mainly in pre-school children
- History of close contact with soil (may be even eating soil), dogs / cats
- 2 main forms of VLM
 - Generalised disease
 - Ocular disease

Generalised toxocariasis

- Non-specific features:
 - Low grade fever (PUO)
 - Intermittent abdominal pain
 - Hepatosplenomegaly
 - Pneumonitis or wheezing
 - Skin rashes
 - Neurological disturbances
- May persist for many months; upto 2 years
- Rarely fatal

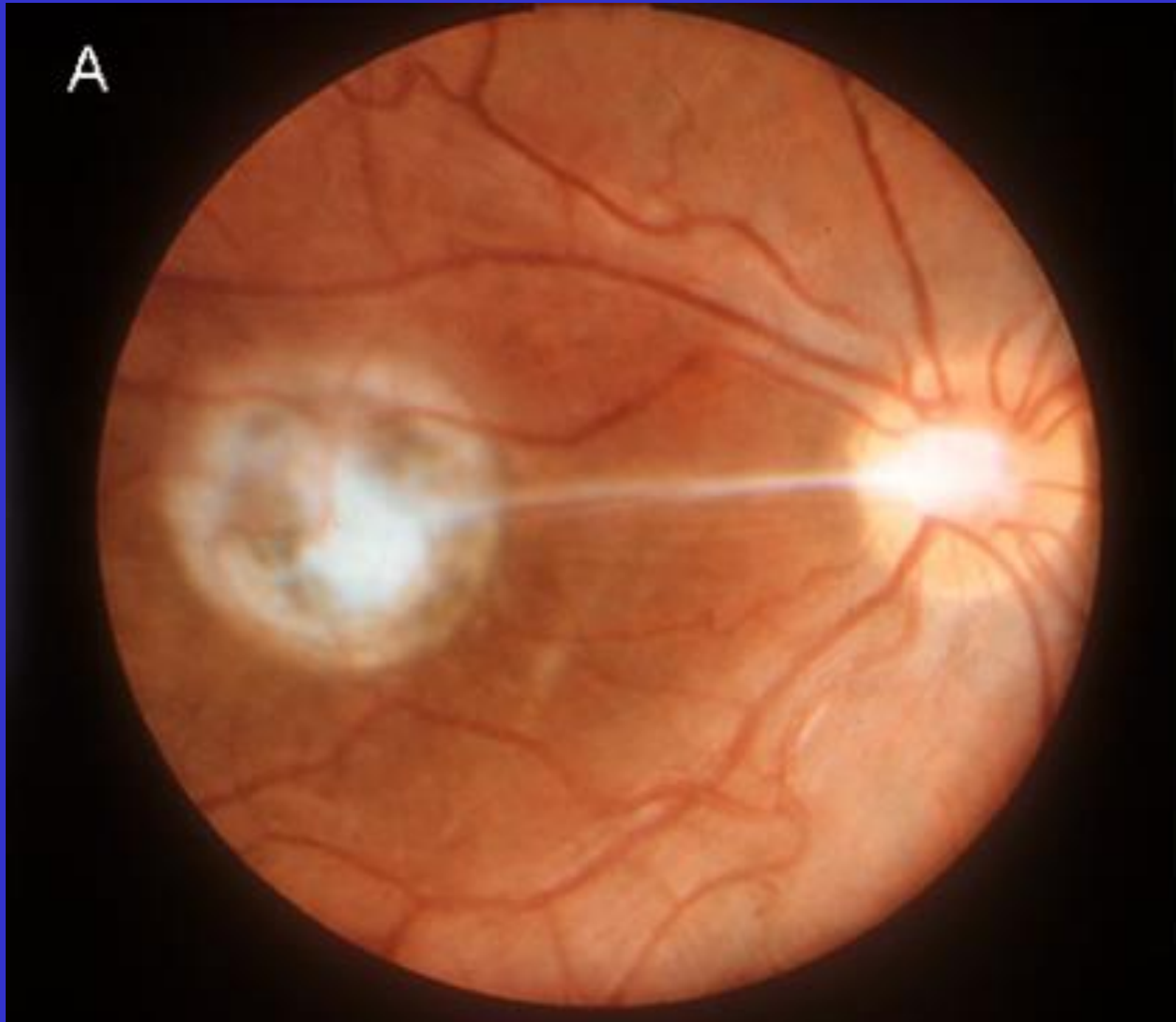
Generalised toxocariasis ctd

- Regardless of symptoms and signs, patient usually has marked, persistent, eosinophilia
- Serum globulins (esp γ globulins) and ESR are also usually increased
- Liver function is usually normal

Ocular toxocariasis

- Larvae in eye cause choroiditis, iritis, or intra-ocular haemorrhage
- Usually affects only 1 eye; in macular area
- Exudates resemble 'cotton-wool'
- DDx: retinoblastoma
- Eosinophilia may be very little

Ocular toxocariasis



Diagnosis of VLM

- Diagnosis usually clinical
- Triad of marked eosinophilia, hepatosplenomegaly and hyperglobulinaemia very suggestive of generalised VLM
- Difficult to demonstrate larvae
- Immunodiagnosis important: ELISA to demonstrate antibodies specific to *Toxocara* antigens

Treatment

- Prolonged course of albendazole or diethylcarbamazine (used for filariasis)

Prevention

- Avoid contamination of children's play areas with cat / dog faeces
- Attention to personal hygiene
- Regular de-worming of pet dogs and cats