What You Should Know About Ocular Toxocariasis

By Jason Sanders, MD; David Browning, MD, PhD

What Is It?

Ocular toxocariasis describes a rare condition in which the eye is infected by a helminthic parasite, or microscopic worm. The worm has a life cycle that primarily involves the dog, which becomes infected by eating soil contaminated by worm eggs. Typically, the eggs encyst, or become dormant. If the dog becomes pregnant, the cysts reactivate and infect the puppies while in the womb. The eggs then begin to be excreted in the feces from the puppy about 4 weeks after birth.

How Do You Become Infected?

Humans become infected with toxocariasis by eating contaminated soil. Often, exposure to puppies is a central component of the medical history. The eggs are quite common and up to 90% of soil samples studied may test positive for their presence. Therefore, it is extremely easy for young people to expose themselves to this organism. In fact, studies on populations have shown evidence of exposure in up to 10% of asymptomatic individuals. This number may be as high as 80% in regions where the disease is known to be common.

Upon becoming infected, a systemic or whole body reaction results. This process is known as *visceral larval migrans*, or VLM. VLM usually occurs around the age of two, which is much sooner than the average age of the eye disease patient. There are usually few or no symptoms in VLM. Therefore, most patients who develop ocular

toxocariasis do not have a history of VLM. The worm life cycle cannot be completed in the human. *Therefore, humans are not capable of spreading this infection.*

What Are The Symptoms?

The initial infection, or VLM, is often without symptoms. Occasionally, children may develop transient fever, irritability and a cough. Most patients likely go unrecognized, as the signs of this process are very non-specific. A very small fraction of patients that were infected as children will ultimately develop ocular problems. Ocular toxocariasis may present differently to individuals. Commonly, a scar or granuloma may be found in the eye during a routine exam in a patient with *normal vision*. Occasionally, this scar leads to traction and dragging of the retina, which leads to *visual distortion or loss.* Figure 1 shows a normal retina as seen by the ophthalmologist during an examination. Figures 2a and 2b show a characteristic appearance of a retina scarred from ocular toxocariasis. In figure 2a, the tissue is bunched up and dragged toward the northeast corner of the photograph where the dead organism is found. Less frequently, the organism may die spontaneously in the eye resulting in a mild to massive inflammatory reaction. Usually, this irritation causes *minimal discomfort*, however the reaction may present with *pain*.

Figure 1. Normal Retina

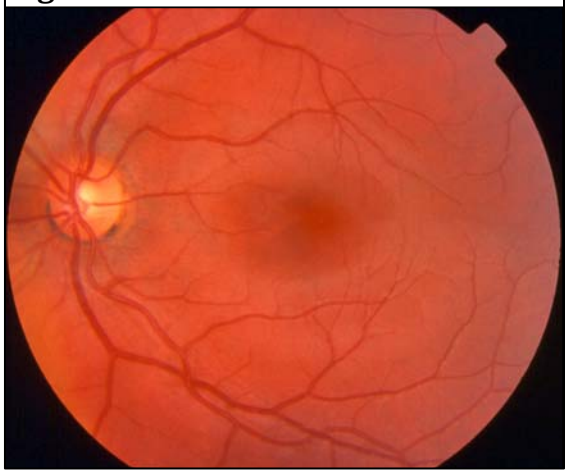

Figure 2. Ocular Toxocariasis

How Is It Diagnosed?

The first step in diagnosing ocular toxocariasis is recognition of the clinical findings. The presence of a retinal granuloma or scar with or without traction on the retina points to the diagnosis. Your physician may elect to acquire an ultrasound to study the scar. The ultrasound typically shows a highly reflective, small sub-retinal or intra-retinal mass. Finally, the diagnosis is supported by a blood test for antibodies against the organism. This test is called an enzyme-linked immunosorbent assay, or ELISA. Again, remember that this test may be positive in 10% or so of the population. It may occasionally be falsely negative in patients that in fact are infected with the organism. Therefore, evaluating the total clinical picture makes the most accurate diagnosis.

Can It Be Treated?

The treatment depends on the problem that the infection is causing. Your physician may recommend either oral, topical or injected steroids to quiet an inflamed eye. Medications to kill the parasite are available, but are known to incite a strong

inflammatory reaction to the dying parasite. Occasionally, the scar or granuloma may pull on the retina causing a retinal detachment. This type of problem may only be solved by surgery to release the traction.

Final Thoughts

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