Toxoplasmosis

WHAT IS TOXOPLASMOSIS?

Toxoplasmosis is a disease that results from infection with the protozoan intracellular parasite Toxoplasma gondii. In the eye, Toxoplasma infections frequently cause significant inflammation and subsequent scarring which may temporarily or permanently impair vision. Ocular toxoplasmosis can be congenital or acquired, and worldwide, toxoplasmosis is the most common cause of inflammation in the back of the eye.

WHAT IS CONGENITAL TOXOPLASMOSIS?

Congenital toxoplasmosis is transmitted from the mother to the fetus across the placenta during pregnancy. Typically, newly infected women transmit the Toxoplasma organism to a fetus if they are infected during pregnancy or just before pregnancy. This can happen even if the mother does not have any signs or symptoms of infection. Intrauterine transmission occurs in about 1/3 of pregnancies of acutely infected women. Congenital infection occurs in the United States in about 1/1,000 to 1/10,000 live births, and usually results in retinal scars in both eyes. Strabismus, microphthalmia, cataract, optic atrophy and nystagmus may also be associated with congenital cases.

Fig. 1: Normal retina
HOW IS TOXOPLASMOSIS NEWLY ACQUIRED BY AN ADULT?

The Toxoplasma organism resides in the intestinal tracts of many animals, particularly cats. Infectious organisms are shed in cat feces, and are introduced into the body by ingestion. Infection risk can be minimized by practicing good hygiene including hand washing (especially before preparing or eating food) and avoiding raw or undercooked meat. It is prudent for pregnant women to avoid handling cat litter boxes, cat feces, sandboxes, and any insects exposed to cat feces (cockroaches, flies, etc.). Immunocompromised patients (including those with AIDS, cancer, or those taking immunosuppressive drugs) are at risk to acquire toxoplasmosis that can become a severe, even fatal, disease.

WHAT ARE THE SYMPTOMS OF NEWLY ACQUIRED TOXOPLASMOSIS IN AN ADULT?

More than 80% of newly infected persons experience no symptoms, and are unlikely to be aware of the infection. Symptoms may occur following an incubation period of one to two weeks after exposure and include mild fever, swollen glands, malaise, muscle and/or joint pain, headache, sore throat, and skin rash. Eye symptoms vary, but may include blurred vision or floaters during active disease. The diagnosis can be confirmed by detecting antibodies to Toxoplasma in the blood. Swelling of the liver or spleen may be noted, and in
rare cases the lungs, brain, liver, or heart may be involved. The condition usually resolves without treatment within a few months.

**HOW IS ACQUIRED TOXOPLASMOSIS TREATED?**

Most cases are generally self-limited, and rarely require treatment. If involvement of the internal organs is severe, treatment with antibiotics is considered. If the infection is recognized during pregnancy, treatment may be used to reduce the risk of maternal-fetal transmission.

![Acquired Toxoplasmosis, active infection](image)

**Fig. 3:** Acquired Toxoplasmosis, active infection

**WHAT ARE THE SIGNS AND SYMPTOMS OF CONGENITAL TOXOPLASMOSIS?**

Most cases of congenital toxoplasmosis are asymptomatic, and initially go unrecognized. Severe cases resemble other acute intrauterine infections such as rubella or cytomegalovirus. Low birth-weight, enlargement of liver or spleen, and jaundice are common. Evidence of retinal infection may be found in 80-90% of known infected babies.

**WHAT HAPPENS TO THE EYES OF BABIES BORN WITH CONGENITAL TOXOPLASMOSIS?**
The infection causes inflammation of a small patch of retina which typically spontaneously resolves [See figures 1 and 2]. However the infection can leave a localized scar (retina and underlying choroid) which contains the Toxoplasma organism in an inactive, encysted form. The chorioretinal scars do not affect vision unless the scar involves the central portion of the retina (the macula).

**WHAT ARE THE LONG-TERM CONSEQUENCES OF CONGENITAL OCULAR TOXOPLASMOSIS?**

The chorioretinal scars of congenital ocular toxoplasmosis are generally inert. However, the encysted Toxoplasma organisms can reactivate causing inflammation, pain, redness, sensitivity to light, blurred vision, and increased intraocular pressure. Examination during reactivation reveals a cloud of white blood cells overlying the whitened patch of inflamed retina. In severe cases, the view into the eye is quite cloudy, and the underlying acute inflammation can be only dimly perceived.

**WHAT ARE THE TREATMENT OPTIONS FOR REACTIVATION OF OCULAR TOXOPLASMOSIS?**

Mild cases which do not threaten the central retina (the macula) may resolve without treatment. In more severe cases, the duration of the inflammatory episode can be reduced by treatment with antibiotics. Steroid eyedrops or systemic steroids may be used to further reduce the inflammation.

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