

Protozoan *Toxoplasma gondii* an Infection Found all Over the Globe

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Abstract

Toxoplasmosis, a condition caused by the protozoan *Toxoplasma gondii* and affecting the retina, is a natural occurrence. Because of the degree of central nervous system involvement, the condition has a greater effect in immune compromised persons and in congenital infection. *T. gondii* seroprevalence is still strong, particularly in South America, despite easy prophylactic steps that could minimise transmission. Education programmes and the advancement of new medications to deter primary infection may help to lessen the disease's effect.

Introduction

Toxoplasmosis is a retinal infection caused by the protozoan *Toxoplasma gondii*. It affects both healthy and immunocompromised people in many countries, and it can be a life-threatening illness in immune-compromised people. Raw meat containing *T. gondii* cysts or water containing oocysts from feline faeces was used to spread the parasite. The disease has been documented in both waterborne and foodborne outbreaks in countries with a wide range of cultural, socioeconomic, and ethnic backgrounds. The parasite may also be spread vertically, which happens more often when women get primary disease while pregnant. The disease can also be spread by transplanted tissues, but this is an uncommon occurrence [1].

There are clonal populations of *T. gondii*. Initially, three clonal forms were called type I, type II, and type III based on genotype similarities; however, phylogenetic research identified several strains previously categorised as "atypical" as separate haplogroups, and more haplogroups are now defined [2].

Clinical Manifestations and Diagnosis

The majority of immunocompetent subjects will remain asymptomatic for the rest of their lives, but the disorder, especially retinochoroiditis, can affect both competent and immunocompromised subjects. During the acute systemic infection, infected persons may experience asymptomatic cervical lymphadenopathy, as well as signs and symptoms that resemble mononucleosis infection, such as myalgia, sore throat, headache, maculopapular rash, and, in rare cases, polymyositis and myocarditis.

Ocular Toxoplasmosis

Ocular toxoplasmosis (OT) is characterised by focal, white retinal lesions that are typically smaller than 1,000 microns in size, [3] as well as a robust vitreous inflammatory response that results in a traditional "headlight in the fog" appearance.

Toxoplasmic Encephalitis

Toxoplasmic encephalitis (TE) remains a leading cause of morbidity and mortality in AIDS patients, also in this age of highly aggressive antiretroviral treatment. It is normally triggered by the reactivation of a dormant infection [4].

Congenital Toxoplasmosis

Congenital toxoplasmosis in newborns can be asymptomatic, but it can also cause retinochoroiditis and/or CNS involvement. Congenital toxoplasmosis is predicted to affect 1-10 per 10,000 live births in the United States, 1 in 770 live births in Southeast Brazil, and 1 in 3,000 live births in France [5].

Laboratory Diagnosis

Serology can be used to detect prior infection, and improvements in serology can be used to infer acute infection. The IgG reaction normally occurs 7 to 14 days after diagnosis, peaks in 30 to 60 days, and lasts for the rest of one's life [6].

Treatment and Prevention

Washing fruits and vegetables, avoiding raw and undercooked foods, and washing hands after gardening or handling cats are all examples of hygienic steps that can help prevent parasite transmission. Although these steps are inexpensive and simple to introduce, water used for washing in some places can be polluted with toxoplasmosis. Many pregnant women are unaware that toxoplasmosis can be spread by uncooked meat [7], for example, and educational programmes to help avoid the disease's transmission should be developed.

While most immunocompetent people afflicted with toxoplasmosis are asymptomatic for the rest of their lives, the parasite causes significant vision loss and morbidity around the world, as well as fatal infections in immunocompromised patients. Hygiene interventions are cost-effective and will reduce the risk of spread, but new research can focus on primary infection prevention.

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