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Medical parasitology

Epicomplexia

Blood protozoa

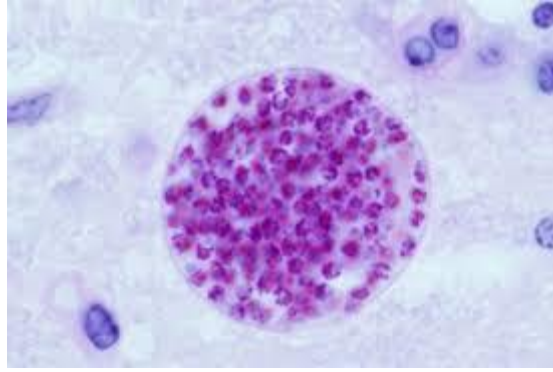
Toxoplasma

Malaria

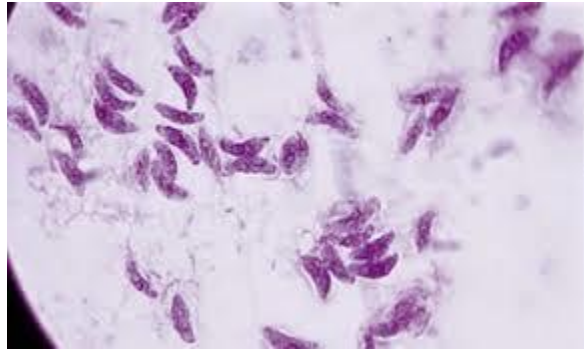
Toxoplasma: Toxoplasmosis

Toxoplasmosis is a parasitic protozoa disease caused by obligatory intra cellular single-celled protozoan called *Toxoplasma gondii*. While the parasite is found throughout the world, more than 40 million people in the United States may be infected with the *Toxoplasma* parasite. The *Toxoplasma* parasite can persist for long periods of time in the bodies of humans (and other animals), possibly even for a lifetime. pregnant women and individuals who have compromised immune systems should be cautious; for them, a *Toxoplasma* infection could cause serious health problems.

Morphology : Tachyzoite , bradyzoite and sporozoite

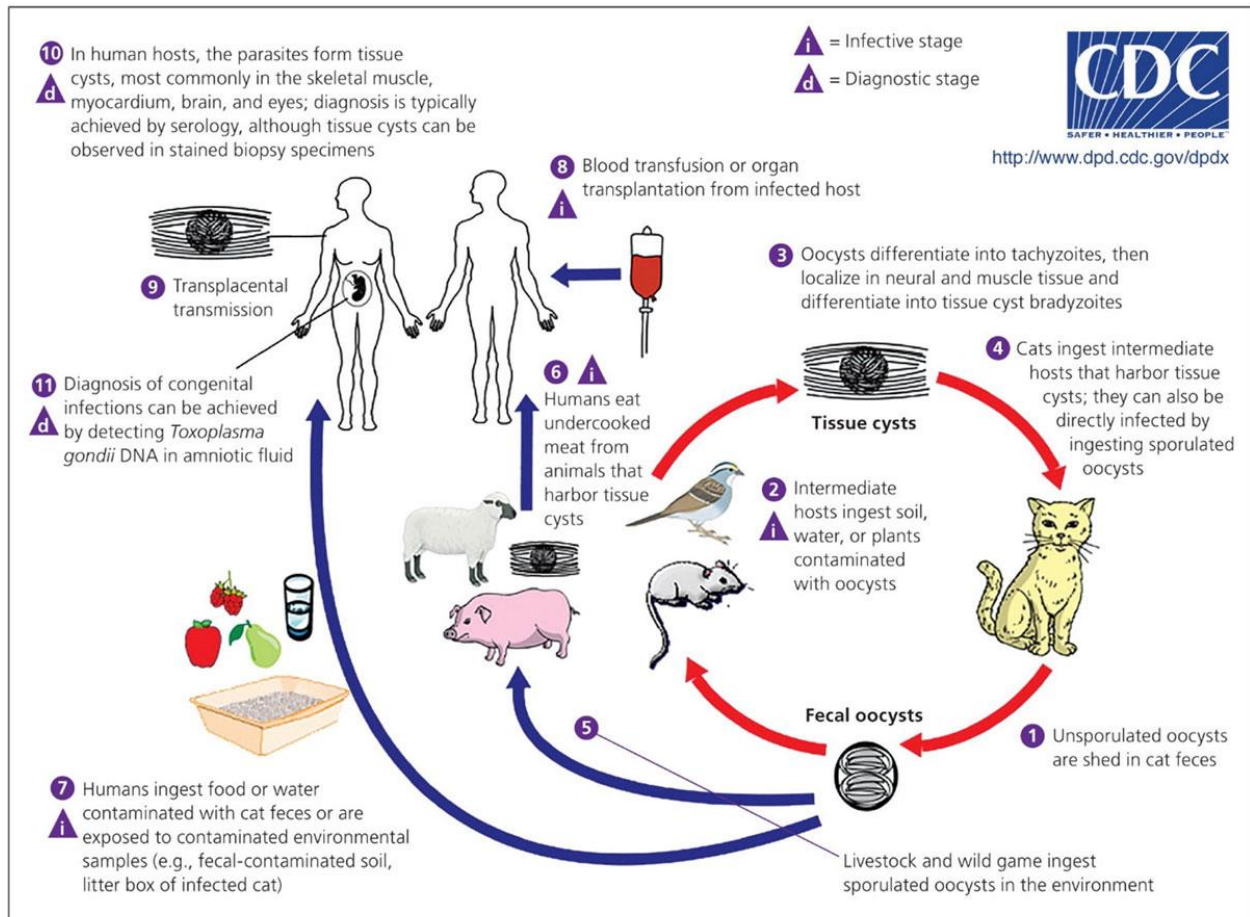


Bradyzoite((Tissue cyst)



Tachyzoite

Life cycle



Cycle parasitaire de *Toxoplasma gondii*

Toxoplasma infection occurs by one of the following:

- Eating undercooked, contaminated meat (especially pork, lamb, and venison) or shellfish (for example, oysters, clams or mussels).
- Accidental ingestion of undercooked, contaminated meat or shellfish after handling them and not washing hands thoroughly (Toxoplasma cannot be absorbed through intact skin).

- Eating food that was contaminated by knives, utensils, cutting boards and other foods that have had contact with raw, contaminated meat or shellfish.
 - Drinking water contaminated with *Toxoplasma gondii*.
 - Accidentally swallowing the parasite through contact with cat feces that contain *Toxoplasma*. This might happen by
 - o Cleaning a cat's litter box when the cat has shed *Toxoplasma* in its feces;
 - o Touching or ingesting anything that has come into contact with cat feces that contain *Toxoplasma*; or
 - o Accidentally ingesting contaminated soil (e.g., not washing hands after gardening or eating unwashed fruits or vegetables from a garden).
 - Mother-to-child (congenital toxoplasmosis) transmission.
 - Receiving an infected organ transplant or infected blood via transfusion, though this is rare. the signs and the symptoms of toxoplasmosis .
 - Most people who become infected with *Toxoplasma gondii* are not aware of it because they have no symptoms at all.
 - Some people who have toxoplasmosis may feel as if they have the “flu” with swollen lymph glands or muscle aches and pains that may last for a month or more.
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- Signs and symptoms of ocular toxoplasmosis can include reduced vision, blurred vision, pain (often with bright light), redness of the eye, and sometimes tearing. Ophthalmologists sometimes prescribe medicine to treat active disease. Whether or not medication is recommended depends on the size of the eye lesion the location, and the characteristics of the lesion (acute active, versus chronic not progressing). An ophthalmologist will provide the best care for ocular toxoplasmosis.
 - Most infants who are infected while still in the womb have no symptoms at birth, but they may develop symptoms later in life. A small percentage of infected newborns have serious eye or brain damage at birth.
 - Persons with severely weakened immune systems, such as individuals with AIDS, those taking certain types of chemotherapy, and those who have recently received an organ transplant.
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Diagnosis of Toxoplasmosis

Serologic Tests

The use of serologic tests for demonstration of specific antibody to *T. gondii* is the initial and primary method of diagnosis. Different serologic tests often measure different antibodies that possess unique patterns of rise and fall with time after infection. A combination of serologic tests is usually required to establish whether an individual has been most likely infected in the distant past or has been recently infected. The clinician and clinical laboratories must be familiar with these problems and consult reference laboratories if the need arises.

PCR

PCR amplification for detection of *T. gondii* DNA in body fluids and tissues has successfully been used to diagnose congenital ocular and cerebral and disseminated toxoplasmosis. PCR has revolutionized the diagnosis of intrauterine *T. gondii* infection by enabling an early diagnosis to be made, thereby avoiding the use of more invasive procedures on the fetus. PCR has enabled detection of *T. gundi* DNA in brain tissue cerebrospinal fluid (CSF) vitreous and aqueous fluids Broncho alveolar lavage (BAL) fluid and blood in patients with AIDS.

Histologic Diagnosis

Demonstration of tachyzoites in tissue sections or smears of body fluid (e.g., CSF or amniotic or BAL fluids) establishes the diagnosis of the acute infection. It is often difficult to demonstrate tachyzoites in conventionally stained tissue sections. The immunoperoxidase technique, which uses antisera to *T. gondii*, has proven both sensitive and specific: It has been used successfully to demonstrate the presence of the parasite in the central nervous system (CNS) of AIDS patients. The immunoperoxidase method is applicable to unfixed or formalin fixed paraffin-embedded tissue sections. A rapid, technically simple, and under-used method is the detection of *T. gondii* in air-dried, Wright-Giemsa—stained slides of centrifuged (e.g., cytocentrifuge) sediment of CSF or of brain aspirate or in impression smears of biopsy tissue. Multiple tissue cysts near an inflammatory necrotic lesion probably establish the diagnosis of acute infection or reactivation of latent infection.

Isolation of *T. gondii*

Isolation of *T. gondii* from blood or body fluids establishes that the infection is acute. Attempts at isolation of the parasite can be performed by **mouse inoculation or inoculation in tissue cell cultures of virtually any human tissue or body fluid**

