

Infections of the Central Nervous System (the Brain)

Toxoplasmosis

What is it?

Toxoplasmosis is a disease caused by the organism *Toxoplasma gondii*. Toxoplasmosis usually affects the brain and causes a disease called toxoplasma encephalitis. The organism can infect and cause disease in other organs, including the eyes and lungs.

Common sources of this organism include cats and birds, as well as undercooked meat, especially pork and lamb. While cats or birds that are housebound are not a risk, those that go outside can carry toxoplasma back into the house or apartment. Handling either bird or cat droppings is a major source of infection.

Toxoplasma encephalitis can occur in patients who have antibodies to *Toxoplasma gondii*, which indicates that the infection is present in the body, and have damaged immune systems (usually stage 3 or 4 of HIV disease). Fortunately, some of the treatments used to prevent PCP, especially cotrimoxazole, have been shown to effectively prevent toxoplasmosis from causing disease.

What are the symptoms of toxoplasmosis?

Some of the symptoms of toxoplasma encephalitis include headache, fever, confusion, seizures, abnormal behaviour, and coma.

How is toxoplasmosis diagnosed?

A blood test can be taken to check for the presence of antibodies to *Toxoplasma gondii*. However, just because someone has antibodies to this organism does not mean that they will experience the disease. Many people in South Africa have been exposed to *Toxoplasma gondii* at some point in their lives. Only people with compromised immune systems, particularly people in the third and fourth stages of HIV disease, are at risk of developing toxoplasmosis, the active form of the disease caused by this organism. In some cases, active disease can be caused by a recent exposure, perhaps from eating undercooked meat. It is also possible that harmless amounts of *Toxoplasma gondii* in the body can take advantage of the immune system being suppressed, begin reproducing, and cause active disease.

To diagnose toxoplasma encephalitis, an MRI scan is usually performed. *Toxoplasma gondii* can cause multiple lesions on the brain. However, it can be difficult to tell the difference between toxoplasmosis of the brain and other central nervous system diseases, such as lymphoma. In turn, a brain biopsy is sometimes recommended.

How is toxoplasmosis treated?

To treat toxoplasmosis, a combination of three drugs, amounting to more than ten pills a day, is usually recommended:

Pyrimethamine: A large dose (between 100 mg and 200 mg) is taken at first, followed by a lower dose.

Folinic acid: This drug helps protect the bone marrow from the side effects of pyrimethamine.

Sulfadiazine: This drug is taken four times a day.

Treatment using these three drugs is usually continued for six weeks. After the dis-