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Toxoplasma gondii

Toxoplasma gondii is an obligate parasitic protozoan and the causative agent of toxoplasmosis. Although it is capable of infecting any warm-blooded animals (including humans) as intermediate hosts, the natural definite host are all felines where the parasite is able to undergo full sexual reproduction. Human infection occurs through the ingestion of tissue cysts in raw or undercooked meats; food or water contamination with oocysts; cat faeces; and infected soil in temperate climates where the oocyst can stay viable for 18 months. Transplacental transmission from mother to foetus or rarely through organ transplantation, contaminated blood products or needle-stick injury.

There is a small risk during the lambing season of toxoplasmosis infection passing from sheep to humans, as the *T. gondii* parasite is sometimes found in the afterbirth in high density and on newborn lambs after an infected sheep has given birth.

Exposure and infections are common worldwide (seropositivity ~20% in the UK and up to 80% in France) however *T. gondii* rarely causes disease, except in congenitally acquired infections where infection may manifest in retinal damage many years after birth; and in patients with cell-mediated immunodeficiencies. During pregnancy, toxoplasmosis can manifest causing miscarriages, stillbirths or congenital defects. Previous exposure to toxoplasmosis can prepare the immune system to prevent infection. Instances of first exposure during pregnancy are more likely to result in an infection that can trigger the complications mentioned above. The risk of congenital infection is lower when the placenta is small but the damage if infection does occur during organogenesis may be severe.

People with weakened immune systems such as HIV patients, post organ transplants, or receiving chemotherapy are most at risk of toxoplasmosis as their immune system cannot contain an infection or reactivation, and the parasite is able to spread to other parts of the body including eyes, heart, lungs and the brain. Ocular/retinal toxoplasmosis and encephalitis present high morbidity, particularly in newborns where it can cause blindness. Service users may wish to refer samples to Micropathology Ltd. for screening during pregnancy; to look for the organisms in CSF or eye samples; or to monitor for the parasite presence in the blood, particularly during immunocompromising treatment or prophylaxis.

UKAS accredited specimen types for *T. gondii* DNA detection are EDTA whole blood, CSF and amniotic fluid. Vitreous humour and aqueous humour are validated however the test is currently unaccredited for these specimens and therefore will be reported with an appropriate caveat.