

## **Oocysts of *Cystoisospora belli***

### **Introduction**

*Cystoisospora belli* is a coccidian protozoan of cosmopolitan distribution, occurring especially in warm regions of the world.

### **Life cycle**

The life cycle of *Cystoisospora belli* involves an asexual (**schizogonic stage**) and a sexual (**sporogonic stage**)

Infection with *C. belli* occurs in both immunocompetent and immunocompromised patients and begins when the mature oocyst is ingested in water or food. . The mature oocyst contains 2 sporocysts, each containing 4 sporozoites. The sporulated oocyst is the infective stage of the parasite and they excyst in the small intestine releasing **sporozoites** which penetrate the epithelial cells, thus initiating the asexual stage of the lifecycle. The **sporozoite** develops in the epithelial cell to form a **schizont** which ruptures the epithelial cell containing it, liberating **merozoites** into the lumen. These **merozoites** will then infect new epithelial cells and the process of asexual reproduction in the intestine proceeds. Some of the **merozoites** form **macrogametes** and **microgametes** (sexual stages) which fuse to form a **zygote** which matures to form an **oocyst**.

### **Pathogenesis**

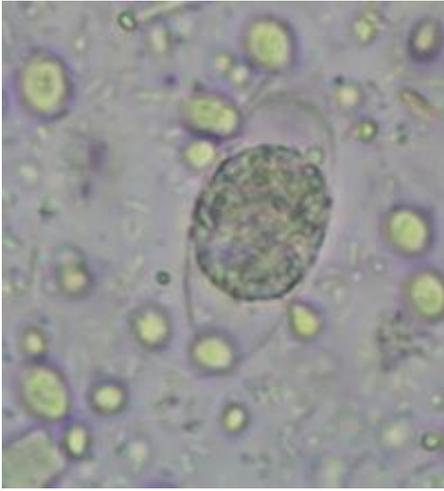
In the immunocompetent, infection is generally asymptomatic or a self-limiting gastro-enteritis. However, in chronic infections, severe diarrhoea and fat malabsorption can occur.

Infection in immunocompromised individuals ranges from a self-limiting enteritis to severe diarrhoeal illness resembling that of cryptosporidiosis.

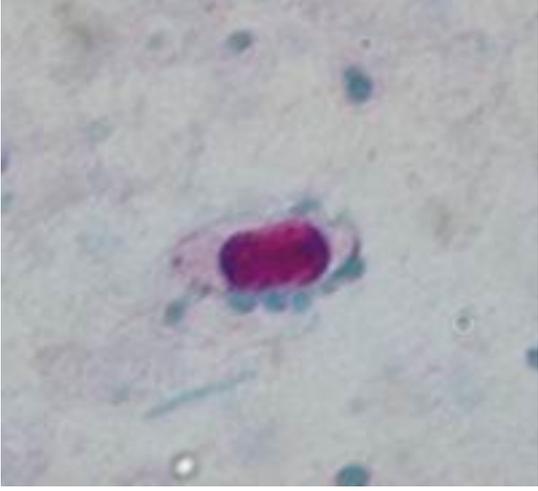
### **Laboratory diagnosis**

Oocysts are thin walled, transparent and ovoid in shape. They can be demonstrated in faeces after formal ether concentration where they appear as translucent, oval structures measuring 20-33µm by 10-19µm.

Alternatively, oocysts can be seen in a faecal smear stained by a modified Ziehl-Neelsen method, where they stain a granular red colour against a green background, or by phenol-auramine.



An oocyst in a concentrate



An oocyst stained with modified ZN