Lecture No. 26 PARASITOLOGY DR.Raad H.H. Protozology

**Family: Cryptosporidiidae**

 **Genus  *Cryptosporidium***

1. **Homoxenous**
2. **Intracellular**, but project from lumenal side of cell and attached to cytoplasm of host cell by **Parasitophorus** organelle **"feeder organelle"**
3. **Single** **Genus** found***Cryptosporidium***
	1. **oocysts fully developed with 4 sporozoites, without sporocysts**
	2. Develop **intracellulary**, but in peripheral location on lumenal side of intestinal epithelial cell; projects into lumen
	3. **Two** **types** of autoinfective stages hypothesized; **type I** **merozoites** capable of forming new **type** **II** meronts and thin walled oocysts that may liberate sporozoites to initiate new infections
	4. **Life-Cycle of *Cryptosporidium parvum***
		1. oocysts ingested by host; in the case of *Cryptosporidium parvum* it usually involves neonates and over 150 different mammalian hosts have been found to be suitable
		2. sporozoites excyst from suture at one pole
		3. penetrate epithelial cells; preferred site ileum
		4. type I meronts (with 8 merozoites); capable of recycling and producing more generations of type I meronts
		5. some merozoites penetrate cells and undergo development into type II meronts with 4 merozoites
		6. type II merozoites liberated, infect new cells
		7. macrogametes and microgametocytes
		8. 16 non-flagellated microgametes arise from microgametocyte; exit and penetrate macrogamete
		9. zygote
		10. resistant wall layed down around zygote; endogenous sporulation
		11. about 20% oocysts thin walled, and may ruture releasing sporozoites to initiate new (autoinfective) cycles
		12. exit with feces



1. Life-cycle **ended** when **host immune response eliminates** the reproductive cycle. **If** animal **immunosuppressed**, parasite **overwhelms** host due to recycling of type I meronts
2. **pathology** involves severe diarrheal illness specially in calves , weight loss, abdominal cramping, and electrolyte imbalance
3. Cryptosporidium is typically found in neonatal or young animals. Disease is not always present. Cryptosporidium, however, has been associated with clinical enteritis. In several hosts, including man and domestic animals, and with respiratory illness in man and domestic birds.
4. Diagnosis is facilitated by identifying oocysts inthe feces with phase-contrast microscopy and several staining procedures formerly used for acid-fast bacteria
5. **Related Species**
	1. *Cryptosporidium andersoni* in gastric glands of cattle *Cryptosporidium baileyi* in cloaca and bursa of chickens
	2. *Cryptosporidium bovis* in older calves *Cryptosporidium canis* in canids
	3. *Cryptosporidium felis* in felids *Cryptosporidium hominis* in humans)
	4. *Cryptosporidium meleagridis* in turkeys
	5. *Cryptosporidium molnari* in fish
	6. *Cryptosporidium muris* in gastric glands of rodents and other mammals
	7. *Cryptosporidium nasorum* in *Cryptosporidium saurophilum* in reptiles, especially lizards (technically, this appears to actually represent *Cryptosporidium varani*)
	8. *Cryptosporidium scophthalmi* in turbot
	9. *Cryptosporidium serpentis* in gastric mucosa of reptiles, especially snakes *Cryptosporidium wrairi* in guinea pigs
6. **Epidemiology**
7. Cryptosporidiosis is a Zoonotic disease .
8. Cryptosporidiosis is a water –born disease