**Intestinal Parasites of Rabbits**

Disease due to intestinal parasites is not common in adult rabbits, and regular worming in the pet rabbit is often unnecessary. An increase in rabbit numbers/ poor cleaning or introduction to a new environment can all result in disease.

Faecal floats for parasite identification and burden monitoring are often undertaken at the Melbourne Rabbit Clinic.

Coccidia is often a disease of crowded conditions and breeding facilities. It is commonly the cause of collapse and hypoglycaemia in young rabbits under 6 months old, often within 2-3 weeks of rehoming/boarding (stressful situations +/- indirect contact with other animals). There are at least 14 species of Eimeria (most pathogenic including *E. Intestinalis, E. Flavescens, E. magna, E. Irresidua*) and they invade the mucosa of the intestine (primarily the ileum and jejunum), colon, and caecum in heavy infestations of ‘intestinal coccidiosis.’ *E. steidae* inhabits the epithelial cells of the bile duct and causes ‘hepatic coccidiosis.’

Most infections are subclinical. These ‘carrier animals’ are important reservoirs of infection to other animals. Faecal floatation allows the identification of a high burden (>2 per hpf) of coccidial oocysts. It should be noted that in faecal floats, the presence of yeast is normal. The severity of the disease depends upon the rabbit’s age, (multiple) species of *Eimeria*, parasite load and environmental stress. Acute intestinal coccidiosis manifests most often in young or immunosuppressed animals with clinical signs of inappetance, depression, weight loss, poor growth, diarrhoea (with or without haemorrhage), collapse or death (attributed to dehydration and secondary intestinal dysbiosis).

Toltrazuril is a broad spectrum anticoccidial (coccidiocidal) drug that works against schizont and gamont stages of *Eimeria* spp (single dose of 2.5mg/kg PO). An alternative is Trimethoprim/Sulfamethoxazole (coccidiostatic) at 40mg/kg orally twice daily for 7 days. Prevention of coccidiosis includes maintaining good sanitation practices (avoid deep litter practices) in the rabbits’ environment, avoiding contaminated locations, and enhancing the health, body condition and immunity of individual rabbits. It is important to break the transmission cycle by cleaning the litter tray and rabbit access area to prevent reinfection.

**Pin worms, Passalurus ambiguous** are a commensal parasite specific to rabbits. Adult worms (1-1.5 mm in length) live in the caecum. They are common in low numbers and in low burdens are non-pathogenic. Eggs are shed into the environment and are then reingested by the same or companion rabbits. Eggs are very light and can become aerosolized very easily. Severe infection resulting in hemorrhagic diarrhea have been seen 2-3 weeks after housing changes (boarding facilities/shelter situations) where individuals may be exposed to high environmental numbers (communal rabbit runs).

On rare occasions large numbers can cause gut irritation and gastrointestinal stasis/blockage. Low grade or intermittent gut stasis in young rabbits have been diagnosed with excessive pin worm infections on routine abdominal surgery (spay), with live worms seen in the caecum. Eggs can be observed on faecal float (not always reliable) and can also be observed in the faeces of infected rabbits. Treatment is either Fenbendazole at 20 mg/kg once a day for 5 days (alternative two doses 10-14 days apart) or Piperazine 200 mg/kg PO and repeat in 14 days. Cleaning with 10% bleach/steam cleaning can eliminate the eggs from the environment but surfaces such as carpet/wood/ concrete and dirt cannot be cleaned 100% due to uneven surfaces and micro crevices.

**Trichostrongylus Retortaeformis** Adults inhabit the small intestine and rarely the stomach. They can measure up to 1 cm, can contribute to anaemia and weight loss and in the case of *T. retortaeformis* atrophic enteritis can be seen in large infections. Detection is via Faecal Float and Treatment is Ivermectin 0.2 – 0.4 mg/kg, PO, SC, repeat in 14 days, or Fenbendazole 10-20 mg/kg, PO, repeat in 10-14 days

**Obeliscoides cuniculi** (Rabbit Stomach Worm). These parasites are found in the stomach near the gastric mucosa and can be 1-1.5 cm. Eggs are passed in faeces and become infective within 1 week. Clinical disease can cause irritation to the mucosa of the stomach. Most infections are subclinical but can be associated with weight loss, diarrhoea and anaemia. Treatment is with Fenbendazole 10-20 mg/kg, PO, repeat in 10-14 days

**Graphidium strigosum**: Worms are up to 20 mm long and adults are found in the stomach. Eggs are passed in the faeces and take 4-6 days to develop into the infective larval stage. Subclinical infection is common. Severe infections can result in haemorrhagic gastritis, anaemia weight loss and possible death and are obvious on faecal floats. Treatment is with Fenbendazole 10-20 mg/kg, PO, repeat in 10-14 days or Ivermectin 0.2 – 0.4 mg/kg, PO, SC, repeat in 14 days

Other lesser worms not currently recorded in Australia

**Dermatoxys veligera** (common in wild lagomorphs in the USA). *Nematodiurs leprous* Uncommon, (lives in small intestine). *Stongyloides papillosus* (Clinical disease not seen only observed in natural infection), *Trichuris leporis* (Whipworm) and *Citoatua variabilis* (Rabbit Tapeworm). Infection of rabbits with connective tissue cyst form from *Taenia* species (intermediate host for canine tapeworm) is a common condition. *Flagellets* (Giardia duodenalis) and protozoons (Cryptosporidium sp.) have been seen in other countries.