WILDSIDE VETERINARY HEALTH CENTER
Handout: E. Cuniculi in Rabbits

What is E. Cuniculi?

Encephalitozoon cuniculi, often referred to as E. cuniculi, is a protozoan parasite that can infect various mammals, including rabbits. It belongs to the phylum Microsporidia and has a particular affinity for the kidneys, central nervous system, and eyes.

Prevalence of E. Cuniculi

E. cuniculi is a widespread disease in rabbit populations, with reports of infection found in 50% to 75% of conventional rabbit colonies. This underscores the importance of awareness and proactive care, especially for rabbit owners with multiple rabbits or those interacting with other rabbits.

Transmission of E. Cuniculi

Understanding how E. cuniculi is transmitted is crucial for preventing its spread among rabbits.

Vertical Transmission: This occurs when a pregnant doe (female rabbit) passes the parasite to her offspring during pregnancy.

Horizontal Transmission: The parasite can be transmitted from one rabbit to another. The most common source of infection is the oral ingestion of spores found in infected rabbit urine. Although rare, inhalation of spores in the air can lead to infection.

Survival Outside the Host

E. cuniculi spores are hardy and can survive outside the host for extended periods, up to six weeks at a temperature of 72°F (22°C). This resilience makes contaminated environments a potential source of infection.

Persistence in Urine: Spores can be detected in the urine of infected rabbits as early as one month after infection. They are excreted in substantial numbers for up to two months following infection.

Shedding Patterns: Shedding of spores is most active during the initial months of infection, with a sharp decrease after three months. Infected rabbits may occasionally shed small amounts of spores intermittently after this initial period.

Symptoms of E. Cuniculi Infection

Numerous rabbits harbor the E. cuniculi parasite without showing any symptoms, and, in some cases, these symptoms may manifest after many years of infection, or not at all.

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Dr. Veronica Pardini, DVM, CertAqVet

The animals that become symptomatic can manifest the disease with a wide range of symptoms, and the severity can vary from mild to life-threatening.
Neurological symptoms are the most commonly seen, and each clinical form typically occurs individually.

Common signs to watch for include:

Neurological signs
Head Tilt (Torticollis): Rabbits with E. cuniculi may exhibit a tilted head due to neurological damage.

Incoordination and Weakness: Affected rabbits often have difficulty coordinating their movements, which can lead to stumbling and falling.

Seizures: Seizures can occur as a result of neurological damage caused by the parasite.

Head Bobbing: Some rabbits exhibit a characteristic head bobbing or nodding motion.

Ocular signs
Cataracts and Eye Problems: Typical ocular lesions associated with encephalitozoonosis are widely known under the term of phacoclastic uveitis and include cataract, the development of white intra-ocular masses which can lead to impaired vision but usually does not have an influence on the rabbit's quality of life.

Urinary signs
Urinary Problems: Kidney damage can result in increased thirst and urination, and in severe cases, kidney failure.

Diagnosis of E. Cuniculi Infection

Diagnosing E. cuniculi infection is a complex process that requires a combination of clinical evaluation, laboratory tests, and imaging. The diagnostic approach may include a thorough physical examination, blood tests, urine testing, radiographs (X-rays), advanced imaging techniques (MRI or CT scans).

Treatment of E. Cuniculi Infection

Treatment of E. cuniculi is a very long discussion among exotic animal veterinarians. Here at the Wildside we follow the most recent evidence-based literature to better guide you and treat our patients.
Here are some facts about E. cuniculi treatment in rabbits:

1. Positive asymptomatic rabbits should not be treated.

2. At this time, there is no treatment that fully cures this disease.
3. Febendazole has been used in the past, but studies have concluded that when administered as a therapeutic treatment, no significant effects were observed. Below are a few other reasons why we normally do not recommend it:
    a. Despite a reduction in the number of infectious spores the severe inflammatory alterations in affected tissues remain.
    b. E cuniculi infections typically follow a chronic course whereby the manifestation of clinical signs vary and the time from infection until clinical disease may be months to years and almost always occurs long after initial infection and when only a low number of organisms are present within affected tissues.
    c. Many cases of febendazole toxicosis have been reported. Common clinical signs included sudden lethargy, GI stasis, petechiation, pale mucous membranes, hemorrhage, elevated body temperature, and sudden unexpected death.
4. Supportive care:
    a. Physical therapy: Encouraging physical activity and implementing therapeutic exercises can significantly improve their condition. In many cases, supervised free run on a slip-resistant surface can be beneficial and should be offered multiple times a day, depending on the severity of symptoms.
    b. Meclizine, an antihistamine that can help alleviate vertigo associated with vestibular disease in rabbits may be recommended.
    c. If not eating or having other symptoms specific treatment or even hospitalization may be recommended.

Preventive Measures

Isolation of Infected Rabbits: consider isolating any rabbits diagnosed with E. cuniculi to prevent further transmission to healthy individuals. Two or more positive rabbits can be housed together - *as long as they get along well of course*!

Zoonotic potential

Encephalitozoon cuniculi primarily affects rabbits and is not considered a significant zoonotic threat to humans. The risk of transmission from rabbits to people is generally low and typically occurs in individuals with compromised immune systems.

For the general population, including healthy individuals and those with intact immune systems, the risk of contracting E. cuniculi from pet rabbits is minimal. However, it is always advisable to practice good hygiene when handling rabbits or cleaning their living environments.

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Can dogs and cats get infected?

While it is rare, there have been reports of E. cuniculi infections in dogs and cats, particularly in those with weakened immune systems. However, these cases are considered sporadic and not a common occurrence.

E. cuniculi is a complex and challenging parasite to manage in rabbits. With this comprehensive guide, you are better equipped to understand, prevent, and address E. cuniculi in your rabbits, ultimately promoting their health and happiness.

We are here to assist you!
Sincerely,
The Wildside Veterinary Staff

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