

Treponema paraluisuniculi (*Treponema cuniculi*, rabbit syphilis)

Classification

Gram-negative spirochete

Family

Treponemataceae

Affected species

Rabbits. Although sometimes called “rabbit syphilis,” this is not a zoonotic disease.

Frequency

Rare in laboratory colonies. Pet and wild animals have varying frequencies of disease.

Transmission

Transmission is via direct contact (usually sexual) between an infected and uninfected rabbit. The spirochete is present in large numbers in typical lesions. Both bucks and does can transmit disease. There is no evidence in the literature of vertical transmission in rabbits.

Clinical Signs and Lesions

Clinical signs are slow to appear in infected animals. Signs may first appear 3-6 weeks after infection. Inapparent infection is possible, with animals seropositive with no history of lesions. Young rabbits are resistant to infection, and in enzootically infected colonies, seropositivity rates increase with age. Animals with *T. paraluisuniculi* infection typically present with crusty lesions at the mucocutaneous junctions of the anus, genitals, or face. These lesions begin as raised erythematous papules that progress to nodules with surface erosion and exudates of serum and blood.

On necropsy, there may be enlargement of regional lymph nodes, but no further visceral involvement is normally noted. Histology of lesions will reveal hyperplasia of the epidermis, erosions and ulcerations, and an infiltrate composed of plasma cells, macrophages, and heterophils.

Diagnosis

Since animals generally have lesions, a wet mount of lesion scrapings examined with dark-field microscopy

is a typical means of examining a suspected treponemal lesion. Silver staining of lesions in histology sections may also reveal the presence of spirochetes. Several serologic tests also exist, with the microhemagglutination test outperforming the rapid plasma reagin (RPR) test. Both tests are human tests that use *T. pallidum* as the antigen. Since antibodies are slow to rise, false negatives on antibody testing do occur, and animals should be tested multiple times over several weeks in order to ensure a negative status.

Interference with Research

Since rabbits may be used as a model of human treponemal disease (syphilis), animals with antibodies to *T. paraluisuniculi* are unsuitable for this purpose. In addition, treponemal infection may cause temporary disruption of the immune system, rendering infected animals unfit for studies involving the immune system.

Prevention and Treatment

Treponemal disease is not a problem in well-managed rabbitries. If a closed colony is free of *Treponema* and intimate exposure to wild rabbits is prevented, this agent need not be included in regular colony screening. Rabbits entering a closed colony should be quarantined and tested for treponemal infection. If there is a chance that animals will be exposed, then regular examination for clinical signs and routine serologic screening should be implemented in the colony.

Animals can be treated for *T. paraluisuniculi* infection, and this has shown to be successful. Lesions heal in 7-28 days when rabbits are treated with penicillin (once per week for three weeks) and RPR antibody tests become negative 6-12 weeks after treatment. Hysterectomy or caesarean rederivation has also been successful in eradicating treponemal disease from a rabbit colony. Spirochetes do not survive in the environment, so normal cleaning routines should serve to remove crusts or other possible sources of infection from the environment.

technical sheet

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