

Presence of *Leishmania* amastigotes and histopathological alterations in feline testicles of *Leishmania infantum* infected cats

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Background

Visceral leishmaniasis in humans is a zoonosis considered endemic in Brazil and dogs are considered the main domestic reservoirs in urban areas. However, cats have emerged as possible additional reservoirs. The transmission of *Leishmania infantum* to vertebrate hosts occurs mainly through the bite of female sand flies. Other forms of transmission, such as venereal and vertical, have been reported in dogs. Studies on the disease in felines have already highlighted that the occurrence of asymptomatic individuals is more frequent than those that show clinical signs. Although there are increasing reports of feline seropositivity, clinical manifestations of leishmaniasis are rare in this species. Histopathological changes are poorly described in the literature, and in addition to nodular/ulcerative lesions in the skin, there are also reports of inflammation in the spleen, liver, and kidneys. This research aimed to analyze histopathological changes in the testis of cats infected with *Leishmania spp.* and check the presence of parasite amastigotes.

Materials and methods

The testicles of 193 male cats, ranging from 4 months to 10 years of age, were collected during the surgical sterilization process. Among the 193 animals, 22 tested positive for the presence of anti-*Leishmania* antibodies by IFAT (indirect immunofluorescence antibody test, cutoff 1:40) and/or presented *Leishmania* DNA in the spleen (qPCR employing primers targeting the parasite's circular kinetoplast DNA (kDNA) (forward: 5'-GTGGGGGAGGGGCGTTCT-3' and reverse: 5'-ATTTTACACCAACCCCGATT-3')). Of these 22 positive felines, the testicles of 17 animals were used in this research. After fixation in 10% buffered formalin (pH 7.4), the tissue was processed for inclusion in paraffin according to a standard protocol for subsequent histological evaluation of HE-stained sections and processes for immunohistochemistry for immunodetection of amastigotes [1].

Results

Five of the 17 cats evaluated presented lymphoplasmacytic inflammation in one of the testicles and/or epididymis. One cat presented mild non-granulomatous orchitis; two cats had discrete non-granulomatous epididymitis. One case showed mild non-granulomatous orchitis and epididymitis and another one presented moderately non-granulomatous orchitis associated with discrete non-granulomatous epididymitis. In the immunohistochemical evaluation, free amastigotes were found in the seminiferous tubules of two cats.

Conclusion

This is the first report on inflammation and detection of amastigotes of *Leishmania spp.* in the male reproductive system of infected cats. Based on existing studies in dogs [2, 3], evidence of *Leishmania spp.* in feline testicles indicates the possibility of venereal transmission of infection in felines as well.

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References

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