



Chronic experimental genital leptospirosis with autochthonous *Leptospira santarosai* strains of serogroup Sejroe

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ABSTRACT

Although ruminants may be experimental infected by different leptospiral strains, the majority of them determine acute infection. In contrast, members of serogroup Sejroe seems to be prevalent on chronic infection. Despite the importance of naturally occurring chronic genital infection, the parasite-host long-term relationship in genital tract remains to be elucidated. Few studies succeeded on reproducing the chronic genital infection it on experimental conditions, in this context, this paper aimed to assess the chronic experimental genital leptospirosis with autochthonous *Leptospira santarosai* strains of serogroup Sejroe. The animals were randomly divided into three experimental groups. Each group was inoculated with a different strain of the serogroup Sejroe (FV237, FV52 and U81). On the follow-up of the infection, blood, urine and vaginal fluid collection were performed, as well as the daily follow-up of the animals clinic, and on 30, 60 and 90 days post-infection (p.i.) was performed to collect uterine tissue, uterine lavage and follicular aspirate. There were no clinical signs or haematological alterations in any of the animals, and positive MAT was detected from day 4 p.i. The group inoculated with the FV237 strain showed the highest number of positive samples in the genital tract. The chronic model of leptospiral genital infection could be successfully established, using autochthonous strains that are not often studied. It is of extreme value in order to a better understanding on the pathophysiology of the genital leptospiral infection on ruminants and consequent reproductive disease.

1. Introduction

Leptospirosis is an infectious disease caused by pathogenic spirchetes of the genus *Leptospira*. It affects domestic and wild animals, being also considered a zoonotic disease (Ridzuan et al., 2016). In order to understand the different aspects of leptospirosis, several experimental trials have been performed since the beginning of the XX century (Adler, 2015). Noteworthy to remark that the dawn of the leptospirosis' understanding was only possible after experimental infections in guinea pigs (Inada et al., 1916). After that, several studies focused on the replication of the lethal and acute form of the infection in high susceptible animal models, mainly hamsters (Suepaul et al., 2010; Evangelista et al., 2017).

In contrast to the acute clinical disease of human beings and dogs, leptospirosis in livestock presents as a chronic infection, that leads to reproductive problems such as abortions, early embryonic death and stillbirths, with important economic hazards (Ellis, 2015). Nevertheless,

for a better understanding of that reproductive disease, experimental acute infection on hamsters is of limited value, and experimental chronic infection would be much valuable.

Throughout the 1970s and 1980s, several studies were devoted to investigating the effects of *Leptospira* infection on the genital tract of cattle. In this context, pregnant cows were inoculated by different vias and with different strains. These studies revealed that abortion did not occur in all infected animals, but that leptospires were present in all abortions. Stillbirths and weak calves have also been reported in addition to metritis (Ellis and Michina, 1977; Thiermann, 1982). Besides, most of the time the clinical signs were mild (Nervig et al., 1978; Aycardi et al., 1982).

Although ruminants may be infected by different leptospiral strains, the majority of them determine acute infection. In contrast, members of serogroup Sejroe seems to be prevalent on chronic infection (da S. Pinto et al., 2016). Serovars of this serogroup such as *L. interrogans* Hardjoprajitno and *L. borgpetersenii* Hardjobovis are the most prevalent in

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