Prevalence of canine leishmaniasis in the municipality of tabira, Pernambuco, Brazil

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ABSTRACT

Canine visceral leishmaniasis (CVL) is a zoonosis of great public health relevance, influenced by the presence of the vector and the maintenance of infected dogs. This study analyzed the frequency of CVL in Tabira-PE between 2022 and 2024, totaling 250 dogs examined. The results showed variable prevalences: 40.4% in 2022, 17.6% in 2023, and 38.6% in 2024, indicating fluctuations possibly related to environmental, methodological factors, or the dynamics of transmission. The overall prevalence of 28% reinforces the need for continuous surveillance, diagnostic standardization, and integrated control actions, aligned with the One Health concept.

Keywords: One Health System. Active Surveillance. Zoonoses.

1 INTRODUCTION

Leishmaniasis is a non-contagious infectious disease caused by various species of protozoa of the genus Leishmania, which presents different clinical and epidemiological manifestations within zoonotic transmission cycles. Canine visceral leishmaniasis (CVL), also known as kala-azar, affects humans, canids, and both domestic and wild animals (Vieira; Figueiro, 2021). Transmission occurs through the bite of female phlebotomine sandflies (*Lutzomyia longipalpis*). The parasite undergoes only an asexual cycle, and the incubation period may range from three months to several years. The vector is an invertebrate, while the hosts are vertebrates primarily dogs and humans (Freitas, 2022). The disease may manifest in diverse forms, from mild presentations with few symptoms to severe cases that affect the immune system and may be fatal if not properly treated. The relevance of CVL extends beyond veterinary importance, as its persistence in canine populations directly increases the risk of human visceral leishmaniasis, highlighting the need for integrated public health and epidemiological surveillance actions (Vieira; Figueiredo, 2021). The circulation of Leishmania infantum and the widespread presence of the vector in Brazil have contributed

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to the expansion of CVL into urban and peri-urban areas over recent decades, placing the country as one of the major contributors to the caseload in the Americas. Regional variations in prevalence are influenced by factors such as socioeconomic conditions, dog population density, environmental management, and the scope of control measures (Rocha *et al.,* 2018). A dog may remain clinically healthy for long periods while still acting as a reservoir. In the environment, the vector feeds on an infected animal, ingests the amastigote form of the parasite, and converts it into the promastigote form, perpetuating the life cycle and maintaining the risk of transmission (Pereira, 2025). From an epidemiological perspective, canine cases precede human cases, as early diagnosis in dogs may lead to the implementation of preventive measures and treatment strategies that help protect both canine and human populations (Araújo *et al.,* 2016).

2 OBJECTIVE

To report the frequency of canine leishmaniasis cases in the municipality of Tabira, Pernambuco, Brazil.

3 METHODOLOGY

This study is a retrospective, descriptive, documental, and quantitative investigation covering the years 2022, 2023, and 2024 in the municipality of Tabira, Pernambuco. Data were obtained from the

Epidemiological Surveillance Service of the Municipal Health Department. The study area included rural and urban regions where visceral leishmaniasis transmission occurs. Information was collected from the records of 250 domiciled dogs (*Canis familiaris*). These dogs underwent blood collection performed by the official veterinarian of the Epidemiological Surveillance Service between January and December of 2022, 2023, and 2024. Data were analyzed using Excel® 2016 and simple descriptive statistics.

4 DEVELOPMENT

Em 2022 In 2022, 42 dogs were examined, of which 17 tested positive (40.4%). In 2023, 130 dogs were tested, with 23 positives (17.6%). In 2024, 78 dogs were examined, and 30 were positive (38.6%). In total, 250 dogs were tested, and 70 showed positive results, corresponding to an overall prevalence of 28%. These results reveal year-to-year variability marked by two high peaks (2022 and 2024) and a significant drop in 2023, suggesting that

sampling, scheduling, or environmental factors may have influenced the outcomes. This pattern aligns with studies from the Northeastern region, which describe broad spatial and temporal heterogeneity in CVL prevalence, even within the same municipality. Research conducted in the Pajeú region of Pernambuco indicates the presence of local hotspots, where prevalence varies widely depending on spatial focus and sampling period (Evaristo *et al.,* 2020). Therefore, annual variation in Tabira may reflect real changes in transmission dynamics or methodological fluctuations related to sampling design. Beyond sampling differences, methodological aspects such as serological test types, diagnostic criteria, and epidemiological characteristics of tested animals often influence prevalence estimates. Evaristo *et al.* (2020) and other studies emphasize that variability in test sensitivity and specificity, as well as demographic profiles of sampled dogs, can produce fluctuations in annual rates, accounting for the higher prevalence in 2022 and 2024 compared to 2023. The overall prevalence of 28%, with rates near 40% in two years, highlights the need for targeted actions such as: standardization of surveillance methodologies; detailed spatial mapping to identify clusters of positive dogs; evaluation of the coverage and impact of preventive measures, including educational campaigns; integration of animal, human, and vector surveillance, as recommended by regional studies that highlight the importance of continuous monitoring and intersectoral strategies to reduce transmission and ensure reliable temporal comparisons (Machado *et al.,* 2023).

5 FINAL CONSIDERATIONS

The results underscore the importance of continuous surveillance, standardized diagnostic methods, and integration between animal and public health actions within a One Health framework. Given the zoonotic significance of CVL, it is essential to consolidate prevention and control strategies, such as systematic monitoring of stray dogs and educational campaigns for the population to promote awareness and prevent disease dissemination. Additionally, the active involvement of epidemiological surveillance services and environmental agencies is crucial in reducing risks associated with this zoonosis. The findings of this study contribute to understanding the epidemiological situation of CVL in the municipality of Tabira and reinforce the need for an adaptive and preventive approach to effective disease control.

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