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Canine Ehrlichiosis in a Two-Year-Old Dog: A Clinical Case Report

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Abstract **Case Studies**

Canine ehrlichiosis is a tick-borne haemoparasitic disease caused by *Ehrlichia canis* and transmitted by *Rhipicephalus sanguineus*. It is a significant pathogen in Nigeria, affecting dogs and posing zoonotic risks. A two-year-old female Eskimo dog weighing 5 kg was presented to the Veterinary Teaching Hospital, University of Ibadan, with a chief complaint of anorexia and weight loss. The clinical examination revealed a mild fever (39.5°C), pale mucous membranes, and asthenia. Giemsa-stained blood smears showed cytoplasmic morulae of *E. canis* within monocytes, confirming the diagnosis. The dog was administered oxytetracycline 5% (10 mg/kg IV q24h for 5 days), vitamin B-complex (1 mL/5 kg IM q24h for 5 days), and ivermectin (0.5 mg/kg SC single dose). The appetite and weight improved within three days; full recovery was achieved by two weeks post-treatment. This case highlights the importance of prompt diagnosis and appropriate treatment of *E. canis* infection in endemic regions, as well as the need for regular tick control, and owner vigilance to prevent occurrence and recurrence of disease.

Keywords: Canine ehrlichiosis, *Ehrlichia canis*, Nigeria, Oxytetracycline 5%, Tick-borne disease, Zoonosis.

Introduction

Canine ehrlichiosis is a life-threatening, immunosuppressive, tick-borne haemoparasitic disease of dogs caused primarily by *Ehrlichia canis*, a Gram-negative, obligate intracellular bacterium of the family Anaplasmataceae (Diniz and de Aguiar, 2022). The brown dog tick, *Rhipicephalus sanguineus*, is the principal vector (Foley *et al*., 2025); recent work has highlighted its role in transstadial transmission and the importance of tick control measures to limit spread (Ferrolho et al., 2025). Clinical manifestations range range from acute fever and anorexia to chronic pancytopenia and death (Verma et al., 2024). Globally, *E. canis* is endemic in tropical and subtropical regions (Ramakant *et al.*, 2020), and in Nigeria it ranks among the top three canine haemoparasites, following babesiosis and trypanosomiasis (Takeet, 2021; Vonkur *et al*., 2023). The prevalence is high in urban areas with poor tick control. Although no breed, age, or sex predilection is evident, German Shepherd

Dogs often exhibit more severe clinical manifestations due to an inadequate immunological response (genetic immune factors) (Mylonakis and Theodorou, 2017).

Zoonotic potential is noteworthy; *E. canis* has been implicated in human monocytic and granulocytic ehrlichiosis, underscoring its public health relevance (Peter, 2020). Key risk factors include heavy tick infestation, outdoor housing, and contact with infected dogs (Cordeiro *et al*., 2020). This report details a clinical case of *Ehrlichia canis* infection in a two-year-old female Eskimo dog, diagnosed and treated at the Veterinary Teaching Hospital, University of Ibadan, Nigeria.

Case Presentation

A two-year-old female Eskimo dog named Luna, weighing 5 kg, was presented to the Veterinary Teaching Hospital, University of Ibadan, Ibadan (Figure I) with a history of anorexia and weight loss. According to the owner, the dog had exhibited reduced appetite and progressive weight loss over the preceding two weeks. The dog's diet consisted primarily of homemade food, leftovers, chicken bones, and commercial canned dog food. There was no history of tick control measures or routine deworming prior to presentation.

Figure I: Photograph of *Luna* in a kennel

Clinical Results

During the physical examination, the patient presented with a temperature of 39.5°C (mild pyrexia), a heart rate of 120 beats per minute, and pale mucous membranes, accompanied by significant weakness, mild lethargy, tick infestation, and a suboptimal body condition score. These results pointed to a possible hemoparasitic infection, which led to a temporary diagnosis of hemoparasitism.

Diagnosis

A Giemsa-stained peripheral blood smear revealed characteristic cytoplasmic morulae of *Ehrlichia canis* within monocytes under the light microscope, thereby confirming the diagnosis of canine ehrlichiosis as seen in Figure II

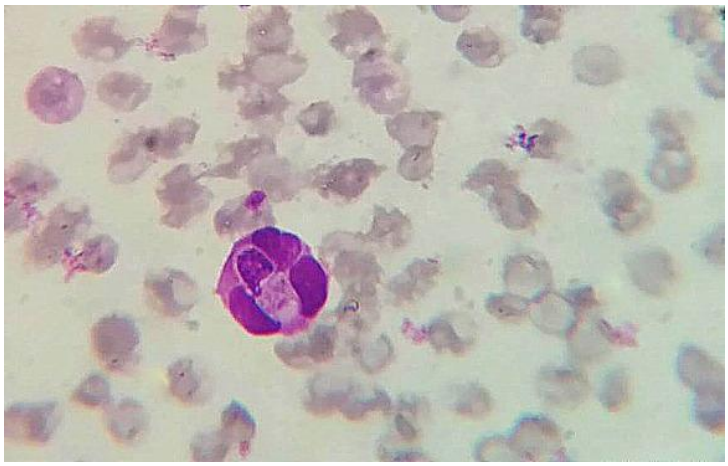

Figure II: Microscopic examination of the blood

Treatment and results

The animal was treated with the following therapeutic protocol: For *E. canis* treatment, 5% oxytetracycline was administered at a dosage of 10 mg/kg IV q24h for five days, vitamin B-complex at a dose rate of 1 mL/5 kg IM q24h for five days, and ivermectin at 0.5 mg/kg subcutaneously once for tick control. Within three day, clinical improvement was noted, including increased activity and appetite. By day five, mucous membranes had normalized, and body condition was improving. At the two-week follow-up, the dog had fully recovered with no signs of the disease recurrence.

Discussion

Canine ehrlichiosis, caused by *Ehrlichia canis*, remains a significant vector-borne disease in tropical regions like Nigeria. The case illustrates the chronic phase, characterized by anemia, anorexia, and weight loss, likely exacerbated by delayed treatment (Kalundia, 2024).

Microscopy (Giemsa stained smears) is a cost effective but may not be sensitive enough for subclinical infections. Serology (ELISA) and PCR are gold standards for confirmation and strain differentiation (Ferrero *et al.*, 2025).

The dog's rapid response to oxytetracycline therapy corroborates previous findings that tetracyclines remain one of the most effective treatments for *E. canis* infections (Mauri Pablo *et al.*, 2025). Adjunct vitamin B-complex therapy facilitated hematopoietic recovery and appetite stimulation, while ivermectin significantly reduced tick burden, thereby averting re-infestation (Evans *et al.*, 2024). Environmental sanitation, consistent tick control measures, and heightened public awareness among dog owners continue to be essential preventive strategies (Ristić and Višnjić, 2025). Veterinarians should prioritize ehrlichiosis in dogs with anemia or thrombocttopenia in endemic areas (Calouro *et al*., 2025).

This case reinforces the need for prompt diagnosis, targeted therapy, and preventive strategies to manage *E. canis* in tropical regions.

Conclusion

This case highlights the clinical presentation and diagnostic features of canine ehrlichiosis in Nigeria, emphasizing the critical importance of early detection and prompt antibiotic intervention. The rapid response to oxytetracycline underscores the efficacy of tetracyclines in managing *Ehrlichia canis* infections. Given the zoonotic potential and widespread distribution of *Rhipicephalus sanguineus*, continuous surveillance, improved diagnostics, and public education on tick control are essential to curb diseases spread and mitigate risks to human death. Veterinarians in endemic region should maintain a high index of suspicion for ehrlichiosis, particularly in dogs with compatible clinical signs. Integrated One

Health strategies, including vector management and community outreach, are keys to reducing the impact of this tick-borne disease in Nigeria and similar tropical environments.

Conflict of interest: The authors declare no conflict of interest

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Authors' Contributions

O.V.M. and O.M.T. followed up on the case, drafted and revised the manuscript. E.J.O. and O.A.A. managed the case, and performed clinical examinations. All authors read and approved the final version.

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