

# *Ehrlichia canis* with unusual body temperature and abnormal lung sounds

Okkasha Ejaz<sup>1\*</sup>, Kashif Hussain<sup>2</sup>, Hifz ur Rehman<sup>1</sup>, Muhammad Usama<sup>1</sup>, Muhammad Yasir Murtaza<sup>1</sup>, Mahnoor Fatima<sup>1</sup>, Furqan Khalid<sup>1</sup>, Abdullah Sadiq<sup>1</sup>

1. Faculty of Veterinary Sciences, Cholistan University of Veterinary and Animal Sciences, Bahawalpur, Pakistan.
2. Department of Medicine, Cholistan University of Veterinary and Animal Sciences, Bahawalpur, Pakistan.

\*Corresponding author: [okkasha2019@gmail.com](mailto:okkasha2019@gmail.com)

## ABSTRACT

Canine monocytic ehrlichiosis, a tickborne disease caused by *Ehrlichia canis*, poses a significant health risk to dogs. Additionally, the study explores the impact of this alpha-proteobacterium on the hematological parameters of an affected dog, investigating associated risk factors. The case involves a 2.5-year-old mixed breed dog exhibiting clinical signs, such as subnormal temperature, respiratory distress, and abnormal lung sounds. Laboratory tests, including a thin blood smear, confirm *E. canis* infection. Treatment with oxytetracycline and ondansetron, along with supportive measures, results in a positive prognosis. The discussion emphasizes the unique presentation of subnormal temperature and the successful therapeutic approach employed. The conclusion advocates considering antibiotics, with or without imidocarb, for treating acute and chronic *E. canis* infections.

**Key words:** *E. canis*, tick borne, mononuclear cells, oxytetracycline, subnormal temperature

### Introduction:

Canine ehrlichiosis is usually caused by the *rickettesia ehrlichia canis*, although other types of *ehrlichia* are sometimes involved[1]. *Rickettesia* are specialized type of bacteria that live only inside the other cells[1]. The infection is carried by vectors (ticks), the organisms infect a certain type of cell called monocytes and causes fever and other signs[1]. Dogs do not directly transmit this infection to each other. The disease is maintained by a cycle of transmission between ticks and dogs[2]. The incubation period of canine ehrlichiosis ranges from 8-20 days, after which clinical entity reveals 3 phases: acute, subclinical, and chronic[3]. This infection leads to periodic loss of platelets which causes problems with blood clotting. Signs include fever, swelling of lymph nodes, pale gums, anemia, splenomegaly, hepatomegaly, inflammation in lungs, coughing, difficulty in breathing and reluctance to walk[1]. Normally, protozoal infections cause high fever but, in this case, we observed subnormal temperature.

### Case Presentation:

A 2.5 years old mixed breed dog is presented at Veterinary Teaching Hospital CUVAS, Bahawalpur Pakistan with the history of off feed from 3days, searching for hot place, dull, depressed, vomiting, abnormal lung sound whechi are observed by stethoscope. The owner was feeding him milk and wheat tortillas. In clinical Examinations we found swollen lymph node, temperature is subnormal (98°F), respiration rate 15brpm and the pulse was 80bpm. In laboratory tests, thin blood smear test was performed, monocytes rarely contain cytoplasmic morula consistent with *E. canis*



### Treatment Plan:

After confirmatory diagnosis of *E. canis*, the dog is treated with the best choice

Oxytetracycline (Duralin, Mylab Pakistan) @10mg/kg BWT IM[4]

Ondansetron (onset, Pharmedic Laboratories Pvt Ltd) @0.5mg/kg BWT IV to avoid vomiting[4]

To prevent anemia and mineral deficiency we administered supplements.

The dog is off feed for about 3 days as presented in history, to resolve this we mixed Jetipar solution (liver tonic) in 500ml Ringer lactate solution and Omeprazole.

We follow this treatment for 5 days.

### Discussion:

Generally, in the treatment of Ehrlichiosis in Dog, Imidocarb Dipropionate (5-7 mg/kg) may be used with two doses 2 weeks apart, which is effective for some vector strains. But in this case, we did not use Imidocarb[5]

Abnormal lung sounds were found on auscultation which is common in *E. Canis* infection in dogs [6]. Ideally temperature remains high in case of blood parasites but in this case temperature was subnormal.

Laboratory tests are crucial to confirm *E. canis*. After performing thin blood smear test in laboratory we observed cytoplasmic morula like cells that confirmed the case of *E. canis* [7]. Further ticks were also found on the lateral side of ribs and under forearm.

With this treatment prognosis was good after 2 days and dog was improving continuously. Started feeding and was way more active than before.

### Conclusion:

Ongoing study findings conclude that the therapeutic applications for *E. Canis* should be considered with antibiotics with or without imidocarb administration in case of acute as well as chronic infection.

### Conflict of interest:

All authors have declared that there is no conflict of interest regarding publications of this case report.

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### References

- [1] Hoch H, Strickland K. Canine and Feline Dirofilaris: Life cycle, Pathophysiology, and Diagnosis
- [2] Bray, R. L., Walton, B. C., Moon, A. P., Duxbury, R. E., & Sadun, E. H. (1961). The Life Cycle of *Dirofilaria immitis* and Transmission to Wild and Laboratory Rabbits. *The Journal of Parasitology*, 47(1), 13-22.
- [3] Grandi G, Z'ivic' njak T, Beck R. Pathogenesis of *Dirofilaria* spp. Infections.
- [4] Mircean, M., Ioničă, A. M., Mircean, V., Györke, A., Codea, A. R., Tăbăran, F. A., Taulescu, M., & Dumitrache, M. O. (2017). Clinical and pathological effects of *Dirofilaria repens* and *Dirofilaria immitis* in a dog with a natural co-infection. *Parasitology International*, 66(3), 331-334.
- [5] Morchón, R., Carretón, E., González Miguel, J., & Mellado Hernández, I. (2012). Heartworm Disease (*Dirofilaria immitis*) and Their Vectors in Europe – New Distribution Trends. *Frontiers in Physiology*, 3, 23265.
- [6] Agampodi SB, Moreno AC, Vinetz JM, Matthias MA. Subcutaneous *Dirofilaria* (Dirofilaria repens): An infection spreading throughout the whole world. *Parasite Vectors*. 2017;10(1):272.
- [7] Bockarie MI, Kelly-Hope LA, Rebollo M, Molyneux DH. Preventing neglected tropical diseases in the new era of the Sustainable Development Goals. *Parasites Vectors*. 2016;9:213. doi:10.1186/s13071-016-1697-9.