- Ticks / Dogs

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EHRLICHIOSIS FROM TICKS

THE DAMAGE IT DOES TO A DOG'S KIDNEYS



By EMMANUEL D. MACAPAGAL, DVM

While any case of ehrlichiosis in Dogs may be viewed as a form of external parasite problem, there exists a large body of clinical experience that points out how it goes beyond that.



WHAT IS EHRLICHIOSIS?

It is a group of bacterial infections caused by ticks.





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FROM SKIN TO KIDNEY

As a practitioner of small animal medicine, I have personally handled Dogs with ehrlichiosis where a harmless tick infestation and mild anemia were the only clinically perceptible consequences. However, there were other Dogs who had to be given transfusions because of damage to their red blood cells. Eventually, their creatinine starts to rise, revealing damage to the kidneys.

This kidney damage after tick-borne disease doesn't happen abruptly; instead, it is a slow, progressive, and insidious process, a consequence of chronic parasitism that happens if certain factors remain unchecked.

Since the blood pathogens in ehrlichiosis harm blood cells, it is logical to believe that anemia is an obvious consequence. However, how does this lead to progressive kidney disease?



High creatinine levels after ehrlichiosis point to kidney damage.

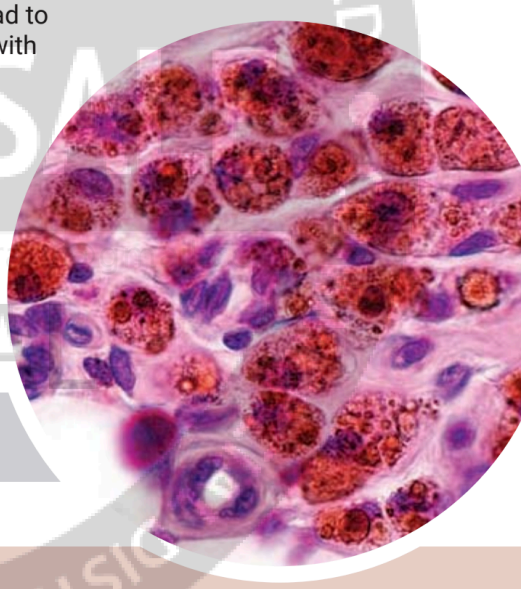
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EXAGGERATED INFLAMMATORY RESPONSE

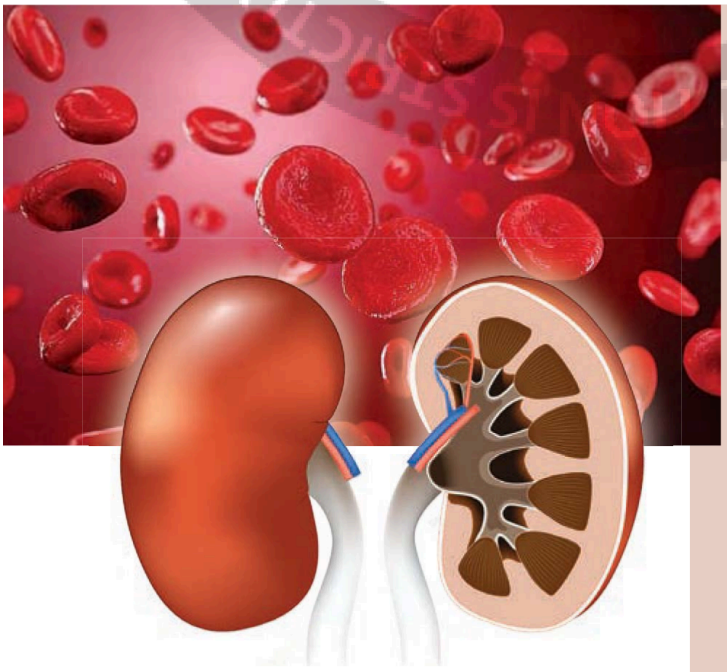
The microorganisms involved in ehrlichiosis can hide in white blood cells. The immune system is often prompted to manufacture antibodies as a response to the presence of the parasite as well as dying cellular debris.

A type of white blood cell called the macrophage breaks down other infected cells. Certain substances are then released that lead to more inflammation — it's as if a house on fire gets doused with accelerant instead of water.

Meanwhile, the bloodstream is filled with immune complexes, which form when antibodies attach to antigens in an attempt to fight the infection. As an unfortunate consequence, the immune complexes find their way to the kidneys, where they are deposited. This directly causes inflammation in the kidneys, eventually leading to tissue injury.



Macrophages can break down blood cells, leading to inflammation.



Kidneys produce erythropoietin that prompts the body to produce red blood cells. This is why damaged kidneys can lead to anemia

KIDNEY DAMAGE

People might not be aware that the kidneys are responsible for making erythropoietin, which triggers the production of red blood cells. When the kidneys are damaged, erythropoietin levels go down, fewer red blood cells are produced, and anemia gets worse. Shock is then not far behind.

What started as merely a tick infestation could end up as a life-threatening condition brought about by an exaggerated and out-of-place immune response.

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PREVENTION IS BETTER THAN CURE

Ticks don't just bite your Dog; they might be carrying bacteria that could lead to organ damage. To prevent serious disease, always practice vigilance against ticks.

The lesson here is to bring your Dogs to the vet regularly where they can get a spot treatment that gets rid of ticks and other insects.



ABOUT THE AUTHOR

Dr. Emmanuel D. Macapagal is the 2000-2001 president of the Philippine Animal Hospital Association, Inc. Twice, he was Chairman of the Council on Ethics of the Philippine Veterinary Medicine Association.

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