Mini Review

Canine rangeliosis due to Rangelia vitalii: From first report in Brazil in 1910 to current day – A review

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ABSTRACT

Canine rangeliosis (popular names: "nambú-uvá", i.e. "bleeding ears"; "peste de sangue", i.e. "bleeding plague"; and "fébre amarela dos cães", i.e. "yellow fever of dogs") is a tick-borne haemolytic and haemorrhagic disease caused by the protozoan parasite Rangelia vitalii which infects erythrocytes, leukocytes, and endothelial cells of blood capillaries. Rangelia vitalii was first reported as a novel piroplasm of dogs in 1910 in Brazil, a discovery that was met with skepticism at that time. Canine rangeliosis has been diagnosed in domestic dogs not only in Brazil but also in other South American countries (Argentina and Uruguay). Rangelia vitalii infection has also been found incidentally in wild dogs (Cerdocyon thous, the crab-eating fox). Despite the fact that researchers in the early 1900s suggested that R. vitalii was a hitherto unidentified piroplasm that would be transmitted by the tick Amblyomma aureolatum, it was not until 2012 that these hypotheses were actually confirmed by PCR and transmission studies. Molecular studies have shown that R. vitalii is related to the Babesia sensu stricto clade, but genetically different from other morphologically similar species of Babesia that infect dogs. Another difference between Babesia spp. and R. vitalii is the ability of R. vitalii to invade endothelial cells, erythrocytes, and leukocytes. Experimental infection in dogs has successfully reproduced the clinical picture and pathology of the natural disease. In this article, epidemiology, clinical signs, laboratory findings, pathogenetic mechanisms including oxidative stress and immune response, necropsy findings, microscopic lesions, diagnosis, and treatment of canine rangeliosis are reviewed. What is currently known about this protozoal disease since its first report over a century ago is presented herein.

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