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Case Report

Sudden Death in Bunnies: Evidence for Hepatic Coccidiosis Complicity

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Abstract

Several etiologies including dental problems, gastro-intestinal disorders, parasitic infestations, temperature changes, toxicity and fear have been suggested to be involved in rabbits' sudden death. Hepatic coccidiosis, a contagious and lethal disease due to Eimeria stiedae, can induce acute hepatic damages leading to death, especially in young rabbits. A 3-month-old female New Zealand White rabbit has been referred to the Diagnostic Pathology Laboratory, Faculty of Veterinary Medicine, Urmia University, Urmia, Iran with the history of sudden death without any clinical signs. The animal was autopsied and liver samples were harvested for histopathological analyses. Light microscopy studies of rabbit hepatic tissue revealed E.stiedae oocytes presence along with severe bile ducts hyperplasia and dilation, hyperemia and inflammatory cells infiltration in portal areas. Since young rabbits are more susceptible to the hepatic coccidiosis due to having a low immunity to this disease, careful preventive strategies should be taken into consideration in weaned and non-lactating/pregnant rabbits.

Introduction

Sudden rabbit death syndrome, death of rabbits with no preceding signs, can be caused due to several etiologies including stresses, intoxications and gastrointestino pathies as well as microbial infections [1]. Coccidiosis as a highly contagious protozoan infection can result in high mortality in rabbits [2]. The Eimeria species are causative parasites involving in two forms of coccidiosis including hepatic coccidiosis and intestinal coccidiosis observed in rabbits [3]. The hepatic coccidiosis is associated with Eimeria stiedae inhabiting hepatic bile duct cells leading to ductal blockage, liver dysfunction and eventually death [4]. Young rabbits are more susceptible to the hepatic coccidiosis, however infected adults ones can play a role of disease carriers [5]. Correspondingly, rabbit hepatic coccidiosis prevalence has been found to be 26.87%, 11.5% and 1.01% in Iran, Kenya and India, respectively [6-8].

Case Presentation

A 3-month-old female New Zealand White rabbit (Oryctolagus cuniculus) has been referred to the Diagnostic Pathology Laboratory, Faculty of Veterinary Medicine, Urmia University, Urmia, Iran with the history of sudden death without any clinical signs. The animal was autopsied and liver samples were harvested for histopathological analyses. Light microscopy studies of rabbit hepatic tissue stained with haematoxylin and eosin revealed E.stiedae oocytes presence along with severe bile ducts hyperplasia and dilation, hyperemia and inflammatory cells infiltration in portal areas (Figure 1).

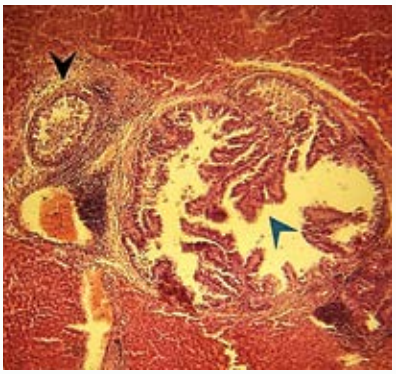

Figure 1: Photomicrograph of rabbit liver cross-section. The E.stiedae oocyte (black arrowhead) as well as bile duct hyperplasia and dilation (cyan arrowhead) can be observed. Haematoxylin and eosin staining, 100X.

Conclusion

Since young rabbits are more susceptible to the hepatic coccidiosis due to having a low immunity to this disease, careful preventive strategies including overcrowding reduction, adequate nutritional supplementation and anti-coccidial medication should be taken into consideration in weaned and non-lactating/pregnant rabbits.

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References

1. Harkness JE, Turner PV, Vande Woude S, Wheler CL. Harkness and Wagner's Biology and Medicine of Rabbits and Rodents. 5th ed. John Wiley & Sons. 2010:206.
2. El-Akabawy LM, Zayan KA, Tantawy AA, Omar REM. Anticoccidial efficacy of propolis and toltrazuril against Eimeria stiedae in New Zealand white rabbits. Zag Vet J. 2004;32(1):129-45.
3. Oncel T, Gulegen E, Senlik B, Bakirci S. Intestinal coccidiosis in Angora rabbits (Oryctolagus cuniculus) caused by Eimeria intestinalis, Eimeria perforans and Eimeria coecicola. YYU Vet Fak Derg. 2011;22(1):27-9.
4. Al-Mathal EM. Hepatic coccidiosis of the domestic rabbit Oryctolagus cuniculus domesticus L. in Saudi Arabia. World J Zool. 2008;3(1):30-5.
5. Sivajothi S, Sudhakara Reddy B, Rayulu VC. Study on impression smears of hepatic coccidiosis in rabbits. J Parasit Dis. 2019;40(3):906-9.
6. Tehrani AA, Yakhchali M, Beikzadeh B, Morvaridi A. Prevalence of rabbit hepatic coccidiosis in north west of Iran. Arch Razi Inst. 2013;68(1):65-9.
7. Okumu PO, Gathumbi PK, Karanja DN, Mande JD, Wanyoike MM, Gachuiri CK, et al. Prevalence, pathology and risk factors for coccidiosis in domestic rabbits (Oryctolagus cuniculus) in selected regions in Kenya. Vet Q. 2014;34(4):205-10.
8. Chacko N, George AJ, Gleeja VL, Vijayan N. Retrospective study on the incidence of coccidiosis in rabbits and goats. Indian Vet J. 2017;94(11):30-2.