

Canine distemper: an overlooked challenge of rabies mitigation in dogs in Sri Lanka

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Introduction and Objectives: Both rabies and canine distemper virus (CDV) infections can cause neurological manifestations in dogs. Greater attention is paid towards controlling rabies, as it is a fatal zoonotic disease, unlike CDV infection. As a result, when a dog presents with neurological signs, rabies is almost always suspected. This leads to taking immediate precautionary measures to avoid human infections, including post-exposure prophylaxis (PEP) for potentially exposed individuals, along with efforts to confirm rabies in the affected dog, placing a significant burden on the national health budget. However, according to the annual statistics of the National Rabies Control Programme in Sri Lanka, 30-45% of the dogs tested for rabies are found to be negative, suggesting the presence of other neurological conditions. This study was conducted to investigate the role of CDV infection in causing neurological manifestations in dogs that mimic rabies.

Methods: Brain samples from dogs suspected of rabies based on neurological signs, but tested negative by the fluorescent antibody test, were collected from the rabies diagnostic laboratories at the Medical Research Institute and the Faculty of Veterinary Medicine and Animal Science, University of Peradeniya. In total, 67 brain samples were collected during the period 2014–2016. The mid-sagittal half of each brain was fixed in 10% neutral buffered formalin, and sections from cerebrum, cerebellum, thalamus, hypothalamus and brain stem were processed for histopathological examination using H&E staining. The remaining half was subjected to insulated isothermal PCR (iiPCR) to test for CDV.

Results: CDV was detected in 17 brain samples (25% of total cases) with iiPCR. Histopathology of the CDV-positive brains revealed gliosis and/or perineuronal satellitosis, vascular congestion/haemorrhage, vacuolation, viral inclusions, and axonal degeneration, while five samples showed no detectable histopathological lesions.

Conclusion: The study disclosed that CDV infection is a significant disease entity clinically resembling rabies in dogs in Sri Lanka, accounting for approximately one-fourth of neurological cases among rabies-negative dogs. As a vaccine-preventable disease, CDV can be effectively controlled through vaccination, which is highly effective in preventing clinical disease. Therefore, preventing CDV infection in dogs could reduce clinically false-positive rabies cases by approximately one-fourth, lowering the costs associated with rabies diagnosis in dogs and PEP in humans.

Keywords: Canine distemper virus, CDV, dog rabies, neurological signs

Acknowledgement: Canada's International Development Research Centre (IDRC)

(Part of this work has been presented at the 71st Annual Scientific Sessions of the Sri Lanka Veterinary Association, 28/06/2019)

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