

Confirmation of Rabies in a Stray Dog in Umuahia, Nigeria – A Case Report

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1. Abstract

Rabies is an important zoonotic disease and the increased numbers of stray dogs constitute a constraint on the prevention of human cases in Nigeria. This report reaffirms that rabies is endemic in Nigeria and stray dogs constitute a risk to humans. A stray Nigeria indigenous dog was presented to the Veterinary Teaching Hospital, Michael Okpara University of Agriculture, Umudike Nigeria with clinical manifestations of salivation, delirium, maniac and attack displays. It was quarantined for a period of 14 days, clinical manifestations persisted and a presumptive diagnosis of end stage furious form of rabies was made. The dog was then humanely euthanized, brain sample was collected and taken to the National Veterinary Research Institute (NVRI), Vom, Nigeria for rabies virus detection using direct fluorescent antibody test (DFAT). Result revealed that brain sample was positive for canine rabies depicted by apple green fluorescence. In conclusion, the stray dog was confirmed to be positive for rabies. To the authors' knowledge, this is the first report of confirmed rabies case in a stray dog in Umuahia, Nigeria. Hence, there should be intense public

awareness on the danger of rabies since the disease remains a public health concern in Nigeria.

2. Keywords: Rabies; Zoonotic; Stray Dog; Umuahia; Nigeria.

3. Introduction

Rabies is a widely distributed viral zoonosis which affects human, domestic and wild animals. Dogs (*Canis familiaris*) play a pivotal role both as a reservoir and transmitter of the disease to humans. With over 3 billion of the world's populations living in countries where rabid dogs exist [1,2], incidence of human rabies remains a persistent epidemic. An estimate of 59,000 human deaths per year in low income countries have been reported due to the disease thus indicating a global public health concern, [3, 4]. In Nigeria the actual human rabies cases and those officially reported are in great deficit because of under reporting resulting from inadequate rabies diagnostic units and cultural beliefs. This has caused the disease to suffer serious neglect by relevant authorities and subsequently attracted poor assistance

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from international communities and donor agencies [5]. The aim of this case report is to reaffirm that rabies is endemic in Nigeria, stray dogs constitute a risk to humans and to awaken a sense of urgency for rabies control by collaboration of Veterinarians and human health care professionals.

4. Case Report

An adult stray Nigeria indigenous dog was identified in one of the busy streets of Umuahia, Abia State, Nigeria with manifestations suspected to be classical of furious form of rabies. The dog was properly restrained and taken to the Veterinary



Plate I: Suspected rabid stray Nigeria indigenous dog properly restrained by means of a dog catcher in the street of Umuahia, Abia State, Nigeria.

Teaching Hospital, Michael Okpara University of Agriculture, Umudike, Abia state, Nigeria. On physical examination, the dog had body score of 3 and clinical signs observed were salivation, overt aggression, attack behavior, and hypersensitivity to light, sudden sound and water.

The dog was quarantined for a period of 14 days, after which it was humanely euthanized due to persistence of clinical signs. Following euthanasia, brain sample was collected as described by Barrat and Blancou [6], and taken to the National Veterinary Research Institute (NVRI) Vom, Plateau State Nigeria for rabies virus detection.

The brain sample was tested for the presence of rabies virus (RABV) antigen using direct fluorescent antibody test (DFAT) as described by Dean et al [7]. Monoclonal fluorescein isothiocyanate-labeled anti-rabies virus antibodies FITC (Fujirebio Diagnostics Inc., Malvern, Pennsylvania PA USA) and polyclonal antibody-conjugate (Bio-Rad, Australia) were used.

Positive result produced apple green fluorescence

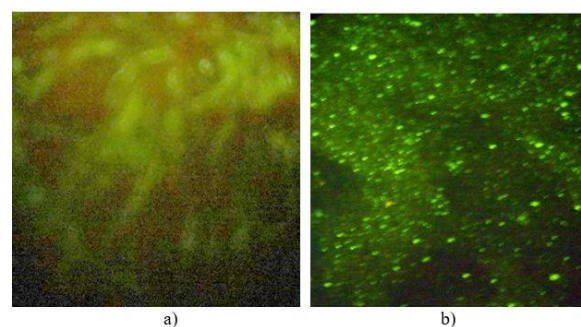


Plate II: DFAT - negative control (a) with no apple green fluorescence; and brain sample of stray dog (b) showing apple green fluorescence indicating positive for rabies virus.

indicating presence of RABV.

5. Discussion

The detection of rabies virus in a stray dog in this study suggests that rabies is endemic in Umuahia, Nigeria. Rabies is a viral disease caused by a neurotropic virus of the genus *Lyssavirus* in the family *Rhabdoviridae* and affects all mammals including humans [8]. The disease is widespread in African domestic dogs and certain wild canine populations [9]. Rabies virus is transmitted from infected dogs to humans through bites, scratches or licks on damaged skin or mucous membranes [10]. The virus has affinity for nervous tissues, migrates centripetally into brain (causing encephalomyelitis) and then centrifugally to the peripheral and autonomic nervous systems, glands and other organs [11]. Clinical signs of rabies include aggression, abnormal barking, pica appetite, laryngeal paralysis, excessive salivation, tremors, ataxia, and generalized seizures [12, 13]. Diagnosis of rabies is based on clinical signs, history of exposure, epidemiological information and laboratory tests [14].

In Nigeria, rabies virus has been detected in apparently healthy dogs in Maiduguri [15], Plateau State [16], Yola [17], Aba, Abia State [18] and Taraba State [19, 20]. Dog bite cases by apparently healthy dogs and other dogs is common in Nigeria.

In a retrospective study, offending dog bite cases of 6 % was recorded in Abia State, Nigeria (same state were this case is been reported) though suspected of

rabies but with no confirmatory diagnosis [21]. The complete eradication of this zoonosis in Nigeria is limited by the high density of stray dogs due to absence of leash laws and poor anti-rabies vaccination cover [22 – 24].

In conclusion, this report confirms the first case of rabies in a stray dog in Umuahia, Nigeria. Since rabies is endemic in Nigeria, there should be extensive awareness on the zoonotic and public health

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implications of the disease. Also, intensive efforts toward the establishment of laboratory facilities for rabies diagnosis should be enhanced. The imposition of laws ensuring the routine vaccination of dogs against rabies and restricting the movement of stray dogs should be further enhanced.

Conflict of Interest

The authors declare no conflict of interest.

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