



Rabies in 5 Months Old German Shepherd

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Authors' contributions

This work was carried out in collaboration between all authors. Author CSU wrote the draft of the manuscript. Author NK managed the literature searches. Authors COO-K and PPM designed the figures, managed literature searches and contributed to the correction of the draft. Author CFO provided the case, the figures and supervised the work. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Aim: The study was carried out to confirm a suspected case of rabies in Ubakala area of Abia State and to highlight the public health consequences.

Place and Duration of Study: Veterinary Teaching Hospital, Michael Okpara University of Agriculture, Umudike and National Veterinary Research Institute (NVRI) Vom.

Methodology: A 5-month-old-German shepherd drooling saliva was presented in a state of shock, lateral recumbency, with no vaccination history, severe dehydration and anorexia. The history also revealed that the dog was bitten by a stray dog two weeks ago and had been unable to chew or masticate few days before presentation. On the process of clinical examination, the dog died on the examination table. At necropsy the brain was extracted, stored in 50% glycerol and sent to National Veterinary Research Institute (NVRI), Vom for confirmatory diagnosis.

Results: Rabies was confirmed using direct rapid Immunohistochemical (IHC) test by detecting

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rabies antigen on the brain sample.

Conclusion: A confirmed case of canine rabies in Ubakala area of Abia State.

Keywords: Rabies; dog bite; saliva; lyssavirus; post exposure.

1. INTRODUCTION

Rabies virus is one of the lyssaviruses and causes an acute viral encephalomyelitis that is invariably fatal. Worldwide, there are estimated to be over 10 million human exposures to rabies with approximately 55,000 rabies deaths a year, almost half of which occur in Africa. These pose a significant public health burden with an estimated annual cost of \$583.5 million and deaths from rabies being responsible for an estimated 1.74 million disability-adjusted life years, lost each year [1]. Transmission is through the saliva of an infected animal introduced usually via a bite penetrating the skin. Dogs are the most common source, accounting for 96% of human rabies cases [2]. The virus may also be transmitted by wild animals such as bats, foxes and wolves. The incubation period in humans is generally between 3-8 weeks but is highly variable and has been described from a few days up to several years in rare cases. In contrast, signs of rabies in animals usually develop within 4-7 days [3]. Experimental and historic evidence indicate that dogs, cats, and ferrets shed virus a few days before clinical onset and during illness. Clinical signs of rabies include inappetence, dysphagia, cranial nerve deficits, abnormal behavior, ataxia, paralysis, altered vocalization, and seizures. Progression to death is usually rapid and there are currently no known effective antiviral drugs against rabies.

Rabies is still endemic and it is the most important zoonotic disease in the country [4]. According to Okoh [5], it is estimated that average of 10,000 Nigerian are exposed to rabies annually through dog bite. Early diagnosis of rabies is essential to eliminate the expense and discomfort of unnecessary diagnostic tests and inappropriate therapy [6]. Cases of rabies in humans and dogs in Nigeria were first documented in 1912 and 1925, respectively [7]. Many authors have continued to report cases of rabies [8,9,10,11], suggesting that the disease is endemic in Nigeria. Several cases of dog bite have been recorded in Umuahia and Aba Zonal Veterinary Clinics [12,13], but none of the dogs incriminated was confirmed rabid using appropriate diagnostic technique. Thus this study presents a confirmed case of canine rabies in Ubakala area of Abia State, Nigeria.

2. CASE HISTORY

A 5-month-old German shepherd was presented to Veterinary Teaching Hospital, Michael Okpara University of Agriculture Umudike in a state of shock, lateral recumbency, severe dehydration, anorexia and salivation. The dog was not vaccinated against rabies and the owner reported that the dog lived in an unfenced house and was bitten by a stray dog two weeks before presentation. Prior to presentation (three days) the dog was unable to chew and masticate and was drooling saliva profusely.

On the process of clinical examination the dog died on the examination table. The carcass was sent to the necropsy room of the hospital. At necropsy it was discovered that there was no buccal swelling or foreign body lodgment in the buccal cavity. The brain was then extracted, stored in 50% glycerol and sent to National Veterinary Research Institute (NVRI), Vom for confirmation of rabies. A direct rapid Immunohistochemical (IHC) test was used to confirm rabies by detecting rabies antigen on the brain sample.

3. RESULTS AND DISCUSSION

Based on the history, clinical presentation and the result of (IHC) test, the dog was confirmed to be rabid. Mortality of the dog was recorded on day 14 post exposure, thus running 12-14 days course from the first day of exposure, manifestation of clinical signs and death. The post mortem lesions revealed emaciated carcass, lock jaw with a protruded tongue. Among the several cases of dog bite recorded in Abia State, most of the dogs incriminated were unvaccinated stray dogs that were never isolated for rabies investigation and confirmation. Rabies virus has also been detected in the saliva and brain of apparently healthy dogs slaughtered for human consumption in Abia State [14]. The detection of rabies virus in these dogs and increased rate of dog bite in the state pose worry and is of great public health concern in the state especially among the illiterate and rural dwellers. The owner of the dog was referred to Federal Medical Centre Umuahia for post-exposure prophylaxis considering the public health

implication of rabies and the fact that he had contact with the dog's saliva when trying to dislodge suspected foreign body in the buccal cavity. It is recommended that all patients with significant exposure to suspected rabies virus should start rabies post-exposure prophylaxis as soon as possible. Exposure includes a bite breaking the skin and contact with saliva on the mucus membranes or a previous skin lesion where the skin barrier has been disrupted [15]. Unprovoked bites from agitated dogs are obviously a high risk but the animal may also be paralyzed or recumbent. If in doubt, treatment should be started immediately and discontinued if the animal is still healthy after ten days. If the animal cannot be identified, the full course of the treatment should be given. Current post-exposure treatment includes immediate good irrigation of the bite wound with soap and water and the application of iodine. Bacterial infection should be treated with suitable antibiotics and tetanus immunization given if required. All clinical cases of human rabies represent either a failure to recognize the exposure to a rabid dog and absent or inadequate post-exposure prophylaxis which if administered correctly is highly effective at preventing rabies infection [16].

The most effective and cost-effective strategy of reducing rabies incidence is the control of dog populations and mass rabies vaccination of dogs [17,2]. This needs consistent advocacy in countries such as Nigeria where rabies is still endemic due to inadequate dog control measures. Evidence shows that mass vaccination of domestic dogs within Africa is feasible and cost-effective in preventing human rabies cases [18]. Rabies prevention and control also include ongoing public education, responsible pet ownership, routine veterinary care and professional continuing education. Human and animal exposures to rabies can be averted by mass education, concerning rabies transmission, routes of infection, avoiding contact with wild animals and appropriate veterinary care of animals especially pets. Immediate recognition of possible exposure and seeking medical attention are quite essential and reporting to public health authorities is highly recommended for prevention and control.

4. CONCLUSION

Rabies virus and dog bite should be seen as a serious public health threat in the state. Annual mass vaccination of dogs in the state should be encouraged. Pre-exposure prophylaxis is also recommended for anyone with increased risk of

exposure to rabies virus. Laboratory workers dealing with rabies virus, Veterinarians and animal handlers should be the main target.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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