

3 ZOOBOTIC AND VECTOR-BORNE DISEASES

a Rabies

Two cases of human rabies have been laboratory confirmed at the NICD-NHLS for South Africa in 2015 to date. The case details are reported below.

Human rabies cases in KwaZulu-Natal Province and Limpopo Province

Case one

A 57-year old man from the KwaHlabisa area in Umkhanyakude District Municipality, northern KwaZulu-Natal Province (KZN). The patient's home village is located between the Hluhluwe and Umfolozi game reserves, about 40 km north-west of Mtubatuba. In February 2015, a stray dog entered his yard and attacked his dogs. Whilst trying to separate the fighting dogs, he was scratched on his right hand. Thereafter, the stray dog repeatedly entered his yard, and eventually he killed the dog. The patient self-treated his injury at home and did not present to a healthcare facility for rabies post-exposure prophylaxis (PEP). In mid-March, he complained of headaches and pain at the healed wound site; he consulted a traditional healer who suspected rabies and referred him to a hospital in Empangeni, about 85 km south-east from the patient's home. He was admitted on 20 March 2015 with clinical symptoms suggestive of rabies, including anxiety, confusion, hydrophobia, restlessness and pain at the healed wound site. He deteriorated rapidly and died on 22 March. The diagnosis of rabies was confirmed after testing of post-mortem brain and skin samples at the NICD. Rabies antigen was observed in brain sample using the direct rabies fluorescent antibody test, and a RT-PCR test performed on the skin sample was positive

Case two

A 70-year-old male who lived and worked at a church in Polokwane, Limpopo Province, was bitten by a dog at the church premises on 16 February 2015. The case-patient did not seek medical treatment following the dog bite and therefore did not receive rabies PEP. He presented to a hospital in Polokwane on 04 April 2015 with nausea, vomiting and confusion. On examination, the patient was reported to be very anxious and irritable, with features suggestive of encephalitis. He also showed typical hydrophobic spasms when offered a drink of water. The patient developed seizures and rapidly progressive encephalopathy and died two days later. Post-mortem brain samples were submitted for rabies testing, and tested positive confirming the clinical

diagnosis.

Discussion

In South Africa (as in the rest of Africa), infected dogs are the major source of human rabies cases. Control of rabies in dogs is therefore a critical intervention in preventing rabies in humans, and vaccination of dogs is more cost-effective overall compared to other preventive interventions. However, adequate vaccine coverage ($\geq 70\%$) in dog populations must be maintained in order to effectively reduce the circulation of rabies virus. At present, vaccine coverage rates in dog populations within peri-urban and rural communities are usually low, given prevailing technical and financial resource constraints. This constitutes a major challenge in such areas; the typically high dog population turnover seen in such communities coupled with low dog rabies vaccine coverage has resulted in the increased risk and incidence of human rabies in peri-urban and rural areas. In addition to routine dog vaccination activities, annual mass vaccination programmes are encouraged to boost overall vaccine coverage to ensure rates of $\geq 70\%$. The phenomenon of increasing numbers of animal and human rabies cases directly following a decrease in vaccination efforts is unfortunately a well-established fact and has been proven numerous times in the South African context. For example, in 2012 a serious outbreak of canine rabies in the Ladysmith area of KZN resulted in at least four fatal human cases. Rabies vaccination campaigns in the area had been disrupted for several months the previous year owing to the diversion of resources to manage an outbreak of Foot and Mouth Disease in early 2011. Dog rabies vaccination campaigns resumed in response to the outbreak, resulting in a dramatic decrease in animal cases. The number of confirmed dog rabies cases in KZN has declined from 473 cases in 2007 to 38 in 2014. Case one in this report is the first laboratory-confirmed human case from KZN reported since March 2013. It is important for government, veterinary and human healthcare professionals, and members of the public to be aware of and vigilant for rabies. Rabies PEP is almost 100% effective at preventing rabies in humans, and any rabies death represents a healthcare system failure. In the event of exposure to a suspected rabid animal, members of the public should know to seek treatment regardless of the severity of the injury, and healthcare professionals need to be able to perform a risk assessment and decide on appropriate management.

Dog rabies case in Gauteng Province, April 2015

In the week of 20 April 2015, rabies was laboratory-confirmed as the cause of illness in a dog resident in Helderkruijn (Roodepoort area), Gauteng Province. Rabies virus was isolated on post-mortem brain specimens, and molecular typing of the virus is underway. The dog-owner's son was identified as the only possible human exposure associated with this case; although he had no obvious injuries or bites, he was possibly exposed to the rabid dog's saliva. He received rabies PEP immediately. It was reported that during the past seven years the dog remained on the owner's property and had never left the property. A sudden change in the dog's behavior prompted the suspicion of rabies, given that the animal's rabies immunisation was not up to date.

Further investigations with regards the source of rabies infection in this case and search for other possible exposures related to the dog are underway. Animal rabies vaccination campaigns in and around the Roodepoort area are ongoing and pet owners are encouraged to take their pets to the nearest veterinary clinic to ensure that they are vaccinated accordingly. The expanded rabies vaccination campaign will take place during the week of 11 May 2015.

Although Gauteng Province is a rabies non-endemic area, in 2010-2011, an outbreak of rabies occurred with 42 domestic dogs and one human case

identified. The outbreak was sparked by a single rabid dog originating from KwaZulu-Natal Province.

Healthcare workers are urged to consider the possibility of rabies infection in people presenting with unexplained encephalitis, paralysis or other rabies-like symptoms even when the history of an animal bite/exposure is unknown. A thorough exposure-risk assessment of patients presenting with animal bites or injuries must be conducted to inform whether rabies PEP is indicated, as per the National Rabies Guidelines. Dog and cat bites are common in Gauteng Province and many of these exposures do not present a rabies risk as these encounters are usually provoked (e.g. entering a dog's territory, young children 'playing' with animals not accustomed to children etc). Rabies PEP biologicals are a limited commodity and must strictly be reserved for those cases who satisfy the criteria as per the guidelines.

The National Rabies Guidelines and more rabies-related information can be accessed on the NICD website: www.nicd.ac.za.

Source: Centre for Emerging and Zoonotic Diseases, Division of Public Health, Surveillance and Response, NICD-NHLS