

An Outbreak of Rabies in Dogs in the State of Terengganu 1995-1996

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Summary

The presence of rabies in dogs has been well recognized in areas of Malaysia close to the Thai border but it has rarely ever been reported in Terengganu which is a state on the East Coast of Malaysia. From November 1995 to June 1996 six different rabid stray dogs were found to have been involved in dog bite attacks on 9 members of the public. We report these cases to highlight that rabid dog bites may occur even in areas where the disease is thought to be rare. Medical and veterinary staff must keep the possibility of the risk of rabies in mind when faced with patients who have been bitten by dogs.

Key Words: Rabies

Introduction

Before 1952, outbreaks of rabies in Malaysia were a significant problem but the implementation of the National Rabies Control Program in that year proved highly effective and led to Malaysia being declared a "rabies-free" area in 1954¹. Nonetheless, sporadic cases still appear in the Malaysian states of Perlis, Kedah and Kelantan which share a common land border with rabies endemic areas of Thailand.

In contrast, the state of Terengganu lies more than 150 kilometres away from the Thai border and from 1930 till 1995, only 1 case of rabies has ever been recorded in Terengganu¹. This case was found in an animal in 1952. No further cases were recorded in the 43 years after that until the occurrence of the 6 rabid dog bite incidents from November 1995 to June 1996.

Our report looks into this unusual development and should serve as a timely reminder that we must remain vigilant against the threat of rabies.

Case Reports

In the state of Terengganu 9 persons were involved in 6 separate rabid dog bite incidents from November 1995 to June 1996. During the random surveillance programs another 3 rabid stray dogs were found. All of these cases occurred within the neighboring districts of Marang and Kuala Terengganu and was geographically limited to a small area spanning 30-40 km of the coastline within Terengganu. No cases were found anywhere else in the state during surveillance. Fortunately, there were also no cases of rabies detected from the wildlife which consisted of samples taken from 3 wild boars, 2 squirrels and 2 wild cats in 3 different areas of Terengganu.

The details of the cases and their treatment are given in Table I. All patients had World Health Organisation Category III injuries i.e. single or multiple transdermal bites or scratches.

Laboratory testing for rabies was carried out at the Veterinary Research Laboratory in Ipoh, Perak. All dogs

CASE REPORTS

(except dog A) were confirmed as having rabies based on positive Fluorescent Antibody Test (FAT) and Seller's stain for Negri bodies on brain tissue. Dog A was exhumed from its burial spot and had rabies confirmed on the mouse inoculation technique as the tissue was not suitable for other tests.

All patients completed the vaccination schedule with 5 doses of Human Diploid Cell Vaccine (HDCV), Pasteur Merieux against rabies given at days 0,3,7,14 and 28. Currently, none of the patients have reported developing any complications of rabies even though they did not receive concurrent human rabies immunoglobulin (HRIG) prophylaxis. The incubation period for rabies, however, may extend to several years and so it is currently not possible to state that the vaccine has been completely protective.

Discussion

In recent years, rabies in Malaysia has been limited to

sporadic incidents with an average incidence of only 1.3 cases per year from 1955-1986¹. Most of the cases were at the border areas, and states outside these zones recorded only 6 cases over those 31 years. This, in part, may have been due to the setting up of an area 50-80 kilometres wide called the "immune belt" covering the districts which were closest to the Thai border. Continual compulsory vaccination for all dogs as well as destruction of unlicensed ones is carried out in this area. Movement of dogs in and out of the "immune belt" is controlled by the State Veterinary Officer based on certification of previous rabies vaccination. Nonetheless, the threat from rabies has not been completely eliminated.

Other than in the states bordering Thailand, the transport of army dogs from area to area has been thought to play a role in the spread of rabies. There is no evidence for this in our case and the source of our outbreak remains unknown. However, the limited geographical distribution (all events were within 30-40 km of each other) and the distance from border

Table 1
Rabid dog bite incidents in Terengganu Nov 1995 - June 1996

Dog	Event	Date of Bite	First Dose of Vaccine Given on
A	Stray dog entered house and bit 18 month old infant on the ear and scalp. It later attacked 3 year old boy and 5 year old girl, both of whom were bitten on the hands and wrists. Villagers killed and buried the dog.	30 Nov 95	19 Dec 95
B	Stray dog attacked clothes line of apartment block in town. A 40 year old lady tried to chase it away but was bitten on the right hand by the dog.	3 Jan 96	8 Jan 96
C	Stray dog attacked ducks in village and bit 44 year old lady who sustained injuries to the chest, neck and hands.	3 Mar 96	4 Mar 96
D	Stray dog in village attacked 7 year old boy who was scratched on the shin.	29 Mar 96	1 Apr 96
E	Stray dog bit a 44 year old lady and 7 year old boy in village	28 May 96	28 May and 5 June 96
F	A 61 year old man was bitten on the left side of his neck by a stray dog close to his home	7 June 96	7 June 96

areas, with no cases in between, would suggest that a rabid animal was introduced by road or sea from outside. The coastline is long and easily accessible to sea borne illegal immigrants and in the past, dogs whose rabies status were not known have been found on the boats of Vietnamese refugees¹.

The recommended post exposure treatment of rabies has been to give anti rabies vaccine as well as anti rabies immunoglobulin. However, data from the World Health Organization (WHO) shows that most cases in Asia are treated with vaccine alone (for example in Hong Kong, 99% are not given the immunoglobulin)². Due to the limited availability of HRIG this was our initial experience well, although we have since managed to source some supplies to be stocked in the Casualty Department, Hospital Kuala Terengganu. There is no trial data available on the relative efficacies of vaccine alone versus vaccine and immunoglobulin, although it has been suggested that excellent antibody response obtained with HDVC could provide substantial protection against rabies even if no immunoglobulin was available³. This may explain why none of our cases appeared to have developed human rabies.

It is extremely unusual for any cases of rabies to be found in Terengganu and this led to some delay in treatment in at least 4 of the cases (see Table I). The late presentation of the patients was one factor, while other delays occurred when health care personnel in the emergency department or at district health centres had to seek specialist advice. The presumed absence of rabies in the past meant that rabies vaccine was not routinely available in the health care facilities in Terengganu for administration to dog bite victims. Furthermore, medical staff did not even suspect the possibility of rabies. We found that 6 of our patients were initially treated with local measures and antibiotics only and as such, they had to be recalled to receive the 5 doses of vaccine. Other than our 9 patients, there were also 2 patients who had to be given full courses of vaccine as the particular dogs involved could not be examined for rabies – one had been killed and buried and the other could not be traced because the patient was late in reporting the event.

To overcome these problems, a central coordinating centre involving the State Veterinary and State Health Departments was set up in Kuala Terengganu. This involved the implementation of a defined management protocol as well as an awareness campaign. Members of the public who had sustained a dog bite were advised to seek immediate treatment at their nearest health centres where provisions had been made to stock the vaccine. Patients would receive local wound toileting as well as antibiotics, HDCV and HRIG if considered appropriate. Health centre staff were asked to alert the State Health Department office in Kuala Terengganu who would then arrange for veterinary staff to either observe the clinical course of the dog for 10 days or to immediately test the dog for rabies by sending the dog brain for FAT and histopathological examination. Depending on the result, the coordinating centre would then instruct the health centre whether to continue with the full course of vaccine as scheduled. The remaining doses of vaccine would not be administered if the suspect dog was found confirmed rabies negative from laboratory techniques or through the 10 day observation period.

This article should serve to highlight that sporadic cases of rabies may occur in Terengganu and this should be borne in mind in the management of dog bite victims. Both the dog and the victim must be kept under close observation by veterinary and health care staff if there is even the slightest suspicion of the dog being rabid. In our cases, we were fortunate that the unusually aggressive behaviour of the dogs had been investigated, although there were still significant delays in the management of the patients which was compounded by the lack of availability of HRIG. It is important for us to remember that prompt administration of post exposure prophylaxis with vaccine and anti rabies immunoglobulin remains the only successful way of managing patients exposed to rabies.

Acknowledgments

The authors are grateful to the Department of Veterinary Services and the Director-General, Ministry of Health, Malaysia for allowing the publication of this article.

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Decompression Illness Associated with Underwater Logging: 6 Case Reports from Kenyir Lake, Malaysia

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Summary

The formation of Kenyir Lake as part of a hydroelectric project in the 1980s caused much forest area to be submerged. From 1991, underwater divers were employed to log these sunken trees at depths of up to 100 meters. At least 6 mishaps involving underwater logging personnel were recorded from March 1994 to August 1996. We retrospectively reviewed 5 cases who were managed in Hospital Kuala Terengganu. The patients presented with marked cardiorespiratory and neurological disturbances. One diver died in the Hospital while another died at the recompression chamber. Three divers were treated with recompression and improved. Average delay before the start of recompression was 14 hours. Underwater logging has definite dangers and steps must be taken to ensure that both the divers and the equipment are appropriate for the task. Availability of a nearby recompression facility would greatly enhance the management of diving accidents, not only for commercial divers but also for recreational divers who frequent the islands nearby.

Key Words: Decompression illness, Diving accidents

Introduction

In the 1980's the development of the Sultan Mahmud Hydroelectric dam project involved submersion of large areas of forest in the state of Terengganu. This led to the formation of a 23.6 million m³ manmade collection of water known as the Kenyir Lake. The

sunken trees were considered to be viable sources of timber and from 1991 onwards, logging companies started work in the area. Commercial divers were sent down to log these trees at depths of up to 100 m.

At least 6 diving accidents involving these divers were recorded from March 1994 to August 1996. Two