

## Short Communication

# Public demand of anti-rabies vaccination prophylaxis for contacts of two rabies victims

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## Abstract

Rabies is a neglected tropical disease culminating in fatal encephalitis. Available under-estimated data of dog bites with a huge number of mortalities point rabies as a re-emerging disease of global health importance. Public awareness is of greatest importance in preventing rabies deaths. One health framework along with dog vaccination and population control measures are next elements in combatting high burden of rabies in developing nations like Nepal. Two rabies deaths from same 2.5-3 months old puppy particularly due to unawareness following which entire community demanded prophylaxis is discussed herewith. There is paucity for availability of guidelines for contact prophylaxis unlike pre and post-exposure in the country. Justifying the rationale use in public proclaiming of prophylaxis in contacts was a challenge.

**Key words:** Anti-rabies vaccination; contacts; prophylaxis; rabies victims.

## Introduction

Rabies is a fatal zoonotic disease of endemic countries where half of global population is exposed at. Annually around 50,000-60,000 mortalities fall prey to rabies where 99% of deaths transpire in tropical developing nations, Asia and Africa in particular. WHO has clear recommendations for anti-rabies vaccination (ARV) for post-exposure prophylaxis (PEP) whereas as pre-exposure prophylaxis (PrP) is recommended for those at continual, frequent or higher risk for exposure. Human-to-human transmission except organ transplantation is only theoretical.<sup>1</sup> A situation to address prophylaxis in contacts aftermath two rabies deaths is discussed here.

## Incident description

A 11 year old boy, case 1 was brought to the emergency room of Tokha Chandeshwori Primary Health Center with complains of agitation, photophobia, fearfulness, throat pain, salivation, delirium and respiratory difficulties. Initial symptoms which started with flu like illness were managed with supportive care and over the counter drugs but progressed over 3-4 days. He was referred to a higher center with a clinical impression of

rabies where he passed out following cardiopulmonary arrest. On analysis the case retrospectively, it was found that he was bitten by an ownerless puppy about 3 months back while feeding. The puppy was approximately 2.5-3 months old which he had adopted. His grandmother applied toothpaste on small puncture wound on right thumb. Two days later, a school friend of him took the puppy. His friend's father, 42 years, case 2 also got similar bite on hand while feeding. He too overlooked it as an accidental minor injury. After few days the puppy was found dead in a neighbor's toilet who disposed it in the field thinking an ownerless puppy carcass. All three families were unaware of the other two incidences involving the same puppy. About 2.5 months later case 2 developed flu like symptoms and rapidly deteriorated over few days and passed at home, 2 weeks prior to case 1. Family members regarded case 2 incident as typhoid complicated by heavy alcohol consumption.

Once the scenario came up, entire community and media got frightened demanding ARV prophylaxis for their families quoting some form of contacts with either of deceased. In absence of national guideline and with limited vaccine supply, meeting the true need as well as disagree about possible transmission in them and

clarifying worthlessness of prophylaxis with surety was the greatest challenge.

## Discussion

Many rabies cases frequently go unreported that underestimate the mortalities. Therefore, the true burden is indeed immensely high.<sup>1</sup> Exact data about the actual magnitude of burden in Nepal is barely available but it cannot be overlooked. Dog bites account for majority of animal bite cases whereas children are most vulnerable.<sup>1,2</sup> In developing nations like Nepal, all domestic dogs are not certainly and regularly vaccinated.<sup>3</sup> To add more, vaccination of ownerless dogs is way out of reach. This makes the threat of rabies epidemic constant and impending. Dog vaccinations are recommended only after 12 weeks of age because of possible presence of maternal antibodies till that age.<sup>4</sup> Many aware people and health professionals are unknown that this 12 weeks cutoff age for dog vaccination applies in presence of maternal antibodies whereas those puppies without maternal antibodies are susceptible. The puppy in this incident belonged to an ownerless mother which was certainly not vaccinated, transmitted rabies to both the cases. Unawareness and inaccessibility are the greatest hurdles to combat this vaccine-preventable disease.<sup>5</sup> The Government of Nepal has been providing free ARV for public use through many government hospitals and some health centers among which our health center is one. Educational status of patients is significant in complying with ARV schedule and understanding the importance of regularity. Similarly, economic status is crucial if ARV are to be purchased and cover travelling costs. Service seeking behavior is also influenced by the distance of ARV clinic from patients' residence.<sup>2</sup> Despite having accessibility for ARV at a center about 3-4 kilometers from their home, none of victims turned up for seeking treatment. None of the patients or their family members were educated nor were aware of rabies transmission by a puppy bite. WHO recommends thorough washing of wound with soap and water soon after bite and apply available antiseptic.<sup>1</sup> Singh et al. found such recommendations were practiced to a lesser extent in a rural Indian community where 19.2% followed religious customs and 13.3% didn't do anything after bite.<sup>6</sup> In our cases, the child got toothpaste applied on the wound whereas the adult one did nothing. In a study, 60.47% of bites belonged to category II.<sup>2</sup> In another study 12% cases regarded their bites as not so severe.<sup>7</sup> In both cases their bites were considered an accidental event while feeding puppy and probably had

category II wound. Thus, those were not considered severe enough to seek medical attention.

Diagnosis of rabies creates anxiety among caring health professionals, public and media.<sup>1</sup> People around fear of transmission from victim. On contrary, despite theoretical possibility of human-to-human transmission through bloody fluids, its risk is equivalent to any other bacterial or viral infections provided routine precautions are followed mostly during intubation and suction. Nevertheless, WHO has also mentioned "it may sometimes be necessary to immunize the partners of patients, as close contact and sexual intercourse in the early stages of the disease carry a risk for transmission".<sup>1</sup> In this incident despite family members of both patients and one who disposed the dead puppy were vaccinated, entire community had a fear of rabies transmission demanding ARV prophylaxis proclaiming some form of contacts with the victims during those three months. Health professionals had great challenges in making rationale and justifiable decision and providing ARV prophylaxis particularly in absence of a clear guideline and directive. Even-though WHO has clear PEP and PrEP guidelines, there is paucity for availability of such guidelines for prophylaxis in contacts of rabies victims. Being a nation situated in rabies endemic region, there are many cases of rabies fatalities in Nepal at different point of time. People of such area frequently demand prophylaxis for them. In such circumstances, health workers have difficulty in addressing such issues in absence of clear guidelines as in this case. This raises the possibility of misuse of ARV. Since Nepal imports all ARVs, PrEP and PEP is neither cost-effective nor sustainable means of rabies control despite it can do so. ARV availability and supply remain suboptimal in Nepal.<sup>8</sup> Moreover, incidences like this are always a threat for ARV availability and sustainability. Lack of collaboration within country and region along with lack of comprehensiveness among veterinary and human health authorities are hurdles of rabies control activities.<sup>8</sup> A coordinated one health model with multi-sectorial involvement is a key control measure.<sup>9</sup> Furthermore, proper implementation of dog vaccination and population control measures can greatly reduce rabies epidemic.<sup>10</sup>

## Conclusion

Bites from dogs of any age regardless of severity of wound should seek proper medical attention. A manual or guideline on rational use of prophylaxis

in contacts of rabies victims is needed to curtail the misuse of scarcely available costly ARV to ensure its sustainability in fighting rabies epidemic in Nepal. Public awareness regarding ARV prophylaxis in post-exposure, pre-exposure and contacts of rabies victims is equally important. Coordination between veterinary, public health and government authorities can address these issues.

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**Conflict of Interest:** None declared

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