

An Investigation of the Prevalence of Dog Bites of Farm Animals in Cox's Bazar



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Abstract

To estimate the prevalence of dog bite of farm animals a semi structured interview was done. With the increase of stray dogs, the occurrence of bite increases. A questionnaire of 500 owner of farm animal was conducted in Cox's Bazar from February to April in 2022. The survey was conducted so that related circumstances and relationship between dog's head and animals' body was determined as a risk factor. About 40% goat, 6.66% sheep and 30 % cattle were bitten once by dog. Almost all attacks were occurred outside home. Many animals were bitten without having any interaction (60%). Animals were bitten most of the time in their limbs (hind legs 39.3%, foreleg 22.3 % and hip 19%). Those were easily attacked by dogs. Necessary steps should be taken for control dog bite such as stray dog control in pastureland or surrounding the pastureland. In addition, control measure should be taken for increasing stray dog population.

Key words: rabies, nervous system, vaccination, Cox's bazar,

Statement of Author

As the author of this report, Shamrina Alam Tanha, I certify that I have completed all the required tasks. Journals from throughout the world as well as other sources were used to gather the data. References are appropriately ratified. The sole responsibility for gathering, tampering and storage of this report rests with me.

Introduction

Rabies, a fatal disease of nervous system of warm-blooded animals. It is a viral disease, belonging to the family Rhabdoviridae, of the genus Lyssavirus. More than 300 years it has been associated with animal bites as well as it is the oldest infection (Wilkinson et al. 1988). The first scientific report of rabies in man and dog in 1925 (Boulger et al, 1960). Traditional rabies control measures in dogs has included mass vaccination, movement restriction and control of stray dog. The measures have been effectively applied in most of the developed world since the 1940s, resulting in relatively effective control and in some cases elimination of dog and rabies (Kitala et al, 2001). However, in Bangladesh rabies control measures in dogs have not been effective. Well-designed dog ecology and demographic studies are necessary (Perry, 1993). Such studies have proved useful in planning rabies control in Asia, Latin America and in the Northeast and South Asia.

There are no published reports on the size of the dog population or the number of pets households and stray dogs. During the late 1990s, there was considerable press coverage on dog attacks mainly highlighting fatal or near-fatal attacks by pit bull terriers and their crosses (Jean- Baptise-Samuel, 1998). There are no epidemiological data on the number of dog bites occurring per year and fatalities as a result of dog attacks are not recorded by the Central statistical office.

The dog is known as man's best friend and it is estimated that over 52 million dogs cohabit with humans in the United States the Center for Disease Control estimated that 799,700 out of 4.7 million bites occurring in 1994 required medical treatment (CDC, 2003). The population of dog bites that are reported to authorities is variable with published estimates in the United States ranging from 10-50% (Overall KL, Love M, 2001).

In case of humans, severe physical trauma and potentially permanent disfiguring wounds sustained by a dog attack, dog bites victims are often burdened with emotional and psychological trauma (Peters et al, 2004). Bites no matter how severe, are a potential source of zoonotic infections particularly rabies and source of pyogenic organisms and causes tetani in some cases (Chomel, Trotignon, 1992).

This study targets cases of dog bites using a questionnaire and informal interviews to determine the potential magnitude of the dog bite in Cox's Bazar. The survey records dog bites on farm animals in Cox's Bazar and determines the risk factors associated with dog bites and identifies preventive strategies to reduce the incidence of dog bites. This approach is intended to record factors associated with dog bites through semi-structured interviews with animal owners. In addition, the semi-structured interview approach may prove valuable in empowering the target population to disclose information on associated risk factors that often do not ordinarily available to researchers and policymakers.

This present study is therefore aimed at cases of dog bite of farm animal (cattle, goat, sheep etc.) in Cox's Bazar. The information obtained will be valuable for planning and developing sustainable dog rabies control programme and evaluate other public health risks associated with dogs.

Methods

The study was conducted with the data which are gathered using a questionnaire. The questionnaire was reviewed by the authors and teachers. The aims and objective of the study was explained to the owners of farm animals and were asked if they were willing to participate. Some of them declined participating in the study.

Study area and period:

The study was conducted at Cox's Bazar Sadar, Cox's Bazar, during the period from 17th February 2022 to 28th April 2022. The area of Cox's Bazar Sadar Upazila is 228.23 km with 196.05 km of land area and 3.50 km of riverine area. The data was collected from the veterinary hospital (Upazila Livestock Office and Veterinary Hospital, Jhilonza, Cox's Bazar Sadar, Cox's Bazar) between 9 am to 5 pm in 48 working days within the study period. When the working period was 9 am to 5 pm in Veterinary Hospital.

Sample size determination:

A list of UVH cases from February to April enrolled for the study. Out of the population of 652, a total 500 animal owners were interviewed. The number of animals to be sampled was calculated based on estimated prevalence (p) dog bite.

Statistical Analysis:

Data analyses were done using the software statistical package for social sciences version 10 and Microsoft excel.

Demography of study population:

This study interviewed 500 animals (cattle, sheep, goat) (Table-1). In the study population 300 (60%) animals were goat, 30 (6%) animals were sheep and remaining 170 (34%) animals were cattle, where 120 (40%) goats, 2 (6.66%) sheep and 5 (29.41%) cattle were bitten by dogs.

Table 1 Frequency (%) of the number of animals owned per household.

Number of animals	no (%) of owner
1-5	350
5-10	104
>10	46

Of a total of 500 animal owners.

Medical Care:

For this study, an indication of severity was being taken to a vet for treatment. Of those 3 were bitten, 102 (80.31%) animals were taken to the hospital and got post exposure vaccination and wound management. 25 (19.68%) animals were primarily treated with soap and then taken to the hospital (Table 2).

For medical care 68 animals were taken to the hospital within 2-4 hours. 22 animals were taken to the hospital within 4-6 hours , 17 animals were taken within 6-10 hours and 20 animals were taken to the hospital after 24 hours of being bitten (Table 3).

Table 2 Frequency (%) of medical care of victim animals

Medical care	No (%) of animal
Hospital (without primary treatment)	102 (80.31%)
Hospital (after primary treatment)	25 (19.68%)

Table 3 Frequency of time when animals were taken to the hospital.

Time (hours)	No (%) of animal
2-4	68 (53.54%)
4-6	22 (17.32%)
6-10	17 (13.38%)
After 24	20 (15.74%)

Parts of the body bitten and frequency of bites:

Bites to the hind legs were most often received by victims as shown in Table 4. Bites to these are 49 (38.58 %) victims. The majority of the animal 99 (77.95%) received one bite during attack. One animal reported receiving 7 bites, the wound were shown to the author.

Table 4 Frequency distribution of bites according to location of injury to the body.

Location of bite	No (%) bitten
Hind leg	39.3
Fore leg	22.3
Hip	19.3
Below elbow	8.5
Frank region	5.2
Chest area	3
Neck area	2.3

Circumstances leading to the dog attack:

Many dog bites were sustained without any interaction (60%) with the dog followed by growming in the pastureland (32.7%). Some are unspecified (7.3%), (Table 5).

Table 5 : Frequency distribution of the circumstances and factors contributing to injury.

Circumstances surrounding the attack	No. (%) of victims reporting
No interaction	60%
Grooming on pasture land	32.7%
Unspecific	7.3%

Discussion

The study shows that only 25% victim who treated their wounds, used the services of a health care facility and around 80% of all victims did not have basic first aid care to their wound. No information was gathered as to the severity of the wound sustained on the length of time for healing. Dog bites are highly contaminated with several bacteria (Chomel, Trotignon, 1992), bite wounds, a major source of entry of anaerobic bacteria, particularly *Clostridium tetani* (Chomel, Trotignon, 1992) and other bacteria such as *Staphylococcus* sp, *Streptococcus* sp, *Pastuerella multocida* and *Capnocytophage canimorsus* (Yaqub et al, 2004) so that prophylactic treatment is most important after a bite incident.

Worldwide, carnivorous, including the dog are important vectors for rabies. However, the canine population is considered rabies free. The public's knowledge of other potentially harmful zoonotic disease from dog bites may therefore be quite limited. The severity of the bite was not assessed in this study, however the interviewed noted that some bite wounds received were highly disfiguring to the limbs. In this study 350 number of people have 1 to 5 number of animals, 104 number of people have 5 to 10 number of animals and 46 number of people have more then 10 number of animals (Table 1).

The study shows that 102 number of animals were taken to the hospital without any primary treatment and 25 population were taken after having some primary treatment like soap wash at the affected area (Table 2). Most the animal owner didn't know about primary treatment after a dog bite.

The study also shows that about 50 % animal were taken to the hospital within 4 hours whereas about 15% of animal were taken to the hospital after 24 hours (Table 3). It

indicates owner doesn't know when a dog bite animal should take into the hospital for medical care. Most of them delay somehow which may affect animal health severely. Moreover, some of them get late due to a distance from the hospital. So they didn't give their animals' proper treatment on time. 2.3% of animal were bitten in the chest area and one of them was severely disfiguring injuries to the chest area. Study conducted elsewhere, have indicated that functional and aesthetic consequences are estimated to occur in 1-3% of all bites (Chomel BB, Trotignon J, 1992). There is a very large stray dog population in Cox's Bazar. However, bites in the lower extremities were more frequent. The relationship between the animals body and dogs head are known indicators with respect to the site of injuries, therefore extremities were affected rapidly.

Many (60%) attacks in our study were unprovoked. Animals who were attacked without any prior interaction with the dog, reported either walking, running or having their feed from pasture land.

Conclusion

Our findings in this study have demonstrated that animals in Cox's Bazar were bitten by dogs under very common circumstances as most of the dogs are stray dogs that attack the animals. Therefore, animals should be kept in a safe area where stray dog entry is strictly prohibited, control measures should be taken to control the stray dogs or immunize all of the stray dogs or take measures so that they may not reproduce. Therefore, rabies may be ultimately eradicated.

Strength and limitation

In this study the rate of derived is high since they were interviewed face to face, which also helped to eliminate random error by double checking. There are certain limitations, the study's time frame was constrained, and some respondents only provided information on certain sorts of questions. The study may not represent entire nation.

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Biography

Shamrina Alam Tanha is pursuing her undergraduate degree in veterinary medicine at Chittagong veterinary and animal sciences university. Her parents are Khursed Alam and Parvin Akter. At Government Girls High School in Cox's Bazar, she completed her SSC and at Government College her HSC. She is completing her internship program. This report is a part of her internship, and she is excitedly completing all of the assignments.

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