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International Journal of Applied Sciences and Biotechnology

A Rapid Publishing Journal

ISSN: 2091-2609

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CODEN (Chemical Abstract Services, USA): IJASKD

Vol-4, Issue-1 (March, 2016)

Available online at:

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[Impact factor*](#): 1.422
Scientific Journal Impact factor[#]: 3.419
[Index Copernicus Value](#): 6.02
[IBI Factor 2015**](#): 4.19



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Research Article

MAJOR HEALTH PROBLEMS AND DISEASES OF STREET DOGS IN POKHARA VALLEY, NEPAL

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Abstract

Objective of the study was to find the prevalence of major health problems among street dogs in Pokhara Valley, Nepal. Data were taken from the rescued street dogs brought for the treatment at Himalayan Animal Rescue Team (HART), Nepal, from January to December, 2011. A total of 171 sick or injured dogs were brought for the treatment. All the preliminary diagnosis was done by the veterinary officer and confirmatory diagnosis were limited. Data were analyzed using Microsoft excel program 2013 (Microsoft Corporation, New York, USA) and results are presented as number and in percentage. Mange infestation (40.35%) was the most prevalent problem, followed by general wound (18.12%), respiratory tract infection (7.60%), gastrointestinal parasites (5.26%), and general nervous signs (4.09%). Two dogs were suspected with rabies. Maggot infestations, tick infections, poisoning, bone fractures, otitis, pyometras, bite wounds, mammary tumors, hernias, abscesses, and anemic conditions collectively accounted for nearly 24.58%. Results presented in this study can be a reference for non-government organizations involving in rescue and treatment of sick and injured street dogs to plan their activities.

Keywords: health problems; street dogs; rabies; Pokhara Valley

Introduction

Nepal has high rate of human rabies deaths per total population in comparison to other countries in the world (Yadav, 2012). Nearly 100 human rabies cases are recorded per year in Nepal (Yadav, 2012). Record shows that 95% of the human rabies cases are due to the contact from rabid dogs (Dr. Joshi, director at NZFHRC; personal communication). Dogs are not only the reservoir of rabies but also the host of over sixty zoonotic diseases (Rhindali *et al.*, 2006). Statistical data regarding dog population in Nepal is not available. Some private organizations organized street dog population survey in major cities like Kathmandu and Pokhara. Survey conducted by Kathmandu Animal Treatment Centre (KAT, Centre) reported 22,000 street dogs inside ring road of Kathmandu and Himalayan Animal Rescue Team (HART, team) reported 1,700 street dogs inside Pokhara Valley (Kakati, 2012; Acharya and Dhakal, 2015). Street and owned dog population in other parts of Nepal is unknown.

Before 2002, strychnine poisoning was used for controlling street dog population. Since March 2002, Tuft University in collaboration with Institute of Agriculture and Animal Science (IAAS), Chitwan, Nepal, started to train ovariohysterectomy to new veterinary graduates. In 2003, Jan Salter founded KAT centre in Kathmandu with the aim

to eliminate rabies through vaccination and animal birth control (ABC) programs. Similarly HART, team started to conduct similar programs in Pokhara Valley, Nepal. Till now over half a dozen of organizations are active for similar work in different cities Nepal (www.awnnepal.org).

Apart from rabies, street dogs in most cities of Nepal are affected with traffic accidents, open wounds, maggot infestation, mangs, gastrointestinal parasites and several other problems. Kathmandu Animal Treatment centre, HART team, and various other non-government organizations (NGOs) beside their regular ABC and anti-rabies vaccination programs, carry out treatment of sick and injured street dogs. Very few published data are available regarding the health problems of street dog in Nepal. Bindari *et al.* (2012) studied the prevalence of mange in street dogs in Kathmandu, Nepal. They took samples from 60 positive suspected street dogs. Results indicated that 67% of suspected dogs were later confirmed positive. Similarly, Satyal *et al.* (2013) studied the prevalence of gastrointestinal helminths among street dogs in Kathmandu, Nepal. Of the total sample, 56% were infected with gastrointestinal helminths. Studies regarding the prevalence of other diseases and health problems among street dogs in Nepal are rare. It will be good to know the major health problems among street dogs in order to plan for rescue and

treatment of street dogs. Therefore, the objective of the study is to find the health problems among street dogs in Pokhara Valley, Nepal.

Materials and methods

The study was based on the analysis of rescued street dog health record at Himalayan Animal Rescue Team (HART, Team) from January to December, 2011. Himalayan Animal Rescue Team (HART, Nepal) is a registered charity organization (2160, Kaski, Nepal) working for street dog welfare in Pokhara Valley, Nepal. Pokhara Valley is situated at 200 km west of Kathmandu, Capital of Nepal. The altitude of the site is 900 m above the sea level. Geographically, it is located between 83° 58' 30" to 84° 02' 03" east longitude and 28° 10' north to 28° 16' north latitude. Pokhara has humid sub-tropical monsoon, hot and wet summer and cold winter. The average maximum temperature during summer is between 25 to 33°C (May - July), average minimum temperature is around 2 to 15°C (December - February), and during rainy season the average rainfall is 600 to 800 mm (June - September). Diagnosis of the diseases were based on the physical examination, external observations, and sign and symptoms by a veterinary officer. Confirmatory diagnosis are limited.

Statistical analysis

The collected data were analyzed statistically using Microsoft excel program 2013 (Microsoft Corporation, New York, USA). Data are presented as number or in percentage.

Results and Discussion

A total of 171 street dogs were rescued by HART, team for the treatment during the year 2011 (Table 1). Among 171 rescued street dogs; 71 dogs were treated and released from the HART, 31 were treated in the field, 28 were treated and moved to ABC for spaying/castration, 30 dogs were either euthanized or died during the treatment, and 11 dogs were adopted.

Wound was the second most prevalent health problem in street dogs in Pokhara Valley. We separated general wounds (18.12%) from bite wounds (1.75%), maggot (Fig. 3; 1.16%), accident fractures (2.92%), and abscesses (1.16%). Cause of these wound could be due to human cruelty, accidents, fighting between street dogs (Fig. 2 A B), bacterial and viral infections, and parasitic infestations. People have little sympathy in dogs and Nepal has no animal welfare law; therefore, street dogs are the easy victims of human cruelty.

Our study shows that the most prevalent street dog disease in Pokhara Valley is mange infestation. Among 171 total rescued dogs, 69 (40.35%) were suspected for mange infestation. Bindari *et al.* (2012) studied the prevalence of mange infestation in street dogs in Kathmandu Valley, Nepal. They took samples from 60 suspected positive street

dogs and confirmed 67% positive. Mites are the microscopic parasites that burrows skin and sheds hairs resulting ugly appearance (Fig. 1A & B). Street dogs are densely populated in most cities of Nepal, and there are always high chances that these parasites get transferred from one dog to other.

Table 1. Suspected disease or symptoms prevalence in rescued street dogs during 2011.

Suspected disease/Symptoms	Number	Total %
Mange	69	40.35
Wound	31	18.12
Gastrointestinal Parasite/Diarrhea	9	5.26
Respiratory tract infection	13	7.60
Parvovirus	4	2.33
Distemper	4	2.33
Canine transmissible venereal tumor	4	2.33
Maggot	2	1.16
Tick	1	0.58
Nervous signs	7	4.09
Poisoning	3	1.75
Rabies suspected	2	1.16
Bone Fracture/paralysis	5	2.92
Otitis	2	1.16
Pyometra	3	1.75
Bite wound	3	1.75
Fungal	1	0.58
Mammary tumor	2	1.16
Hernia	1	0.58
Papilloma	1	0.58
Abscess	2	1.16
Anemic	2	1.16
Total	171	100%

Source: - Himalayan Animal Rescue Team



Fig. 1: Ugly appearance due to mange infestation



Fig. 2 (A & B): Bite wounds in street dogs

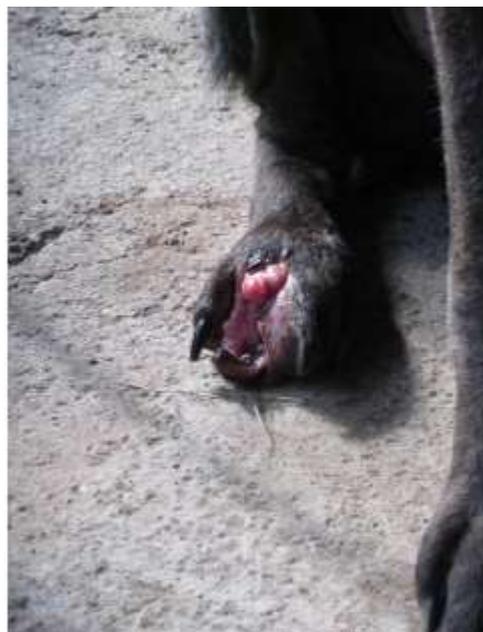


Fig. 3: Maggot infection after accident

About 5.26% of the street dogs in Pokhara Valley exhibited signs of gastrointestinal parasitic infection. Satyal *et al.* (2013) studied the prevalence of gastrointestinal parasites among street dogs in Kathmandu Valley, Nepal. They reported 56.2% of the total street dogs being infected with gastrointestinal parasites. The difference in percentage could be because reports by Satyal *et al.* (2013) were based on fecal egg count, whereas our data are based on parasitic symptoms. The results are reasonable because only heavily infected parasitic dogs shows parasitic symptoms.

Dogs treated with respiratory symptoms accounted 7.60% of the total rescued dogs. Most of the dogs showing respiratory symptoms were young and had symptoms of cough, sneeze, labored breathing and high rectal temperature. Studies regarding respiratory problems among street dogs are not available. Therefore, further disease specification is needed in these type of symptoms.

In our study we found 4 dogs being suspected with parvovirus. Those dogs had symptoms of hemorrhagic diarrhea, subnormal temperatures, dehydration, and frothy yellow colored vomiting. Studies relating incidence of parvovirus in street dogs in Nepal are not done, however, there are few studies relating owned dogs. Pradhan (2005) studied recovery rate of owned dogs suspected with parvovirus in Kathmandu, Nepal. In her study she found dogs older than one year of age had higher recovery rate compared with dogs younger than one year of age.

Symptoms of dog infected with suspected canine distemper shows symptoms of high fever, reddened eye, coughing, vomiting, diarrhea, and thickening of feet pads (Creevy, 2013). Singh (2008) reported the case of canine distemper in a young dog in Kathmandu, Nepal. Canine distemper, is a subacute contagious febrile disease mostly prevalent in young pups below 4 month of age and in unvaccinated dogs

(Creevy, 2013). Canine distemper could spread fast in street dogs and hence vaccination against distemper is needed.

During our study period we found four dogs suspected with canine transmissible venereal tumor (CTVT). Dogs suspected with CTVT had cauliflower-like appearance located in genitalia. During our study all the tumorous dogs were females. All the CTVT dogs recovered after the treatment. However, in the same year we had 2 dogs with mammary tumor. One dog survived while the other was put to sleep.

During the rescue and treatment we found two suspected cases of rabies. In Pokhara, veterinary lab for conforming rabies is not available. Among the two rabies suspected dogs one died 24 hour after rescue and another was put to sleep. Few years back in Lekhnath municipality, a town adjoining Pokhara Valley, many livestock exhibited rabies symptoms and later suspected that they were bitten by rabid mongoose. Mongoose can easily come in contact with pets and livestock; therefore, there is always high risk of rabies and hence, precaution is needed. There were 7 dogs that showed nervous signs. Those dogs, though, showed nervous signs could not be suspected as rabies. Four among 7 were recovered and sent to ABC (Fig. 4) while other were put into sleep.



Fig. 4: Spayed dog

Incidence of bone fractures was seen in 5 dogs. All the bone fracture cases were due to traffic accident. Other disease symptoms include tick infestations, poisonings, otitis, pyometras, fungal infections, hernias, papillomas and anemic conditions.

In Nepal, most of the dogs are unowned or street dogs. There are large number of street dogs in major cities of Nepal and these dogs are the host of several zoonotic diseases including rabies. Recently few NGOs started rescue and treatment of sick and injured street dogs. Studies regarding health status of street dogs in Nepal are very limited. This study tried to find out the major health conditions among street dogs in Pokhara Valley, Nepal. In our study we found mange as the main problem followed by

general wound, respiratory tract infection, and gastrointestinal parasites. This study can be a reference for organizations carrying out street dog rescue and treatment program in Pokhara Valley as well as major cities of Nepal.

Acknowledgements

This study would not have been possible without generous support by Juliette Cunliffe, founder of Himalayan Animal Rescue Team (HART, Team). Appreciation is extended to Dr. Hemraj Awasthi, Dr. Sushil Kumar Paudel, Dibya Baral, Rom Prakash Baral, Raju Subedi, Rabi Baral, and Himlal Subedi. Photo courtesy, Helen Johnson and Juliette Cunliffe.

Conflict of interest

The authors declares that there is not conflict of interest.

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