

Original Article**Epidemiology of animal bite cases attending anti-rabies clinic of a Tertiary Care Centre in Southern Rajasthan**

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ABSTRACT

Background: Rabies is a viral disease of the central nervous system. It is primarily a disease of warm blooded animals, particularly carnivorous such as dogs, cats, jackals and wolves. It is transmitted from infected animals to humans. Rabies is an important public health problem worldwide.

Aim: To determine the epidemiology of animal bite cases attending anti-rabies clinic of a Tertiary Care Centre in Southern Rajasthan.

Methods: A cross-sectional study was conducted on 870 patients attending the anti-rabies clinic of M.B. Hospital, Udaipur, and Rajasthan during the period of six months from 1st May 2014 to 31st October 2014. The data were analyzed using Microsoft EXCEL and epi-info7 software.

Results: Among total 870 cases, 664 (76.3%) were male and 206 (23.7%) were female. 204 cases (23.4%) belonged to 11-20 years age group. 626 cases (71.9%) were of class III category. 98.04% bites were by dogs. Bites were unprovoked in 86.2% cases. Most of the bites (77.9%) occurred in lower limbs. 489 bite cases (56.2%) applied indigenous products (lime, chili powder etc.) over wounds before attending the ARV Clinic.

Conclusion: Most of the animal bites were by street dogs. Children were most affected. It is necessary to take specific measures to decrease the incidence of problem and to increase the awareness among people about immediate management after animal bites.

Keywords: Animal bite, Rabies, Southern Rajasthan

INTRODUCTION

Rabies is a viral disease of the central nervous system. It is primarily a disease of warm blooded animals, particularly carnivorous such as dogs, cats, jackals and wolves. It can be transmitted from infected animals to humans so it is classified as zoonotic disease. The disease is almost always fatal [1]. Transmission of rabies virus occurs through saliva from infected animals to human beings or to other animal by means of bites, scratches, licks on broken skin and/or mucous membrane [2]. Rabies is an important public health problem worldwide and more than 50,000 people die annually of the disease [3]. The annual estimated number of dog bites in India is 17.4 million leading to estimated 18,000-20,000 cases of human rabies per year [4]. In India rabies is prevalent in all parts of the country with exception of

Lakshadweep, Andaman and Nicobar islands [5]. Worldwide, Rabies is prevalent in more than 150 countries and territories. Although a number of carnivorous and bat species serve as a natural reservoir, rabies in dogs is the major source of human infection and poses a potential threat to more than 3.3 billion people [1]. It is important to know about epidemiology of animal bites for prevention of human deaths due to rabies and formulation of effective rabies control strategies.

MATERIAL & METHODS

The study was aimed to determine the epidemiology of animal bites. A cross-sectional study was conducted at anti-rabies clinic of M.B. Hospital attached to RNT Medical College, Udaipur situated in southern part of Rajasthan. All those patients with h/o

animal bite, attending the anti-rabies clinic during the period of six months from 1st May 2014 to 31st October 2014, were included in this study. Persons attending for purpose of pre-exposure anti-rabies vaccination were excluded. Information was obtained using a pretested semi-structured questionnaire. Personnel interview of patient and clinical examination was done for each case after taking informed written consent. In case of children (<15 years) information was obtained from their attendants. A bite was considered provoked if it was due to patient initiating interactions such as annoying the animal or playing with animal. The animal bite wound was classified as per WHO guidelines (Table 1). The collected data was analyzed using Microsoft excel and epi-info7 software.

Table 1: Classification of Animal Bite Wounds*

Category of Wound	Type of Contact/Exposure
Category I	Touching or feeding animals, Licks on intact skin.
Category II	Nibbling of uncovered skin, Minor scratches or abrasions without bleeding.
Category III	Single or multiple transdermal bites or scratches, Contamination of mucous membrane with saliva from licks, Licks on broken skin.

*as per WHO guidelines [1]

RESULTS

Total 870 cases were assessed during the study period. Majority of them were male (76.3%). Majority of the cases (60.2%) were below 30 years of age (Table 2). Majority of them (71.9%) were of class III category, as few as 27.4% were of class II category (Table 3). Majority of the cases (88.9%) were bitten by stray dogs while pet dogs were responsible in 9.2% cases. 0.9% bites were by cats (Table 4). In most of cases (86.2%), bites were unprovoked. Most of the bites (77.9%) occurred in lower limbs followed by upper limbs (15.9%) and Head & Neck (3.4%). Multiple site bites noted in 1% cases (Table 5). 57.9% animal bite victims were from urban area while 42.1% from rural area. Most of the victims were students (44.1%) followed by laborers and farmers (22.3%). Past history of animal bite was present in 104 (11.9%) cases, of which only 64 (61.5%) had completed post-exposure anti-rabies vaccination. Out of total 870 cases, 565 cases (64.9%) had attended the anti-rabies clinic within 24 hours of bite while 57 cases (6.6%) presented after 48 hours of bite (Table 6). Wounds were washed with running water or water with soap in only 163 (18.7%) cases before

Table 2: Age-Wise distribution of cases

Age Groups (Years)	Frequency	Percentage
0-10	130	14.94%
11-20	204	23.45%
21-30	191	21.95%
31-40	139	15.98%
41-50	64	7.36%
51-60	58	6.67%
>60	84	9.66%
Total	870	100%

Table 3: Distribution of cases according to category of wound

Category of wound	Frequency	Percentage
CATEGORY I	6	0.69%
CATEGORY II	238	27.36%
CATEGORY III	626	71.95%
Total	870	100%

Table 4: Type of Animal

Type Of Animal	Frequency	Percentage
Stray Dog	773	88.85%
Pet Dog	80	9.20%
Cat	8	0.92%
Monkey	5	0.57%
Others (Wolf & Jackal)	4	0.46%
Total	870	100%

Table 5: Site of Bite

Site of bite	Frequency	Percentage
Head and Neck	29	3.33%
Upper Limb	138	15.86%
Lower Limb	678	77.93%
Trunk/Abdomen	16	1.84%
Multiple site*	9	1.03%
Total	870	100%

*Bites involving more than 1 site

attending the ARV clinic. Those who have cleaned the wound, 73 cases (44.8%) cleaned with water only, while 82 cases (50.3%) cleaned with water and soap and 8 cases (4.9 %) had used antiseptic while cleaning. As many as 56.2% bite cases had applied

indigenous products (lime, chili powder etc.) over wounds before attending the ARV Clinic.

Table 6: Time taken to report in Anti-Rabies Clinic

Time period	Frequency	Percentage
Within 24 hours	565	64.94%
24-48 hours	248	28.51%
>48 hours	57	6.55%
Total	870	100%

DISCUSSION

The epidemiological assessment of animal bite cases revealed that male was affected more than female. Similar finding was reported in studies conducted by Venu Shah et al (2012) [6] and Virendra Wankhede et al (2013) [7]. Among total 870 cases, 23.4% cases belonged to 11-20 years age group. This is quite similar to the finding of study conducted by N.J. Gogtay et al (2014) [8] while Venu Shah et al [6] (2012) found that 25.2% of dog bite cases were below 15 years of age. In our study 71.9% cases were of class III category. This finding is similar to that of study conducted by Venu Shah et al (2012)[6] and N.J. Gogtay et al (2014)[8] while in contrast to the finding of study conducted by Pradeep Umrigar et al (2013)[9] in which they reported only 44% cases in class III category. In our study majority of the bites (86.2%) were unprovoked similar to that of study conducted by Virendra Wankhede et al (2013) [7] and Pradeep Umrigar et al (2013) [9] while Behera et al (2006) [10] reported that only 54.7% bites were unprovoked in their study. Most of the bites occurred in lower limbs (77.9%) which is quite similar to the findings of Pradeep Umrigar et al (2013) [9] and Venu Shah et al (2012). In our study 57.9% animal bite victims were from urban area while 42.1% victims from rural area. In study at Beharampur, Orissa by T. R. Behera et al (2006) [10], 55.1% animal bite victims were from urban area and 44.9% from rural area while Virendra Wankhede et al (2013) [7] found that majority of the cases were reported from rural area. Most of the victims in our study were students (44.1%) followed by laborers and farmers (22.3%). Similar findings were reported by Virendra Wankhede et al (2013) [7] that 34.3% victims were students and 31.1% cases belonged to field job category mainly vendors, carpenters, plumbers, electricians etc. In our study only 18.7% cases washed the wounds with running water or water with soap before attending the ARV clinic which is the matter of great concern. This is similar to finding of study by Venu Shah et al

(2012)[6] and Avinash Borkar et al (2014)[11] while in contrast to that of study conducted by Pradeep Umrigar et al (2013)[9] in which they found 75% cases had cleaned the wounds with water or water with soap. In our study 56.2% cases applied indigenous substances like lime, chili powder over wounds which is also an issue of serious concern. This was match with the study by Venu Shah et al (2012) [6] in which they reported 56.2% cases applied indigenous substances over wounds. In present study majority of cases (64.9%) reported to ARV clinic within 24 hours of animal bite, 28.5% between 24-48 hours and 6.6 % cases after 48 hours of animal bite. Venu Shah et al [6] reported that 68.5% of cases have attended ARV clinic within 24 hours, while another 17.5% cases attended between 24 to 48 hours. In contrast to our finding, T. R. Behera et al [10] found that only 12.6 % cases reported to ARV clinic within 24 hours of animal bite, while 61.2 % cases reported between 24-48 hours, while 0.5 % cases reported after one month or more of animal bite and Avinash Borkar et al (2014)[11] also observed in their study that 36.65% of cases reported within 24 hours of bite followed by 36.32% within 24 to 48 hours and 5.68% cases reported after 5 days of bite.

Conclusion: Animal bite is a serious public health issue, requiring attention of health authorities. The civic authorities need to resort to control of stray dogs and the establishment of effective surveillance system by health authorities will be helpful. It is recommended to improve the awareness and knowledge in the population about the immediate cleaning of wounds with water and soap and to avoid the use of indigenous substances over wounds through mass awareness campaign. The knowledge level must be improved in the population about immediate reporting to nearby health facility after the animal bite.

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