

## Original Research Article

# Animal bite cases in western Maharashtra, India: a retrospective study 2010-2015

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## ABSTRACT

**Background:** India has one of the highest numbers of cases of rabies in world. Animal bites in humans are an important public health problem. Dog bites in humans are a complex problem embracing public health and animal welfare, both in developed and developing nations.

**Methods:** Cross-sectional record based study carried out in anti rabies clinic of Government Medical College, Miraj (1 November – 31 December, 2016).

**Results:** Majority of victims were males and age of patient was 15-65 years, major site of bite was lower limb (58.6%). Numbers of cases were of category III bite (81.3%) and (16.4%) were of category II bite, (2.3%) cases were of category I.

**Conclusions:** The persistence of dog bites as public health problem in Miraj and data entered into the case records of the patients was complete.

**Keywords:** Dog bite, Rabies, Retrospective study

## INTRODUCTION

Rabies is a viral disease that produces fatal encephalitis in humans and other mammals. It has been present throughout recorded history, and literature, and likely predates the evolution of humans. Rabies remains one of the most common viral causes of mortality in the developing world. *Rabies*, Latin for “madness,” derives from *rabere*, to rave, and is related to the Sanskrit word for violence, *rabhas*, the Greek term for rabies, *lyssa*, also means madness, and it provides the genus name (*Lyssavirus*).<sup>1</sup> The etiological agents are rod-shaped RNA viruses that belong to the genus *Lyssavirus*, in the *Rhabdoviridae*, a diverse family that includes a number of other agents affecting vertebrates, invertebrates, and plants.<sup>2</sup> Rabies is most dreadful of all communicable diseases and carries 100% mortality if no preventive

measures taken.<sup>3</sup> Approximately 55,000 people die from rabies each year, the majority of these deaths occurring in Asia and Africa and more than 10 million people, in Asia, receive post-exposure vaccination against this disease every year.<sup>4</sup> Dog population management has been used for canine rabies control in animal birth control programmes, in which free-roaming dogs are caught, sterilized and vaccinated before being released. Several locations have reported reductions in the number of human deaths from rabies during such programmes.<sup>5, 6</sup> The countries got rabies free status which was achieved through the joint efforts and shared resources of local and national government, various sectors of public health, animal health, agriculture, environment, legislation and policy as well as nongovernment partners.<sup>7</sup> WHO has made a target to eliminate the disease by 2020 in endemic South East Asian countries including India.<sup>8</sup>

## Objectives

- 1) To study the epidemiological characteristics of dog bite victims registered in Anti Rabies Clinic of Government medical college, Miraj.
- 2) To study the completeness of these records.

## METHODS

Cross-sectional record based study was carried out in patients who had attended the Anti-rabies Clinic of tertiary care hospital, Miraj, for medical advice and post exposure immunization against rabies during last five year period from January 1, 2010 to December 31, 2015, to carry out detailed examination of the records of animal bite patients. The completeness of records is being judged on the basis of evolved proforma. The data compiled in Microsoft excel 2010 for Statistical tables, percentage and proportions.

## RESULTS

**Table 1: Year wise distribution of animal bite cases.**

Year	Male	Female	No. of cases
2011	870	578	1448
2012	928	598	1526
2013	1012	539	1551
2014	1472	252	1724
2015	1787	1081	2868
<b>Total</b>	<b>6069</b>	<b>3048</b>	<b>9117</b>

**Table 2: Socio-demographic profile of animal bite cases (n=9117).**

Characteristics	Frequency (%)
<b>Gender</b>	
Male	6069 (66.5)
Female	3048 (33.5)
<b>Residential area</b>	
Rural	2830 (31.4)
Urban	6287 (68.6)
<b>Age groups</b>	
<5 years	876 (9.7)
5-14 years	2347 (25.8)
15-65 years	5286 (57.9)
>65 years	608 (6.6)
<b>Sites of bite</b>	
Head and neck	304 (3.3)
Trunk and abdomen	617 (6.7)
Upper limb	2647 (29.4)
Lower limb	5346 (58.6)

Total numbers of cases were 9117 in five years i.e. from 2011 to 2015, total number of cases were recorded during year 2015 were more, and it was found male were prone to animal bite than the females (Table 1). Male to female ratio is 2:1 and urban to rural ratio also 3:1 (Table 2).

Majority of cases were in 15-65 years of age group (57.9%), followed by 5-15 years (25.48%), major site of bite was lower limb (58.6%), bites over head and neck were 3.3% of cases. Maximum numbers of cases were of category III bite (81.3%) and (16.4%) were of category II bite, (2.3%) cases were of category I (Table 3). Major biting animal was dog (73.9%) and (20.8%) was cat bite, others were pig, mongoose etc (Table 4). The observed socio demographic profile of victims of animal bite from case record was 8724 (95.6%) (Table 5). Status of the biting animal 9117 (100%), the category of wound was ascertained 9117 (100%) of the victims, site of exposure of victims 8914 (97.7%) had been entered in the case record. 7900 (86.6%) were advised to take inj T.T, 5436 (59.6%) were advised to take ARS and 6786 (74.4%) entry about wound toilet following animal bite was available from records.

**Table 3: Distribution of animal bite cases according to category of bite.**

Category	Frequency (%)
Cat-III	7416 (81.3)
Cat-II	1498 (16.4)
Cat-I	203 (2.3)
<b>Total</b>	<b>9117 (100)</b>

**Table 4: Distribution of cases according to biting animal.**

Biting animal	No of cases (%)
Dog	6746 (73.9)
Cat	1896 (20.8)
Others	475 (5.3)
<b>Total</b>	<b>9117 (100)</b>

**Table 5: Completeness of data.**

Type of observation	Observation (total)	Completeness of data (%)
Socio-demographic profile (name, age, sex, address)	8724	95.6
Site of exposure	8914	97.7
Animal	9117	100
Category	9117	100
T.T advised	7900	86.6
ARS advised	5436	59.6
Wound toilet	6786	74.4

## DISCUSSION

The present study was carried out by detailed examination of the records of animal bite patients who had attended the anti rabies clinic of tertiary care hospital Miraj, so this data provide a rough idea of overall load of animal bite cases in Miraj during the last five year period.

Out of 9117 of cases, maximum number of cases were from urban area (68.6%) and this could be due to less

reporting from rural areas due to lack of awareness and adult males were victims to animal bites (66.5%) and this could be due to adult males are more exposed to canines as they are involved in outdoor activities for various reasons. Similar findings were observed by Chauhan et al they found that (44.7%) of the study subjects were men.<sup>9</sup> Study conducted by Indu et al observed that (57.7%) of the study subjects were men.<sup>10</sup> and study conducted by Behera et al observed (69.9%) of the cases were men.<sup>11</sup>

Our study showed most common biting animal was dog (73.9%). Study findings were accordance with similar study by Chauhan et al they observed that majority (74.1%) of cases was bitten by the dogs.<sup>9</sup> Study conducted by Indu et al observed that majority (74.1%) of cases were bitten by the dogs.<sup>10</sup> Study conducted by Singh et al in Rajasthan found that dog bite contributed to (93.7%).<sup>12</sup> This indicates need of vaccinating the dogs.

It was observed that reporting of class III dog bite exposure was (81.3%). The study was accordance with similar studies of Ichhpujani et al and Gogtay et al described category III exposure was (63%) and (78%).<sup>13,14</sup> Bites over head and neck area was (3.3%) it can be due to the habit of sleeping outdoors and over upper limbs (29.4%) could be due to the habit of giving eatables to the stray dog.

## CONCLUSION

The study shows that number of dog bite cases is found in urban area, and adult males have higher incidence of animal bite than the adult females. The most common biting animal is dog and the most common site of bite is lower limbs in adults. The study also shows that Category III bites exposure were more common. The persistence of dog bites as public health problem in Miraj and data entered into the case records of the patients was complete.

## Recommendations

Control of stray and free roaming dogs would reduce the incidence of dog bite and rabies. Standard case record forms should be used in collecting data pertaining to suspected human rabies cases at the hospitals to ensure uniformity of data and to know information about how to interpreting behaviour of dogs, then need to strengthen information education and communication programme regarding local wound management and post exposure prophylactic vaccination to control rabies.

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