

## Original Article

# Study on cases with exposure to Animals with abnormal behavior

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## Abstract

**Research Question:** What is the profile of animal bite cases exposed to animals showing abnormal behavior reported at the ARC of M.K.C.G. Medical College, Berhampur, Orissa?

**Objectives:** 1) To know the type of Animal showing abnormal behaviour. 2) To assess the clinical profile of victims of animals with abnormal behaviour. 3) To know if there is any seasonal trend in animals to be rabid/shows abnormal behaviour.

**Material and Methods:** **Type of study:** Longitudinal. **Study duration:** From 1<sup>st</sup> April 2007 to 31<sup>st</sup> March 2009. **Study place:** Dept. of Community Medicine, M.K.C.G. Medical College, Berhampur. **Study setting:** Anti Rabies Clinic of MKCG Medical College. **Study Population:** All the Animal bite victims, who complain of being exposed to animals with abnormal behaviour. **Study analysis:** Percentage, proportion.

**Results:** During the study period 8881 cases had reported to the ARC, of whom 1652 (18.6%) were victims of animals showing abnormal behaviour. Stray dog accounted for the majority (96%) of the animals. All the cases had category III exposures. The average monthly attendance of cases with animal showing abnormal behaviour was  $63 \pm 6.7$ . All the cases received both active and passive immunization against Rabies. None of the cases had developed rabies till 2 months after the end of the study period.

**Key words:** Abnormal behaviour, Provocation etc.

## Introduction

Animal Bites pose a major public health threat both in developed and developing countries. Rabies is an under-reported, neglected and deadly disease estimated to cause more than 50 000 human deaths annually, most of which occur in the poorest regions of the world<sup>1</sup>. In India, about 15 million people are bitten by animals, mostly dogs, every year and need PEP. The annual number of person days lost because of animal bites is 38 million, and the cost of post-bite treatment is about \$25 million<sup>2</sup>. This 100% fatal disease is endemic in India. Annually 20,000 deaths occur due to rabies in India<sup>3</sup>. Rabies is a disease transmitted from animals to man and the commonest mode of transmission is by dog-bite. Majority of the victims are due to provocation of the animal. At times a rabid animal due to its abnormal behaviour goes on a rampage and bites its victims without any provocation. In view of this the current study was carried out 1) To know the type of Animal showing abnormal behaviour. 2) To assess the clinical profile of victims of animals with abnormal behaviour. 3) To know if there is any seasonal trend in animals to be rabid/shows abnormal behaviour.

## Materials & methods

This is a longitudinal study conducted in the Anti-Rabies Clinic (ARC) of Department of Community Medicine at MKCG Medical College Hospital, Berhampur, Orissa. All the Animal bite victims, who complain of being exposed to animals with abnormal behaviour during the period from 1<sup>st</sup> April 2007 to 31<sup>st</sup> March 2009 were included as study population and followed for a period of

two months after registration. Information on socio-demographic features like age, sex, residential area, type of Animal, cause of bite, bite during which month or season were collected in a pre tested questionnaire by interviewing the Patient or accompanying attendants of the patient in case of children.

## Results & Discussion:

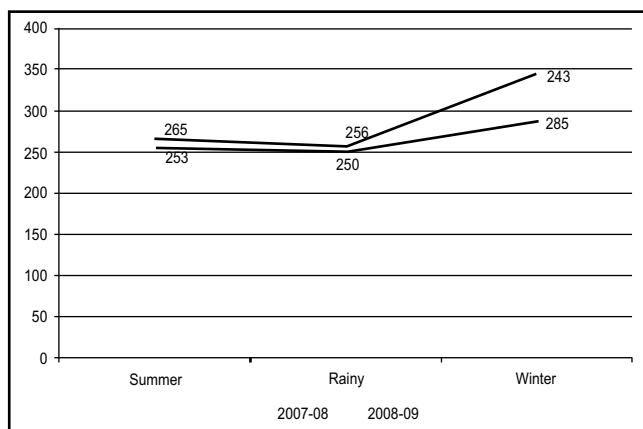
**Table-I: Month wise distribution of cases**

Season	Month	2007-08	2008-09
Summer	Mar	68	64
	Apr	58	68
	May	65	64
	Jun	62	69
Rainy	Jul	63	64
	Aug	60	61
	Sep	63	63
	Oct	64	68
Winter	Nov	62	71
	Dec	68	91
	Jan	82	98
	Feb	73	83
<b>Total</b>		<b>788 (47.7%)</b>	<b>864 (52.3%)</b>

The study revealed that a total 1652 cases with exposure to animals showing abnormal behavior had attended the ARC during the study period. During both the financial year period the bite cases with abnormal animals are more or less same and in the month wise distribution of cases it was found that during the period from November to February maximum number of cases (38.01%) attended

the outdoor for anti rabies treatment which corresponds to the season of winter (Graph-1). Previous studies<sup>5</sup> also proved that the frequency of animal bite is more during the period of December to February.

Table-II shows that majority of the victims were male which accounts for 57.7% and in the age group of 16-



**Graph-I: Seasonal trend of animal bite to be rabid/shows abnormal behaviour**

45yrs which accounts for 53.3%. Previous studies<sup>4</sup> conducted in the same area also agree with this result of bite is more common in males and in the age group of 16-45yrs. The high incidence of animal bites in males may be due to high provocation of animals by males as compared to females. The animal bite in age group of 16-45yrs is more due to their outdoor activities.

Table-III shows that the proportion of cases in Urban to Rural area is maintained in both the year. In the present study majority (66.1%) of the bite victims were from rural area as compared to urban. Like our study other studies<sup>5,6,7&8</sup> also demonstrated similar findings. The high incidence of bites in rural area as compared to urban may be due to the fact that people in rural area, mainly farmers and labourers, proceed for work in early hours of the day and continue late till dusk, thus more exposed to bites primarily due to poor visibility.

**Table-III:**

**Residential status of cases**

	Year		Total
	2007-08	2008-09	
Urban	264 (47.14%)	296 (52.86%)	560 (33.9%)
Rural	524 (47.98%)	568 (52.02%)	1092 (66.1%)
Total	788 (47.7%)	864 (52.3%)	1652 (100%)

The present study shows that dog is the most common biting animal as 95.94% cases were bitten by dogs followed by jackal and cat. This is similar to findings of the previous studies conducted by Shetty et al<sup>6</sup>, Sudarshan et al<sup>9</sup>, Sharma et al<sup>10</sup>, Rasanias et al<sup>11</sup>.

**Table-IV:**

**Distribution of cases according to biting animal**

Year	Type of animal				Total
	Dog	Cat	Jackal	Others	
2007-08	753 (95.56%)	9 (1.14%)	23 (2.92%)	3 (0.38%)	788 (47.7%)
2008-09	832 (96.30%)	5 (0.58%)	25 (2.90%)	2 (0.23%)	864 (52.3%)
Total	1585 (95.94%)	14 (0.8%)	48 (2.9%)	5 (0.3%)	1652

**Conclusion**

A total of 18.6% victims of all the bite cases were exposed to animals showing abnormal behaviour registered in ARC OPD with a monthly attendance of 63±6.7. Majority (53.3%) of the victims belongs to the age group of 16-45 yrs, 57.7% were male, 66.1% were from rural area. Most (94.3%) of the animal bites were unprovoked and stray dog accounted for the majority (96%) of the animals. Maximum exposures to abnormal animals occur during the month of Nov-Feb (Winter season). All the cases received both active and passive immunization and none of the cases had developed rabies till 2 months after the end after the study period.

**Table-II:**

**Age & sex wise distribution of cases**

Sex ↓	2007-08			2008-09			Total
	Age →						
	<15yrs	16-45yrs	>45yrs	<15yrs	16-45yrs	>45yrs	
Male	67 (7.03%)	233 (24.45%)	132 (13.85%)	102 (10.70%)	272 (28.54%)	147 (15.42%)	95 (57.7%)
Female	62 (8.87%)	181 (25.89%)	113 (16.17%)	55 (7.87%)	194 (27.75%)	94 (13.45%)	699 (42.3%)
Total	129 (7.8%)	414 (25.1%)	245 (14.8%)	157 (9.5%)	466 (28.2%)	241 (14.6%)	1652

## Recommendation

The maximum occurrence of animal bites due to abnormal behaviour in the present study was in the months of winter. The reason could be due to the fact that in this period of the year the weather is relatively pleasant to roam outside under the sun and this can lead to greater exposure of the animals to be bitten by other suspected rabid animals. Considering the average longest incubation period of rabies in dogs to be about 12 weeks, the maximum circulation of the rabies virus among animals could be assumed to present during September to October (3 months before the current finding of animals of abnormal behaviour from November to February). The authors therefore recommend mass vaccination of animals in the month of July to September which will be before the maximum circulation of the wild virus. Similarly awareness generation activities regarding rabies and its prevention should be conducted in our country in the pre winter season of September to October (just like malarial month conducted in the month of June before the peak season of malaria before July to September). The activities of World Rabies Day (WRD) conducted in the month of September assumes a greater significance in India.

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## Announcement

**The APCRI Journal is published twice a year. Once in January and again in July. The APCRI Journal invites Contributions from the Scientific Community, on All aspects of Rabies and Related Matter, in the form of Original Articles and Review Articles, Brief Reports, Case Reports, Personal Viewpoint, Letters to the Editor, Notes and News, Your Questions and Book Review.**

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