

# Elephant Trample: A Two Year Study in RIMS, Ranchi

Ajay Bhengra<sup>1</sup>, Sawan Mundri<sup>2</sup>

## ABSTRACT

**Introduction:** Conflict between human and animals has risen from the time human have encroached their area. Animal attacks cases has arisen due to high urbanization and increasing developmental pressure on forest habitats. Elephant often venture into human inhabited areas attacking people, damage houses and destroy standing crops. The main purpose of the study was to assess the magnitude of the cases in the region.

**Material and Methods:** The present study was conducted in the Department of Forensic Medicine and Toxicology, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand from January 2013 to December 2014. During this period, 2854 medico-legal autopsies were conducted out of which 21 autopsy cases were of elephant trample. The relatives of the victim and accompanying police were interviewed to obtain the information regarding the incident.

**Results:** The study revealed that males (81%) were mostly affected. The most affected age group is of 41-50 age groups (42.8%). All of them belong to the rural area and 28.6% incidences occurred in December. 95.2% victims died on the spot and 52.4% of the victims died of combined effect of head injury and hemorrhagic shock.

**Conclusion:** The study provides the valuable data regarding the deaths by elephants. It also emphasizes to respect the territory between humans and animals.

**Keywords:** Trample, Conflict, Urbanization

## INTRODUCTION

Human-elephant conflict (HEC) is a key concern and emerged now as a major issue both in terms of conservation and socioeconomic significance.<sup>1</sup> *Elephas maximus* is placed in schedule 1 and part 1 of the Indian wildlife protection Act (1972) conferring it the highest level of protection. Most of the populations in India are now restricted to the remaining patches of forests of the Himalayas and the Western and Eastern Ghats of Southern India (Mishra *et al.*, 2014).<sup>2</sup> Elephants were known to coexist with humans for centuries but then there were fewer humans and more land and therefore, more carrying capacity of habitats for elephants.<sup>3</sup> Elephants are mega-herbivores and commonly raid crops, causing economic losses, death and injury to people.<sup>3</sup> According to World Wildlife Fund, in India more than 100 people are killed by elephants each year.<sup>4</sup>

The main purpose of the study was to assess the magnitude of the cases in the region. This is to bring attention to the general public and to the government authorities. Thus, creating awareness regarding the cases and to bring participation to avoid such conflicts between humans and animals.

## MATERIAL AND METHODS

The study was conducted in the Department of Forensic Medicine and Toxicology, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand from January 2013 to December 2014. During this period, 2854 medico-legal autopsies were conducted out of which 21 autopsy cases were that of elephant trample. The cases of the elephant trample brought for autopsy were from Ranchi district of Jharkhand State especially areas belonging to Bundu, Tamar, Bero and Lapung blocks. These areas have good forest cover with good number of elephants residing. Whenever the case of elephant trample arrived, the relatives of victims and accompanying police were interviewed. The detailed information regarding the incident was noted. They were asked in detail regarding – place and time of incident, circumstances of elephant confrontation, regarding attempts of saving the victims, any measures taken by local or forest authorities after the incident to chase away elephants into the forest, regarding compensation etc. all these information were collected case-wise and incorporated together. During the interview, the relatives and even police were counseled. They were told about elephant habitat, nature, reasons behind their aggression. They were even told about the precautionary measures to be taken on sudden elephant confrontation, regarding attempts of saving the victim, any measures taken by local or forest authorities after the incident, steps taken by the authorities or local people to chase away the elephant into the forest, regarding compensation etc.

All these information were collected case-wise and incorporated together. During the interview, the relatives of the victim and even police were counseled. They were told about elephant habitat, their nature and reasons behind their aggression. They were even told about the precautionary measures to be taken on sudden elephant confrontations.

## RESULT

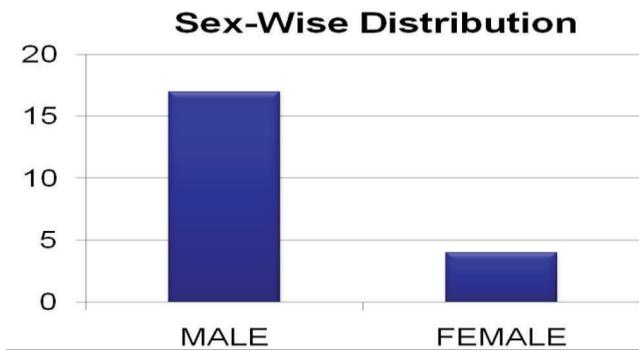
During the study period i.e. from January 2013 to December

<sup>1</sup>Assistant Professor & HOD, Department of Forensic Medicine & Toxicology, Hazaribagh Medical College & Hospital, Hazaribagh, Jharkhand, <sup>2</sup>Assistant Professor Department of Forensic Medicine & Toxicology, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand (India)

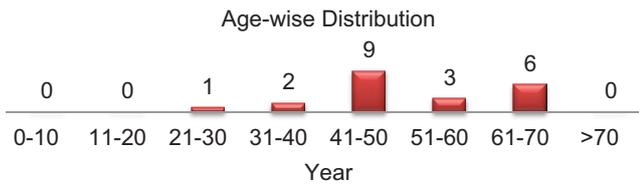
**Corresponding author:** Dr. Ajay Bhengra, S/O Late John Bhengra, Torpa Road Khunti Toli, P.O. Khunti, P.S. Khunti, Dist. Khunti, Jharkhand (India)

**How to cite this article:** Ajay Bhengra, Sawan Mundri. Elephant trample: a two year study in RIMS, Ranchi. International Journal of Contemporary Medical Research 2019;6(12):L1-L4.

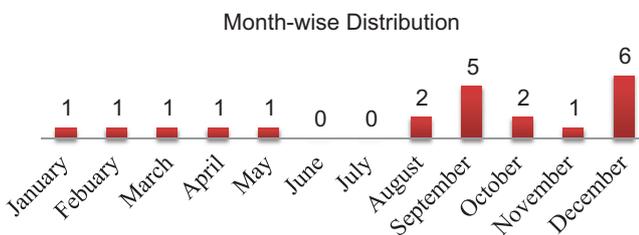
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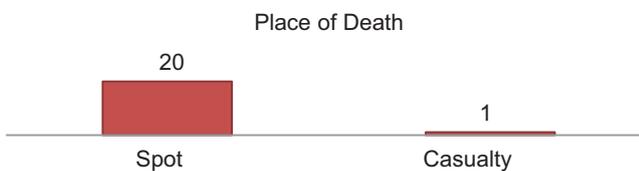
Graph-1: Shows sex-wise distribution of the cases.



Graph-2: Shows age-wise distribution of the cases.



Graph-3: Shows Month-wise distribution of the cases.



Graph-4: Shows distribution of the cases according to the place of death.



Graph-5: Shows distribution of the cases according to the cause of death.



Figure-1: Mutilated body of a 42 year male



Figure-2: Mutilated body is 41 year female

Type of damage	Amount (in rupees)
Death of a person	04 lacs
Seriously injured	01 lac
Simple injury	15,000
Permanently Handicapped	02 lacs
Completely Damaged House	1.30 lacs
Seriously Damaged House(Puckka)	40,000
Seriously Damaged House(kachcha)	10,000
Damage to Stored Grain	1600/quintal or maximum 8000
Death of Buffalo/cow/ox	15,000-30,000
Death of calf	5,000
Damage of crops	20,000-40,000

Table-1: Shows the amount of compensation given to the victims according to the type of damage.<sup>7</sup>

2014, a total of 2854 medico-legal autopsies were conducted out of which 21 autopsy cases were that of elephant trample. all the cases were analyzed and tabulated.

First of all the total cases were segregated according to the gender. It was observed that out of total 21 cases of elephant trample that came for autopsy, 17 were that of the males & 04 were of females (Graph 1). The male are the bread earners of the family. The male victims were involved in the agriculture and cultivation of crops. A good number of their lands are adjacent to the forest. Males usually became the victim while returning from their work in the evening. Whereas the females along with few males had confrontation while returning from the local market i.e. haat. The local

people sell their crops in the local market and even make purchases of their daily needs.

The cases were distributed according to the age groups. The ages of the victims were divided into eight groups i.e. 0-10, 11-20, 21-30, 31-40, 41-50, 51-60, 61-70 and lastly the victims of ages 70 and above. All the cases were distributed in these age groups. It was observed that most common age group affected was that of 41-50 age group i.e. 09 cases (Graph 2). The people of this group are involved in the daily activities of cultivation. They even rear livestock for their livelihood. They, sometimes, enter deep into the forest in search of their cattles who enter while grazing. The other common age group affected was that of 61-70 age group i.e.

06 cases. These people were involved in grazing cattles. The cases were distributed month-wise according to the time of incident. It was observed that majority of the cases reported were in the month of December i.e. 06 cases (Graph 3). This is the time when the elephants come to the villages in search of food. They attack the stored grains of the villagers. 05 cases were reported in the month of September. During this month, the elephants come out for food and attack the standing crops of humans. These lead to the conflicts between them.

The victims of the elephant trample were again distributed according to the place of death. The observation was made that 20 of the victims died on the spot while only one of the victim reached the casualty of the hospital (Graph 4). The elephant attack leads to multiple and very serious injuries. The survival of the victims becomes negligible. Therefore, majority of the victims died in the spot. The only person reached the casualty did not survive due to severe injuries.

The cases were then distributed according to the cause of death. It was found that 11 victims died due to combined effect of head injury and hemorrhagic shock, 08 victims died of the hemorrhagic shock and 02 of them died due to head injury (Figure 1, Figure 2, Graph 5). The cause of death of the victims was ascertained by the detailed postmortem examination. The attack by an elephant leads to injuries to multiple organs. The twisting force that elephant uses through his trunk results in fatal injuries.

## DISCUSSION

The elephant is highly respected and worshiped since ages. It is a culturally important species and having a religious status among the people. The protection of forests and wild life by the State has been mandated by the Indian Constitution through its article 48A of part IV as Directive principles and as citizens of India it is also one of our fundamental duties as laid down by the Constitution of India in article 51A of part IVA (Bakshi and Kashyap, 2012).<sup>5</sup> As the country is a fast developing economy and among most populous countries with around 17% of the world's human population, the protected area landscapes are not untouched of human presence.

There are numerous causes of conflict between humans and animals. The habitat loss is the major problem for the rise of the conflicts. Beside human settlements, the growing highways, train tracks and mines continue to eat up forest areas forcing the elephants to turn aggressive. The alteration of corridors is another major cause of the conflicts. Elephant corridors are narrow strips of lands that connect two large habitats. Over a few decades the vast elephant's ranges have been fragmented and precariously connected by narrow corridors due to expansion of human habitations and agriculture, indiscriminate growth of various developmental activities. The 2017 report notes that about 74% corridors are of a width of one km or less today, compared with 45.5% in 2005.<sup>6</sup> the crops damage by elephants give rise to resentments among the villagers and local people. This again leads to the conflicts between them.

The household and property damage is another root cause for the human-elephant conflict. The tribals of the region store the rice, wheat and local made liqueur (mahua wine/daru, rice beer/hadiya etc.) in house which attracts elephants resulting severe incidences.

In recent years ex-gratia for damage to crops compensation has become an important mechanism to redress grievance of community affected by human elephant conflict. Ex-gratia is paid in case of crop damage, property damage, etc. The damage is reviewed by an authorized officer from the Forest Department or a committee consisting of representatives of Revenue, Agriculture and Animal Husbandry Departments and Gram Panchayat members. A compensation case is prepared and submitted to higher authorities for sanctioning ex-gratia according to rates prescribed by State Government. The amount of compensation differs state to state. The government of Jharkhand also gives compensation according to the gravity of damage incurred in the human elephant conflict (Table 1).

## CONCLUSION

Human-elephant conflict in the region is an outcome of the biotic interference. The land-use change and shrinkage of corridors is a product of the diminishing area of elephant habitat and shortage of food and water in the area which favor the more incidence of crop raid. Hence, such incidence affects socio-economic development of the residing people.

The Forest Department has laid down many guidelines regarding safety from the wild elephants. The staff of forest department should be informed immediately on arrival of elephant in the area. If encountered in hilly area, one should run towards downhill. One should run in the zigzag manner throwing some clothes to distract the elephant. Red chili powder is mixed in burnt engine oil/grease and applied in thick rope. This rope is burned and is very effective to prevent human-elephant conflicts. One can also burn dried cow dung cake mixed with red chili powder. If enter into village, elephants should be chased in groups using torches. If elephant raises his trunk along with ears then it is a signal that he is charging to attack.

The Establishment of good communication network along with awareness programs involving local people, forest dwellers & forest department is one of the major safety measures. The emphasis to develop a more variable & feasible dense forest cover is very essential for the elephants. The elephant corridors for free movement of elephants should be opened as far as possible. The installation of beehives and chilly fences proved to be very useful to prevent conflicts. Addressing the root causes of such conflict is a basic first step towards conflict mitigation. Effective management of corridors would go a long way in ensuring symbiotic relationship between elephants and human being. Therefore, present findings will be useful for the government and non-government bodies for the improvement of the corridors, their conservation, management and livelihood of the tribal.

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**Source of Support:** Nil; **Conflict of Interest:** None

**Submitted:** 28-10-2019; **Accepted:** 30-11-2019; **Published:** 15-12-2019