

Original Research Paper

Stampede in Gandhi Maidan Patna: A Medico-legal Analysis

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Abstract

A stampede is a disastrous event in which a crowd of people collectively begins running with no clear direction causing large number of casualties. This usually occurs during religious pilgrimages, professional sporting or in times of panic, as in fire or explosion when large number of people try to get away from a close space like theatre, fair etc. On 3rd October 2014, during Dussahera celebration at Gandhi Maidan Patna, when people were returning back after watching the "Ravan Vadh" on the rumor of fall of live electric wire in the ground, crowd started running to get away and some of them were fallen and crushed by the unruly mob leading to heavy casualty.

In this accident 33 deaths occur and most of them (81.82%) were females and of younger age group. Multiple blunt force injuries especially on chest and abdomen were seen in most of the cases. Cause of death was Traumatic Asphyxia (54.55%) and Shock and hemorrhage (39.39%) in most of the cases. The cases of head injury were few, seen in only in 6.06% cases.

Key Words: Stampede, Crowd-crush, Traumatic asphyxia, Rupture of liver, Fracture of ribs

Introduction:

Stampede, in lay man's term is called as "crowd crush" in which crowd of people collectively begins running with no clear direction or purpose causing large number of casualties.

Such types of casualties occur throughout the world. This year, in the celebration of New Year at Shanghai (China), thousands of people gathered and 36 people killed and 47 injured in stampede. [1]

In 1913, in Italy 73 people died when they are trying to escape from a crowded Christmas party due to false fire alarm. In India it is more often seen during religious pilgrimages. [2] On 3rd February, 1954 during Kumbha Mela at Allahabad more than 800 people died and over 100 injured in a stampede when people were going to take bath in river Ganga.

Other few notable stampedes are at Sabarimala temple on 14th January 1999, Naina Devi temple on 3rd August 2008, Chamunda Devi temple in Jodhpur on 30th September 2008 and Ratangarh Mata Temple in Datia Madhya Pradesh on 13th October 2013. [3]

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Stampede at Gandhi Maidan Patna on 3rd October 2014 during Dussahera festival was due to a rumor of fall of live electric wire and uncontrolled mob started running to go out from the ground causing heavy casualty including death of 33 person.

The dead bodies were brought to the mortuary of PMCH Patna where identified by their relatives and friends. Post-mortem examination was conducted and all the important data regarding cause of death were compiled and presented in this paper.

Material and Method:

This retrospective study was conducted on all 33 dead bodies died in the stampede and received in the Department of Forensic Medicine and Toxicology PMCH, Patna for autopsy. The cases died due to unnatural deaths other than the stampede were not included in this study.

The demographic profile of the victims was noted from the police papers and interrogation with the accompanying persons. Injuries and causes of death were noted at the time of post mortem examination of dead bodies.

All the information of every case was recorded carefully, analyzed and presented in tables, bar and pie diagrams in result.

Observations and Results

Total death in Gandhi Maidan stampede was 33, of which majority of the victims (81.82%) were female. Most of the victims are young adult, maximum 24.24% in 21-30 years of age group followed by 21.21% in 1-10 years and 18.18% in 40-50 years of age group. (Fig. 1)

In this study males were only 18.18%, mostly boys below 14 years (12.12%) or elderly (06.06%) above 50 years. (Table 1)

In the post-mortem examination of victims of stampede cyanosis was seen in 48.48% cases, congestion of face & chest in 45.45%, sub-conjunctival hemorrhage in 36.36%, bleeding from mouth and nostrils in 63.64% and expulsion of fecal matter was seen in 30.30% cases but bleeding from ear not seen in any of the case. (Table 2)

Most of the injuries on stampede victims were in the form of contusions and abrasions and these were present all over the body mostly on chest and abdomen. The Injuries present on chest and abdomen alone or with surrounding areas in 48.48% cases, all over the body in 30.30% and only on face and chest in 15.15% cases. (Table 3)

Injuries only on upper and lower parts of body causing death in stampede were not commonly seen. Injuries only on head & face and on limbs causing death each were seen only in one case. Internally, fracture of ribs was the commonest found in 57.57% cases in which sternum was also fractured in 18.18% cases.

Amongst other thoracic injuries contusions/lacerations of lungs were found in 54.54% cases but rupture of heart was seen only in 03.03% cases. (Table 4) In other injuries, intra-cranial hemorrhages and fracture of skull bones were seen in 06.06%, contusion/rupture of liver in 18.18%, rupture of spleen in 09.09 %, rupture of intestine in 12.12%, fracture of pelvis in 09.09% and fracture of limb bones in 06.06% cases.

Congestion of trachea and lungs were seen in 66.67% and congestion of liver and brain in 48.48% cases. In our study most common cause of death in stampede was traumatic Asphyxia in 54.54% cases. (Table 5)

Discussion:

A stampede is an act of mass impulse among crowd of people or among herd animal in which crowd or herd collectively begins running with no clear direction or purpose. Human stampede most often occur during religious pilgrimages, political gathering, professional sporting and music events, as these event tend to involve a large number of people. [4, 5]

These occur in time of panic as a result of rumor, fire, explosion etc. As people tries to get away and the crowd is so big that, those in the back continues pushing forward not knowing that those in front are being crushed.

The vulnerability of religious gathering is also increased due to venue inadequacy, remote

or hazard prone setting, poor facilities or lack of basic infrastructure and medical care center. It is concluded that a simple accident or an intentional act or even a rumor can trigger a crowd disturbance. The risk factors identified from study of past incidents have led to the development of basic framework allied on four interlinked compartment for interagency co-operation and multidisciplinary contemplation ranging from hazard identification to the execution of mitigating measures for stampede control. It is believed that stampede or crowd disaster can be prevented by simple crowd management strategies such as organization and traffic control such as barriers.

One major problem is lack of feedback from people being crushed to the crowd pressing behind. Feedback can instead be provided by police, organizer and observer, who survey the crowd and use loudspeaker to communicate and direct the crowd.

At individual Level one is advised to move sideways between swells. A law is required that all public entertainment venue equipped with doors open outward.

Our study revealed that death from stampede was primarily from traumatic asphyxia followed by shock and hemorrhages and head injury in comparison to previous studies from 1883 Victoria Hall disaster, 1913 Italian hall disaster and 1989 Hills Borough disaster and 2014 Shanghai stampede where death occurs primarily from compressive asphyxia too.

Conclusion:

Stampede is usually predisposes by some sudden mis-happening or its rumor. Lack of proper crowd management in religious gatherings, social events, fair etc. is the main reason behind stampede.

The important features of this stampede at Gandhi Maidan Patna are:

1. Most of the victims of stampede were female and boys below 14 years of age.
2. Cyanosis, congestion of face and chest and bleeding from mouth and nostrils were seen in majority of the cases.
3. Injuries in form of contusion and abrasion were seen all over the body especially on the chest and abdomen.
4. Traumatic asphyxia and Shock & hemorrhage were the two important causes of death in stampede.
5. Fracture of ribs and contusion/laceration of lungs were seen in cases of death due to Traumatic asphyxia and rupture of liver, spleen and intestine in Shock & hemorrhage.

Large number of casualties occurs in stampede every year throughout the world. It can be minimized by effective disaster management program at high risk areas.

Visualization and control of over-crowded areas through CCTV cameras and mobilization of mob in less pressure zone, emergency medical facility near the disaster site are few measures which can be implemented.

District authorities must be made responsible for such happenings.

References:

1. New Year's Eve stampede in Shanghai kills dozens. Sydney Morning Herald. 1st January 2015.
2. Illiyas FT, Mani SK, Pradeep Kumar AP, Mohan K. Human stampedes during religious festivals: A comparative review of mass gathering emergencies in India. International Journal of Disaster Risk Reduction, Available online 15 September 2013, ISSN 2212-4209, <http://www.sciencedirect.com/science/article>
3. Death toll in MP stampede reaches 115; Congress wants CM to quit. Times of India. 14th October 2013.
4. Nandi A. Principles of Forensic Medicine. New central book agency (P) Ltd Kolkata, 2nd edition 2000; 340.
5. Dikshit PC. Textbook of Forensic Medicine and Toxicology. PEEPEE New Delhi, 1st edition 2007; 216.

Fig. 1: Age wise Distribution of Stampede Victims

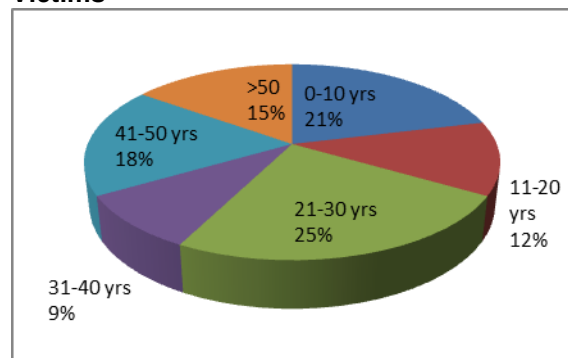


Table 1: Age and Gender wise distribution of the Victims of Stampede

Age (yrs)	Male (%)	Female (%)	Total (%)
0-10	2(6.06)	5(15.15)	7(21.21)
11-20	2(6.06)	2(6.06)	4(12.12)
21-30	0	8(24.24)	8(24.24)
31-40	0	3(9.09)	3(9.09)
41-50	0	6(18.18)	6(18.18)
>50	2(6.06)	3(9.09)	5(15.15)
Total	6(18.18)	27(81.82)	33(100)

Table 2: External Pathological Features in Stampede's victims

External features	Cases	%
Cyanosis	16	48.48
Congestion of face & chest	15	45.45
Sub-conjunctival hemorrhage	12	36.36
Bleeding from mouth	03	09.09
Bleeding from nostrils	02	06.06
Bleeding from mouth & nostrils	16	48.48
Bleeding from ear	-	-
Bleeding from ear, nose and mouth	-	-
Expulsion of fecal matter	10	30.30

Table 3: Major Body Areas Involved in Stampede's victims

Body parts involved	Cases	%
Head	-	-
Head & face	01	03.03
Face and chest	05	15.15
Face, chest & abdomen	03	09.09
Chest & abdomen	05	15.15
Chest, abdomen & limbs	08	24.24
Limbs	01	03.03
All over the body	10	30.30

Table 4: Internal Injuries/Pathological Features in Stampede' Victims

Internal injuries	Cases	%
ICH with fracture of skull bones	02	06.06
Fracture Ribs	13	39.39
Fracture Ribs and sternum	06	18.18
Contusion/laceration of lungs	18	54.54
Rupture of heart	01	03.03
Contusion/rupture of liver	06	18.18
Rupture spleen	03	09.09
Rupture of intestine	04	12.12
Congestion of trachea and lungs	22	66.67
Congestion of liver and brain	16	48.48
Fracture of pelvis	03	09.09
Fracture of limb bones	02	06.06

Table 5: Causes of Death in Stampede

Cause of death	Number	%
Traumatic Asphyxia	18	54.54
Shock & hemorrhage	13	39.39
Head injury	02	06.06