

A Study on Types of Violent Asphyxial Deaths Coming For Autopsy to Kolkata Police Morgue

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Abstract:

Background Violent asphyxial deaths are of common occurrence and there are various types as Hanging, Drowning, Strangulation, Suffocation and Traumatic asphyxia. The hanging and drowning are commonly seen in suicidal cases while strangulation including throttling is usually homicidal. In addition to these accidental compression or trauma to chest that prevent in respiratory movement, known as traumatic asphyxia or crush injury is also one of the cause of violent asphyxial death.

Settings and Design: Kolkata Police Morgue attached to the Upgraded Dept of Forensic and State Medicine, Medical College, Kolkata; Observational, descriptive, cross-sectional study.

Conclusion: Some of the common forms of violent asphyxial deaths in areas related to Kolkata Police Morgue include drowning, hanging, strangulation by ligature and throttling. Accident turns to be the commonest mode of death and drowning remains the most common means of accident,

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I. Introduction

The term asphyxia is commonly understood to mean "lack of oxygen" but literally translated from original Greek, it means absence of pulsation (James JP et. al., 2003).

According to DiMaio VJ and DiMaio D (2001)^[1], asphyxial deaths results from failure of cells to receive or utilize oxygen. The deprivation of oxygen can be partial (hypoxia) or total (anoxia).

The term asphyxia indicates a mode of dying, rather than a cause of death.

The classical signs of asphyxia are:-

- Visceral congestion.
- Petechiae.
- Cyanosis

Violent asphyxial deaths are of common occurrence and there are various types as Hanging, Drowning, Strangulation, Suffocation and Traumatic asphyxia. The hanging and drowning are commonly seen in suicidal cases while strangulation including throttling is usually homicidal. In addition to these accidental compression or trauma to chest that prevent in respiratory movement, known as traumatic asphyxia or crush injury is also one of the cause of violent asphyxial death.

Violent Asphyxial Deaths may be **classified** as Mukherjee JB, (2011):-^[2]

1. **Caused by compression of the windpipe:**
 - a) Due to suspension by a noose around the neck.
 - Hanging.
 - b) Due to causes other than suspension.
 - Strangulation.
2. Caused by submersion of mouth and nostrils under fluid.
 - Drowning.
3. Caused by exclusion of air from the lungs by anything other than constriction at neck and by means other than drowning.
 - Suffocation.
4. Caused by compression and or mechanical fixation of chest usually and at times of chest and abdomen.

- Traumatic asphyxia.

According to the *National Crime Records Bureau, Ministry of Home Affairs (2013)*, hanging (39.8%) and drowning (5.4%) were some of the most prominent means of committing suicide. Sufficiently large number of victims who terminated their lives by hanging has been reported from Arunachal Pradesh (60.70%), D&N Haveli (86.9%), A & N Islands (88.70%) and Nagaland (86.5%). Thus, the incidence of violent asphyxia deaths of different types was found to be different from place to place. These differences could be due to geographical influences, different lifestyles, increasing violence etc. and show the necessity to take up similar studies at different geographical areas.

The proposed study will be undertaken to assess the important epidemiological factors which may have a bearing on the occurrence of different types of violent asphyxial deaths among the cases coming for medicolegal autopsy to the Kolkata Police morgue attached to the upgraded Dept. of Forensic & State Medicine, Medical college Kolkata.

The particular study will be observational, descriptive, cross-sectional study which will try to elicit a relationship between factors determining the cause of violent asphyxial deaths. This will widen the knowledge of medical fraternity and help in the field of prevention & management of such cases.

II. Materials And Methods

1. STUDY AREA:- Kolkata Police Morgue attached to the Upgraded Dept of Forensic and State Medicine , Medical College , Kolkata.

2. STUDY DESIGN:- Observational , descriptive , cross- sectional study.

3. STUDY PERIOD:- May – 2014 to April – 2015.
Duration- 1 year.

4. STUDY POPULATION :- All cases of violent asphyxia deaths of both sexes e.g. hanging , drowning ,strangulation , traumatic asphyxia , choking , smothering , etc. coming for medico legal autopsy in Kolkata Police Morgue.

➤ **Inclusion criteria :**All types of violent asphyxial deaths

➤ **Exclusion criteria :** Decomposed bodies ;

5. STUDY TECHNIQUE:-

1. Record analysis will be done with the help of Inquest paper, History from relatives or next keen, if any, and other relevant papers.

2. Examination of the dead body.

6. STUDY TOOLS:- Structure proforma for data collection, scale, measuring tape, hand lens, autopsy instrument, weighing machine, dissection table, torch, scalpel , tooth & nontooth forceps.

7. VARIABLES:- Age, sex, manner of deaths, socioeconomic status. (**Modified Kuppuswamy's scale 2014**) time, marital status, religion, etc.

6. Plan for analysis of data:- Concurrent data entry will be done in Excel Spread sheet. Finally the data compiled as suitable table for frequencies and percentage, and as charts & diagrams & also photographs.

III. Results And Observations

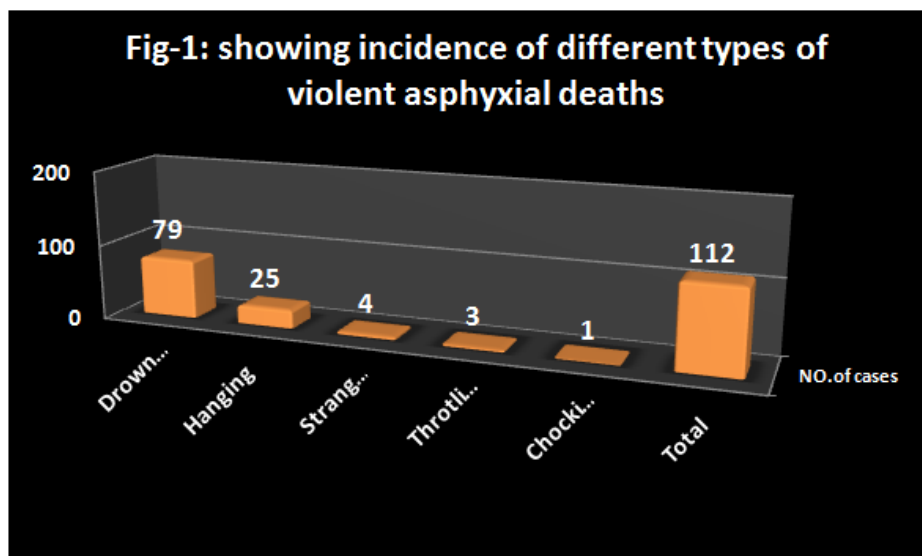
The present study on violent asphyxial deaths was done from May 2014 to April 2015 in Kolkata Police Morgue. During this period, out of the total number of 1055 medicolegal autopsies conducted, 112 cases (10.6%) were violent asphyxial deaths .

Incidence of different types of violent asphyxia deaths:

In the present study, drowning constituted the maximum number of cases with 79(70.54%), followed by hanging 25(22.32%), strangulation 4(3.57%), throttling 3(2.68%), choking1 (0.89%) etc. (Table-1 and Bar diagram-1).

Table-1 Incidence of different types violent asphyxia deaths

Sl. No.	Types of violent asphyxial deaths	No of cases	P.C(%)
1	Drowning	79	70.54
2	Hanging	25	22.32
3	Ligature strangulation	4	3.57
4	Throttling	3	2.68
5	Chocking	1	0.89
	Total	112	100



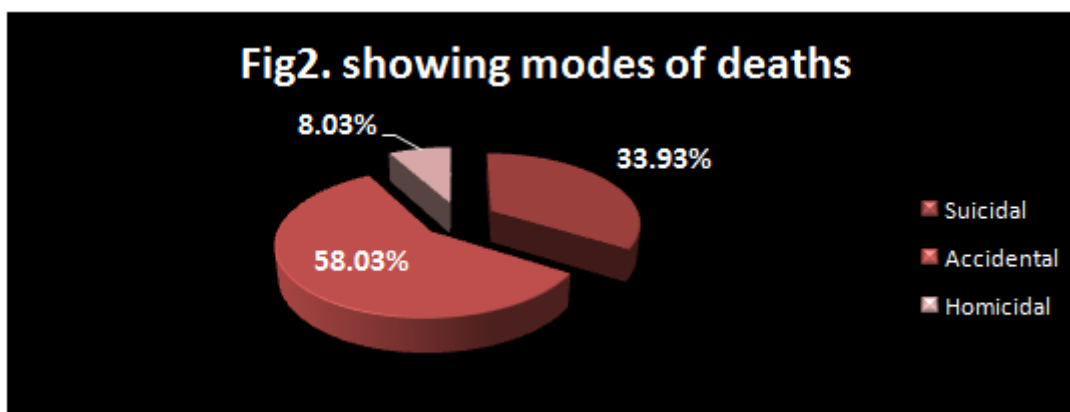
It was observed that 81.25% of the victims of violent asphyxia deaths were males while only 18.75% were females, the male: female ratio being 4.3:1. It was also observed that the highest no. of cases was seen in the age group of 31-40 years (53.57%), followed by 21-30 years (41.96%). The least no. of cases were observed in the age group of 81-90 years (0.89%).

Modes of deaths:

Accidental deaths (58.03%) constituted the maximum number of violent asphyxia deaths and all of them were cases of drowning and choking. It is followed by suicidal deaths (33.93%) and homicidal deaths (8.03%) as shown in Table-2 and Fig2.

Table-2. Showing modes of deaths

Methods	Suicidal	Accidental	Homicidal
Hanging	25	0	0
Drowning	13	64	2
Strangulation	0	0	4
Throttling	0	0	3
Choking	0	1	0
Total	38(33.93%)	65(58.03%)	9(8.03%)



IV. Discussion

There is variance in the incidence of violent asphyxia deaths in several studies conducted across the world. The incidence of violent asphyxia deaths was 5.26% in a 4-yr study by Singh A et al. (2003)^[3] at Patiala and 6.95% in 4 years of study by Chaurasia N et al (2012)^[4] at IMS-BHU, Varanasi. This finding may be compared with the finding in the present study which observed 10.6% of violent asphyxia deaths. However, Lalwani S et al. (2004)^[5] in South Delhi, Azmak D (2006)^[6] in Turkey and Bechara C et al (2008)^[7] at All India Institute of Medical Sciences, New Delhi observed slightly higher incidences of violent asphyxia deaths in their studies i.e. 11.21% ,15.7% and 12.27% respectively.

In the present work, it was observed that drowning is the commonest form of violent asphyxial death followed by hanging. This finding is in concurrence with the findings of several workers like Cairns FJ et al (1984)^[8], Auer A (1990)^[9], Langley JD et al (2001)^[10], Singh A et al (2003)^[11], Vougiouklakis T et al (2005)^[12]. This finding, however, differed from that of Momonchand A et al (1998)^[13], Chaurasia N et al (2012)^[15], Rahman MM et al (2013)^[16] etc. who observed hanging as to be the commonest form of violent asphyxia death. This variance could be attributed to difference in study regions/ geographical areas.

Other forms of violent asphyxia deaths like hanging (22.32%), strangulation (6.23%), choking (0.89%) were also observed in the present study. Similarly, Majumder BC (2002)^[16] also observed a low incidence of strangulation in a study at North Bengal Medical College, Siliguri. In another study by Berzlanovich AM et al (2005)^[17] in Vienna the incidence of choking was only 73 cases out of a total 42,745 consecutive autopsies. In the present study, the single case of choking occurred by aspiration of food particles.

In the present study, accidental deaths (59.82%) constituted the maximum number of violent asphyxia deaths and all of them are cases of drowning except one case is of choking. This finding concurs with the findings of Langley JD et al (2001)^[18] who observed that majority of drowning were accidental (85%). Auer A (1990)^[9] also observed most cases of drowning were accidental.

Gupta BD et al (2004)^[19] reported a case of accidental strangulation. In the present study, all the 4 cases of strangulation and 3 cases of throttling were homicidal in nature. Interestingly, Abraham VJ et al (2005)^[20] were of the opinion that women chose drowning or burning than men who preferred poisoning or hanging. No cases of autoerotic hanging as was observed by Bharadwaj DN et al (2004)^[21] could be seen in the present series.

V. CONCLUSION

It is evident from the present study that some of the common forms of violent asphyxial deaths in areas related to Kolkata Police Morgue include drowning, hanging, strangulation by ligature and throttling. Accident turns to be the commonest mode of death and drowning remains the most common means of accident, especially by younger males belonging to the poorer sections of the society from the urban areas. This reflects exposure of the public to unsafe environments. The spread of awareness message and safeguarding the dangerous sites and terrains from easy access to the common public by the concerned authority would definitely help in reducing the incidence of such accidents.

Hanging remains the most commonly adopted means of suicide, especially by younger males belonging to the poorer sections of the society from the urban areas, who cannot cope up with the burden of stress related to the ever demanding competitive ways of life. Hence, socioeconomic factors accountable for the higher incidence of deaths by younger section of people require attention of policy makers for suitable and sincere framing of the strategies and policies, and implementing the same in such a way that the reach the deprived.

Hence, it may be concluded that the key to preventing these violent unnatural asphyxial deaths lies in finding out the risk groups and factors, and planning preventive measures by the concerned authority as well as by general public at all levels of society.

Conflict of interest- None

Funding- None

References

- [1]. DiMaio VJM. Homicidal Asphyxia. *The American Journal of Forensic Medicine and Pathology*. 2000; 21(1): 1-4.
- [2]. Mukherjee JB. *Violent Asphyxial Deaths*. Forensic Medicine and Toxicology. 4th ed. Kolkata: Academic Publisher; 2011. 499-566.
- [3]. Singh A, Gorea RK, Dalal JS, Thind AS and Walia D. A Study of Demographic variables of Violent Asphyxial Death. *JPAFMAT*. 2003; 3:22-25.
- [4]. Chaurasia N, Pandey SK and Mishra A. An Epidemiological Study of Violent Asphyxial Deaths in Varanasi Region (India) a killing tool. *J Forensic Res*. 2012; 3(174): 172-175.
- [5]. Lalwani S, Sharma GASK, Rautji R, Bhardwaj DN and Dogra TD. Pattern of violent Asphyxial Deaths in South Delhi: A retrospective study. *Indian Medical Gazette*. 2004; 258-261.
- [6]. Azmak D. Asphyxial Deaths: A Retrospective study and review of the literature. *American Journal of Forensic Medicine and Pathology*. 2006; 27(2): 134-144.
- [7]. Bechara C, Rautji R and Tabin M. Homicidal Asphyxial Deaths in South Delhi (1996-2005). *Journal of Forensic Medicine and Toxicology*. 2008; 25(1): 26-28.
- [8]. Cairns FJ, Koelmever TD and Smeeton WM. *N Z Med J*. 1984; 97(749): 65-67.
- [9]. Auer A. Suicide by Drowning in Uusimaa Province in Southern Finland. *Med. Sci. Law*. 1990; 30(2): 175-179
- [10]. Langley JD, Warner M, Smith GS and Wright C. Drowning related deaths in New Zealand, 1980-94. *Aust N Z J Public Health*. 2001; 25(5): 451-457.
- [11]. Singh A, Gorea RK, Dalal JS, Thind AS and Walia D. A Study of Demographic variables of Violent Asphyxial Death. *JPAFMAT*. 2003; 3:22-25.
- [12]. Vougiouklakis T, Boumba VA, Mitselou A, Pescho D and Gerontopoulos K. Trends in suicide mortality in the deprived region of Epirus during the period 1998 to 2002. *Med. Sci. Law*. 2005; 45(1): 39-46.
- [13]. Momonchand A, Devi TM and Fimate L. *Violent Asphyxial Deaths in Imphal*. *JFMT*. 1998; 15(1): 60-64.

- [14]. Chaurasia N, Pandey SK and Mishra A. An Epidemiological Study of Violent Asphyxial Deaths in Varanasi Region (India) a killing tool. *J Forensic Res.* 2012; 3(174): 172-175.
- [15]. Rahman MM, Haque MR and Bose PK. Violent Asphyxial Deaths: A study in Dinajpur Medical College , Dinajpur. *Journal of Enam Medical College.* 2013; 3(2): 91-93.
- [16]. Majumder BC. Study of Violent Asphyxial Deaths. *JIAFM.* 2002; 24(2): 8-10.
- [17]. Berzlanovich AM, Fazeny-Dorner B, Waldhoer T, Fasching P and Keil W. Foreign Body Asphyxia: a preventable cause of death in the elderly. *Am J Prev Med.* 2005; 28(1): 65-69.
- [18]. Langley JD, Warner M, Smith GS and Wright C. Drowning related deaths in New Zealand, 1980-94. *Aust N Z J Public Health.* 2001; 25(5): 451-457.
- [19]. Gupta BD, Jani CB and Dutta RG. Accidental Strangulation: A case report. *Med. Sci. Law.* 2004; 44(4): 359-362.
- [20]. Abrahm VJ, Abraham S and Jacob KS. Suicide in the elderly in Kaniyambadi block, Tamil Nadu, South India, *Int J Geriatr Psychiatry.* 2005; 20(10): 953-954.
- [21]. Bhardwaj DN, Rautji R, Sharma RK and Dogra TD. Suicide by a Transvestite or sexual asphyxia ? A case report. *MED. Sci. Law.* 2004; 44(2): 173-175.

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