

Trends of Violent Asphyxial Deaths in Southern Marathwada Region of Maharashtra

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Abstract

Asphyxia is a condition caused by interference with respiration, or due to lack of oxygen in respired air, due to which the organs and tissues are deprived of oxygen (together with failure to eliminate CO₂), causing unconsciousness or death.[1] Mechanical asphyxia is broad term in which enough external pressure is applied to the neck, chest or other parts of the body is positioned in such a way that respiration is difficult or impossible.

To know the magnitude and pattern of violent asphyxial deaths in Latur district, we have conducted an autopsy based analytic study on 94 cases of asphyxial deaths in the department of Forensic Medicine during the period 01 August 2010 to 31 July 2012. All data related to age, sex, marital status, religion and cause of death with manner were recorded with detailed autopsy examination and subsequently the cases were analyzed on various parameters to find the trends and other significant features of pattern of unnatural deaths in Latur district.

In present study total 94 violent asphyxial deaths were analyzed. Majority of deceased were males (73.40%) as compared to female (26.60%). Out of 94 cases 86.17% were Hindu and 13.83% were Muslim and 58.51% were married. Majority of cause of death were due to Hanging (60.64%), Drowning (35.11%), Strangulation (03.19%), Choking were (01.06%). Most common material used for hanging was found jute rope. Most common motive behind the hanging was domestic problems or quarrel between family members. Most common manner of death in violent asphyxial death is suicidal followed by accidental in nature.

Keywords: Violent asphyxia; Related factors.

Introduction

Violent deaths are resulting from asphyxia, includes death due to hanging, strangulation, suffocation and drowning (immersion).[1] Causes of mechanical asphyxia are A) Closure of the external respiratory orifices, as by closing the nose and mouth with the hand or a cloth or by filling the openings with mud or other substance, as in smothering B) Closure of the air passages by external pressure on the

neck, as in hanging, strangulation, throttling, etc. C) Closure of air passages by the impaction of foreign bodies in the larynx or pharynx as in choking. D) Prevention of entry of air due to the air passages being filled with fluid, as in drowning E) External compression of the chest and abdominal walls interfering with respiratory movements, as in traumatic asphyxia.[2]

Such study was not carried out in Latur district till today. So the present study was carried out to know the magnitude of the different causes of unnatural deaths. It reviewed the unnatural deaths in district with reference to age, sex, cause, manner of death, place of incidence, material used for hanging, motive behind the act.

Material & Methods

The present retrospective cross-sectional

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study was conducted in the Department of Forensic Medicine at Government Medical College & General Hospital Latur. All the cases brought to post mortem center for medico legal autopsy during 01 August 2010 to 31 July 2012 with alleged history of violent asphyxial death were studied. Detailed information regarding the circumstances of death was sought from inquest papers, investigating officer, relatives. Data was collected and analyzed as per age, sex, marital status, causes of death, manner of death. Causes of death grossly classified as hanging, strangulation, suffocation, drowning and choking.

Results & Observations

The present study was conducted during the period 1 Aug 2010 to 31 July 2012. During study period 1469 autopsies were conducted,

out of which 94 autopsies were of death due to violent asphyxia which constitutes 6.40%. In present study out of 94 total autopsies of violent asphyxial death, 57 deaths were due to hanging, 33 were due to drowning, 03 were due to strangulation and 01 case was of choking. From Table No.-01, it was clearly revealed that most of the cases were of males (n=69, 73.40%). Male to female ratio was 2.76:1. Hindus were more (n=81, 86.17%) than Muslims (n=13, 13.83%) i.e. ratio being 6.23:1. Table No.-03 shows that most of the cases were from age group 21-40 years (n=57, 60.64%), most common being 21-30 age group (n=34, 36.17%), however Table No. 2 shows that most of the cases were from married group (n=55, 58.51%) while unmarried were (n=39, 41.49%). Hanging (n=25, 26.60%) was commonly found in age group 21-30 years age group however drowning was (n=10, 10.64%)

Table 1: Distribution of Cases According to Sex and Religion

Types of Asphyxia	Sex			Religion		
	Male	Female	Total	Hindu	Muslim	Total
Hanging	43 (45.74%)	14 (14.89%)	57 (60.64%)	49 (52.13%)	08 (8.51%)	57 (60.64%)
Strangulation	01 (1.06%)	02 (2.13%)	03 (3.19%)	03 (3.19%)	--	03 (3.19%)
Choking	01 (1.06%)	--	01 (1.06%)	01 (1.06%)	--	01 (1.06%)
Drowning	24 (25.53%)	09 (9.57%)	33 (35.11%)	28 (29.79%)	05 (5.31%)	33 (35.11%)
Total	69 (73.40%)	25 (26.60%)	94 (100%)	81 (86.17%)	13 (13.83%)	94 (100%)

Table 2: Distribution of Cases According to Marital Status

Types of Asphyxia	Marital Status		
	Married	Unmarried	Total
Hanging	32 (34.04%)	25 (26.60%)	57 (60.64%)
Strangulation	02 (2.13%)	01 (1.06%)	03 (3.19%)
Choking	01 (1.06%)	00	01 (1.06%)
Drowning	20 (21.28%)	13 (13.83%)	33 (35.11%)
Total	55 (58.51%)	39 (41.49%)	94 (100%)

Table 3: Distribution of Cases According to Age in Years

Types Of Asphyxia	Age In Years							Total
	0-10	11-20	21-30	31-40	41-50	51-60	Above 60	
Hanging	–	10 (10.64%)	25 (26.60%)	12 (12.77%)	07 (7.45%)	01 (1.06%)	02 (2.13%)	57 (60.64%)
Strangulation	–	01 (1.06%)	02	–	--	--	--	03 (3.19)
Choking	–	--	--	01 (1.06%)	--	--	--	01 (1.06%)
Drowning	01 (1.06%)	08 (8.51%)	07 (7.45%)	10 (10.64%)	05 (5.32%)	01 (1.06%)	01 (1.06%)	33 (35.11%)
Total	01 (1.06%)	19 (20.21%)	34 (36.17%)	23 (24.47%)	12 (12.77%)	02 (2.13%)	03 (3.19%)	94 (100%)

Table 4: Distribution of Cases According to Area and Site

Types Of Asphyxia	Urban /Rural			Indoor /Outdoor		
	Urban	Rural	Total	Indoor	Outdoor	Total
Hanging	37 (39.36%)	20 (21.28%)	57 (60.64%)	42 (44.68%)	15 (15.96%)	57 (60.64%)
Strangulation	01 (1.06%)	02 (2.13%)	03 (3.19%)	01 (1.06%)	02 (2.13%)	03 (3.19%)
Choking	01 (1.06%)	--	01 (1.06%)	–	01 (1.06%)	01 (1.06%)
Drowning	17 (18.09%)	16 (17.02%)	33 (35.11%)	–	33 (35.11%)	33 (35.11%)
Total	56 (59.11%)	38 (40.43%)	94 (100%)	43 (45.74%)	51 (54.26%)	94 (100%)

Table 5: Distribution of Cases According to Seasonal Variation

Sr. No.	Types of Asphyxia	Season			Total
		Rainy	Winter	Summer	
1	Hanging	11 (11.70%)	23 (24.47%)	23 (24.47%)	57 (60.64%)
2	Strangulation	--	02 (2.13%)	01 (1.06%)	03 (3.19%)
3	Choking	--	--	01 (1.06%)	01 (1.06%)
4	Drowning	07 (7.45%)	21 (22.34%)	05 (5.32%)	33 (35.11%)
	Total	18 (19.15%)	46 (48.94%)	30 (31.91%)	94 (100%)

commonly found in age group 31-40 years.

Table No. 1 also shows that Hanging was the most common cause of death (n=57, 60.64%) followed by the drowning (n=33, 35.11%). Hanging (n=43, 44.74%), drowning (n=24, 25.53%) and choking (n=01, 1.06%), commonly found in male than in females.

There was not a single case of hanging, strangulation and choking from age group 0-10 years, but one case of drowning in swimming pool was found in age of 06 years. It was revealed that Hanging (n=49, 52.13%), drowning (n=28, 29.79%) and choking (n=01, 1.06%), commonly found in Hindu than in Muslims. Table No.-02 shows that Hanging

Table 6: Distribution of Material Used for Hanging

Sr. No.	Material used	Number	Percentage
1	Jute Rope	21	36.84%
2	Nylon Rope	06	10.53%
3	Dupatta	05	8.77%
4	Scarf	02	3.50%
5	Sarree	07	12.28%
6	Electric Wire	03	5.26%
7	Resin Tape	01	1.75%
8	Cable Wire	02	3.50%
9	Chaddar	01	1.75%
10	Shawl	02	3.50%
11	Curtain	01	1.75%
12	Gamja	01	1.75%
13	Unknown	05	8.77%
	Total	57	100%

Table 7: Distribution of Cases According to Sites of Drowning

Sr. No.	Sites Or Places	Number (N)	Percentage (%)
1	Well	17	51.52%
2	River	07	21.21%
3	Tank	01	3.03%
4	Talav/ Lake	04	12.12%
5	Khani Pond	02	6.06%
6	Sweaming Pool	01	3.03%
7	Municipal Gutter	01	3.03%
	Total	33	100%

Table 8: Distribution of Cases According to Motive behind Hanging

Sr. No.	Motive Behind Hanging	Number (N)	Percentage (%)
1	Domestic Problems/ Quarrel between family members	28	49.12%
2	Incurable diseases	05	8.77%
3	Unemployment	03	5.26%
4	Failure in Exam/ Academics	03	5.26%
5	Failure in business	03	5.26%
6	Post-traumatic stress	01	1.75%
7	Failure in love affairs	01	1.75%
8	Psychiatric disorder	01	1.75%
9	Alcohol Addiction	03	3.26%
10	Old age	01	1.79%
11	Unknown	08	14.04%
	Total	57	100%

(n=32, 34.04%), drowning (n=20, 21.28%), strangulation (n=02, 2.13%) and choking (n=01, 1.06%), commonly found in married than in unmarried peoples.

Table No. 4 shows that most of the cases of violent asphyxial death were from urban region (n=56, 59.11%) and most of the cases were outdoor (n=51, 54.26%). Table No.-05 shows that most of the violent asphyxial deaths were occurred in winter season (n=46, 48.94%) followed by in summer (n=30, 31.91%). Table No.6 shows that 12 different types of materials were used for hanging as a ligature material. Among that Jute rope was commonly used for hanging followed by nylon rope and Dupatta. Table No.7 shows that the most common place where drowning take place was well followed by river and lake. Table No.8 shows that the commonest motive behind the hanging was due to domestic problems and the quarrel between the family members. Motives like the incurable disease, unemployment, failure in business and in academics were also noticed prominently. Table No.9 shows that the most common manner of death in violent asphyxial death is suicidal followed by accidental in nature. In the study only (n=3, 3.19%) cases were of homicidal in nature i.e. strangulation.

Table 9: Distribution of Cases According to Manner of Death in Violent Asphyxial Deaths

Sr. No.	Cause of Death	Manner Of Death			Total
		Accidental	Suicidal	Homicidal	
1	Hanging	00	57 (60.64%)	00	57 (60.64%)
2	Strangulation	00	00	03 (3.19%)	03 (3.19%)
3	Choking	01 (1.06%)	00	00	01 (1.06%)
4	Drowning	24 (25.53%)	09 (9.57%)	00	33 (35.11%)
	Total	25 (26.60%)	66 (70.21%)	03 (3.19%)	94 (100%)

Discussion

It is revealed that majority of deceased were males (73.40%) as compared to female (26.60%). Out of 94 cases 86.17% were Hindu and 13.83% were Muslim and 57.45% were married. Majority of cause of death were due to hanging (60.64%) followed by Drowning (35.11%). Similar findings were noted by Bhupal Ch Majumder.[3] He also noticed that Hanging outnumbered the other methods of violent asphyxial deaths and most of the hanging took place at indoor and the most of the cases were of suicidal in nature and we also have the same results. Kachare R. V. *et al*[4] concluded that the violent asphyxial death commonly found in male, hanging was the common method of death, common age group of death was between 21-30 years. Majority of the cases were of suicidal in nature and all the cases of hanging were of suicidal in nature and we also have the similar findings. Kachare R. V.[5] were observed that in common method violent asphyxia is hanging and most common age group of death is 21-30 years and male outnumbered the female in violent asphyxial deaths. Srinivasa Reddy P. *et al*[6] noted that the incidence of death due to asphyxia death was most common in males (59.14%) as compare to female. He also noticed that hanging (61.19%) was the most common cause of death followed by drowning (31.96%). He revealed that the most common age group was 21-30 years (34.93%) same was noticed in present study.

We also noticed that most of the cases were from urban area (59.11%) as our hospital is tertiary care center and located in urban region. We revealed that winter months (Oct-Feb) were the most choiceable time for committing of violent asphyxial deaths-46 cases (48.94%) followed by summer season, however Bhupal Ch Majumder[3] found that Summer months (March-May) were most choice able time for committing of this incidence-36 cases (29.50%) and victim also choose rainy season (June-August) in 33 cases (27.04%). Ahmad M, Hossain MZ[6] revealed that out of 145 cases, 85 (58.62%) were female and 60 (41.37%) were male and most common material used for hanging was dopatta (35.17%) followed by jute rope where as we found that the Jute rope (36.84%) followed by saree (12.28%) was the most common material used for hanging. But he concluded that the most common motive behind hanging was Quarrel between couples (n=45, 31.03%) and we also revealed that most common motive of hanging was domestic problems or quarrel between family members (49.12%). However Chormunge *et al*[8] found that the drowning was the commonest type (73.53%) followed by hanging (20.59%) which is different finding from our study. We noticed that in cases of death due to drowning most common site of drowning was the well (51.52%) followed by river this might be due to the fact that this region is poorly irrigated and having less network of rivers and canals etc. Most of the water supply is from well

other than municipal corporation water supply.

Prajapati Pranav *et al*[9] found that the prime motive behind violent asphyxial death was financial problems/disputes in hanging however we concluded that domestic Problems/ Quarrel between family members was the common motive behind death. In our study we found that most of the asphyxia deaths are suicidal in nature (70.21%) followed by accidental (26.60%). We also found three cases of strangulation i.e. homicidal in nature. In suicidal cases most common cause was hanging. In accidental asphyxia deaths drowning was most common cause of death. Srinivasa Reddy P.[6] noted that 90.42% cases were of asphyxia deaths were suicidal in nature and 9.58 % cases were homicidal in nature. Azmak D.[10] revealed that the most frequent method of asphyxiation death is hanging (41.8%), followed by drowning (30.5%) and suicide was found to be the most common manner of death in majority of cases and we also revealed the similar findings.

Conclusion

- Hanging (66.64%), Drowning (35.11%), Strangulation (03.19%), and Choking (1.06%).
- Most commonly involved age group was 21-30 yrs.
- Male to female ratio was 2.76:1
- Violent Asphyxia Deaths in Hindus were more compared to Muslims and ratio was 6.23:1.
- Married were most commonly involved.
- Most common material used for hanging was Jute rope followed by Nylon rope & Dupatta
- Most common Motive behind the hanging was domestic problems & quarrel between

the family members.

- Most common place where drowning take place was well.
- Most of the violent asphyxial deaths were suicidal in nature followed by accidental nature.

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