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Original Article

Prevalence of Violent Asphyxial Death in Rangpur District of Bangladesh

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Abstract

Background: Death due to asphyxia is one of the most important causes in violent deaths. This provides one of the most complex controversial areas asphyxial deaths as the mechanism is uncertain and frequency of such deaths makes them a common problem for both Forensic Medicine Doctors and Jurists. **Methods:** It was a study of all medico-legal autopsies performed between Jan, 2006 and October, 2007 at mortuary of Rangpur Medical College, on the basis of history, preliminaries of the deceased where the victim died as a result of hanging, strangulation, smothering and drowning. **Result:** Incidence of violent asphyxial deaths, 22.5% of total 200 autopsies in the present study during January, 2006 and October, 2007. Hanging is the most common violent asphyxial death (84.9%). Incidence of female victim is more than male. The ratio between male and female was 5:6. **Conclusion:** Strangulation and smothering are usually homicidal in nature. Drowning and suffocation are always accidental in nature but suffocation may be homicidal in nature.

Indexing words: Asphyxia, Hanging, Strangulation, Smothering and drowning

Introduction:

In violent asphyxial deaths due to asphyxia are caused by failure of cells to receive or utilize oxygen as a result of mechanical interference with the process of breathing[1]. Violent asphyxia can be caused by: 1.Closure of the nose and mouth, 2.Constriction of the neck resulting blockage of the respiratory passage either the force from outside or body itself. 3. Occlusion of the lumen of the air passage by some materials. 4. Restricting the movement of the respiratory muscles[2] and 5. Irrespirable gases. Violent death resulting from asphyxia, includes death due to hanging, strangulation, suffocation and drowning (immersion)[3]. The hanging is commonly seen suicidal while strangulation and smothering are usually homicidal. Suffocation and drowning are usually accidental but suffocation may be homicidal. Drowning also may be suicidal or homicidal.

The present study was carried out with a view to study to incidence of violent asphyxia deaths with regard to key features that helps to differentiate different violent asphyxial deaths.

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Methods:

The present study on violent asphyxial deaths was carried out at Mortuary attached at Rangpur Medical College, between January, 2006 and October, 2007. A total of 200 autopsies were carried out during this period. Out of them in 45 cases (22.5%), the victim had died as a result of violent mechanical interference with respiration like, hanging, smothering and drowning. These 45 cases were meticulously studied by considering various parameters like preliminaries of the deceased, history, place of incidence and post mortem findings etc. The data were recorded on a specially designed proforma and tabulated studies.

Results:

Incidence of violent asphyxial death was 22.5% of total 200 autopsies in the present study (Table 1).

Table 1: Incidence of violent asphyxial deaths

Total Number of autopsies	200
Number of violent asphyxial death	45
Percentage	22.5%

The classification of incidence of different violent asphyxial deaths in the present study is in Table 2. Hanging (84.4%) was the most commonly encountered violent asphyxial death followed by strangulation (8.9%) and smothering (4.4%) and

drowning (2.2%). From all the cases, the majorities were suicidal and a few of homicidal and accidental.

Table 2: Incidence of classification of various violent asphyxial deaths

Causes of death	Percentage
Hanging	38 (84.4%)
Strangulation	(8.9%)
Smothering	02 (4.4%)
Drowning	01 (2.2%)

Male:Female 6:5

Table 3: Age and sex distribution of cases

Age of the victims	Percentage
11-20 yrs	37.8%
21-30 yrs	28.8%
31-40 yrs	15.5%
41-50 yrs	8.8%
51-70 yrs	6.6%

Table 4: Age and sex distribution of cases according to the mode of violent asphyxial death

Cause of death	Sex	Age group						Total
		0-10	11-20	21-30	31-40	41-50	51-70	
Hanging	M	00	04	05	02	03	02	16
	F	00	09	07	04	01	01	22
Strangulation	M	02	00	01	01	00	00	04
	F	00	00	00	00	00	00	00
Smothering	M	01	01	00	00	00	00	02
	F	00	00	00	00	00	00	00
Drowning	M	01	00	00	00	00	00	01
	F	00	00	00	00	00	00	00
Total		04	14	13	07	04	03	45

Manner of death: 38(84.4%) out 45 cases of hanging were suicidal 6(13.3%) were homicidal and 1(2.2%) of drowning was accidental. Homicidal hanging or drowning is not recorded in the this study. All 6 (4 is strangulation and 2 is smothering) were homicidal.

Table 5: Manner of death

Cause of death	Suicidal	Homicidal	Accidental	Total
Hanging	38	00	00	38
Strangulation	00	04	00	04
Smothering	00	02	00	02
Drowning	00	00	01	01
Total	38	06	01	45

Reasons for death: Personal reasons were most commonly noticed for suicide by hanging followed by suffering from chronic disease and psychic disorder. 7 cases were noticed for suicide by hanging followed by family problem, 2 cases of hanging followed by social problem, 2 cases of hanging by domestic problem and 1 case of hanging due to extramarrital affairs. The reason of 12 cases of victim unnoticed for suicide by hanging. In 4 cases of strangulation– The 3 victims were strangulated due to revenge and I victim was strangulated for the robbery.

The reasons of among 2 smothering cases – 1 was domestic one was not known.

The reason of 1 drowning case was accidental.

Table 6: Reason for death

Reason of death	Hanging	Strangulation	Smothering	Drowning	Total
Personal	14	-	-	-	14
Social/Family/ Domestic Problems	Family - 07 Social - 02 Domestic - 02	-	-	-	11
Extramarrital affairs / sexual	01	-	-	-	01
Robbery/ Revenge	-	Robbery- 01 Revenge- 03	Robbery-01 Revenge-01	-	06
Not known	12	-	-	-	12
Accidental	-	-	-	01	01
Total	38	04	02	01	45

Place of hanging: Most of the people 34 (89.47%) committed suicide by hanging within the closed secured places (at home) and remaining 4 were at open places.

Table 7: Place for hanging

Place for hanging	No. of cases
Open place	07
Closed place	31
Total	38

Table 8: Material used for hanging/ strangulation

Ligature material	Hanging	Strangulation	Total
Soft material:			
Saree	01	-	01
Dhuti	01	-	01
Scarf	07	-	07
Muffler	o6	02	08
Hard material:			
Rope	23	01	24
Electric wire	-	01	01

Type of knot in hanging and strangulation: Table 9 showing type of knot in cases of hanging and strangulation were used in study.

31 cases (81.57%) out of 38 cases of hanging in present study had fixed knot and 7 cases (18.42%) out of 38 cases of hanging had running noose (slipping knot). 2 cases of strangulation had fixed knot.

Table 9: Type of knot in cases of hanging and strangulation

Types of knot	Hanging	Strangulation
Fixed	31	04
Running	07	-
Total	38	04

Type of hanging: Table 10 shows type of hanging occurred in present study. In our study only 5 (13.5%) victims were in partial hanging (kneeling down and flexed knee with touching the ground). The rest 33 (86.84%) were found fully suspended with feet clearly off the ground.
Recording typical hanging 8 cases (21.05%) out of 38 cases and rest were atypical hanging (78.94%).

Table 10: Type of hanging.

On the basis of knot	Number
Typical	30
Atypical	08
On the basis of degree of suspension	
Complete	33
Partial	05

There was only one case of drowning and place of drowning was in river. In our country, mass disaster also occurs by drowning in the river or sea of sinking of steamer or boat. It may be seen in the flood affected area of Bangladesh.
Table 11 is showing incidence of hanging according to religion. According to religion, Bangladesh is the muslim country and others only 10 -15% but the percetage of hanging is 21.05% comparatively is more than muslim.

Table 11: Incidence of hanging according to religion

Religion	Sex	No.	Total	Percentage
Muslim	M	12	30	78.95
	F	18		
Hindu	M	04	08	21.05
	F	04		
Total		38	38	100%

Discussion:
An increasing death rate as a result of violence constitutes a large group in medico-legal autopsies especially death due to asphyxia which is one of the most important cause in violent deaths. In present study, hanging is the most common adopted method of violent asphyxia. Hanging is noticed to be the most common type of violent asphyxial deaths.
In Patiala (India), Out of the 2110 cases being autopsied in mortuary, 111 cases were of violent asphyxia (5.26%). Among the 111 cases of violent asphyxia, drowning was 66(59.4%), Hanging 27(24.3%), Strangulation 6(5.4%), Drowning was found to be commonest of violent asphyxia death in this study[4].
In Jahangir Puri, North–West district, Delhi: a total 2479 medico-legal autopsies were conducted during the period from January 1, 2012 to December 2013, out of which 219 cases were due to violent asphyxia death, making the incidence rate 8.83%. Hanging 133 (60.73%), drowning 43 (19.63%), strangulation (ligature strangulation 20 (09.13%), manual strangulation 12 (05.47%) and smothering 07 (03.19%)[4].
In this present study, incidence of violent asphyxial deaths was 45 (22.5%) out of total 200 autopsies, January, 2006 to October, 2007. Hanging 38(84.4%), strangulation 04(8.8%), drowning only 01(2.2%). So, in Rangpur district, commonest violent asphyxia death was hanging.
In the study of Ahmed et al at Dhaka Medical College, Bangladesh, out of 574 hanging cases, 159(27.71%) were male and 415(72.29%)

female[5]. Out of 38 cases of hanging in the present study, male were 16(42.1%) and female were 22(57.89 %). The male and female ratio according to sex is 8:11.

Regarding the frequency of asphyxial death in relation to socio- economic status and religion in India, it was observed that most of cases of asphyxia deaths in North–West and Outer Delhi belongs to Hindu community 208 (94.97%), followed by Muslims 08 cases (3.65%). Sikhs and others were negligible (0.45%)[4].

In this study, in Rangpur District, out of 45 cases of asphyxial death, Muslim was 37(82.22%) and Hindu 8 (17.77).

The following are the age group of hanging: 0-10 years (10.5%), 11-20 years age group (34.21%), 21-30 years (31.57%), 31–40 years (15.78%), 41-50 years (10.5%), 31–50 years (26.31%), 51-70 years (7.89%). Most commonly involved 11-20 years age group (34.21%) and then the age group between 21-30 years (31.57%). So, 65.78% of total hanging occurred in 11–30 years age group. In the study of Ahmed et al most of the victims 269 (46.86%) were from the age group 21–30 years[5].

38 cases of hanging, out of 45 cases of violent asphyxial death were suicidal in nature i.e. hanging means suicidal hanging in the present study. Homicidal and accidental hanging is not recorded in this study. In this study, among 6 cases were homicidal (13.5%) of violent asphyxial death, only 1 case was accidental (2.6%) violent asphyxial death. Among the 6 homicidal cases, 4 strangulation was (8.9%) and 2 was smothering (4.4%).

Strangulation and suffocation are always homicidal in nature. It is considered that the manner of death in hanging is always suicidal. Homicidal hanging in our country, usually the death sentence passed by court which is implemented by hanging i.e Judicial hanging. Besides the judicial hanging, homicidal or accidental hanging is very rare. Homicidal or accidental is not recorded in this study. Strangulation and smothering were homicidal. Drowning is usually accidental. In the study, drowning was recorded as accidental on the basis of history of police and relatives of the deceased as well as post mortem findings.

Reasons for death – In our study, reasons of death from hanging due to personal/ social/ familial/Extramarital affairs were the main cause 26(68.42%). Marital disharmony/quarrel between couples was the main cause 172(29.96 %) found for suicidal hanging[5]**.**

Due to population explosion, poverty and increasing mental stress and strain in our daily life style, as a result; incidence of these events is increasing gradually.

Considering above facts, it is important to diagnose and differentiate between different asphyxial deaths especially between hanging and strangulation by ligature. In addition to the present study was conducted to study the incidence methods adapted, demographic variable and post mortem findings in violent asphyxial deaths at mortuary, Rangpur Medical College.

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