

Original Research Paper

Study of Hanging Cases in Ahmedabad Region

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Abstract

In spite of advancement in medical facilities, the natural end of life is inevitable. But for some persons, the death is destined earlier in an un-natural way. A few choose to make their own way by committing suicide. The major reasons are personnel problems, stress of life, family problems and financial problems. There are many methods for committing suicide like poisoning, hanging, self-immolation, drowning etc. Hanging provides painless death so it is one of the commonly adopted methods for suicide. However, in a few instances false allegations are made claiming that the ligature mark over neck is of strangulation rather than hanging. Vice versa cases are also likely. In such cases, the post-mortem findings are very helpful to differentiate between the two.

Present prospective study was carried out at the mortuary of Civil Hospital, Ahmedabad over 2 years period ranging from December 2008 to November 2010 with a view to study to incidence, ligature materials, and post-mortem findings in hanging cases. The place of hanging, manner of death and reason for death were also studied in the study.

Key Words: Suicide; Hanging; Autopsy, Demographic variables

Introduction:

Ahmedabad is the city with highest population in Gujarat with an approximate population of 5 to 6 million and it is also the economic capital of Gujarat. Due to population explosion, poverty and increasing stress and strain in our daily life, we frequently come across cases of suicides. Many people get stressed in this hard life. Some get overcome from that and some cannot. So they find easy way to come out of it and choose the way of suicide.

Suicide is a self directed having fatal outcome. There are many methods for committing suicide like poisoning, hanging, self-immolation, drowning etc. Hanging is a form of violent asphyxial death produced by suspending the body with a ligature around neck and the constricting force being the weight or part of the body weight. [1] It is the method of capital punishment adopted by Indian legislature.

All cases of hanging are considered to be suicidal until the contrary is proved. [2] Any substance available at hand may used as ligature. Articles commonly used as ligature are soft materials like 'dhotie', 'Saree', 'Bed sheet', 'Sacred thread', 'handkerchief', 'neck tie', or it may be the hard and pliable material like 'Electric cord', 'Belt', 'wire' or 'Leather strap'. In short, the material can be anything handy and available near the place of occurrence as the suicide is an impulse mediated act. [3]

Present study is an attempt to analyze the socio-demographic pattern, causes and precipitating events for hanging as well as the place of the incidence, ligature material etc all of that helps the investigating authorities into the circumstances of death. Post-mortem findings are of utmost important in differentiating the cases of hanging from ligature strangulation, so were also the part of the study.

Material and Methods:

The present prospective study of hanging cases was carried out at the mortuary of Civil Hospital, Ahmedabad. The duration of the study was 2 years from 1st December, 2008 to 30th November, 2010. A total of 6880 dead bodies were received for post-mortem examination during the study period. Out of them, in 332 cases, the corpses presented with ligature mark over neck. On the basis of post-mortem findings and correlating with the detailed history elicited from the police and the relatives of the deceased, it was concluded that the cause

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of death was hanging in 320 cases (4.65 %) and strangulation in 12 cases (0.18 %). All these hanging cases were selected for the present study.

The details regarding history of the incidence, personnel details of the deceased and post mortem findings were recorded on specially designed proforma. The scene of incidence was visited and the findings were also entered into the proforma. The data so collected were tabulated on a master-chart and analyzed.

Observation and Discussion:

A total of 6880 dead bodies were brought for post-mortem examination at the mortuary of Civil Hospital, Ahmedabad during the 2 year period ranging from 1st December, 2008 to 30th November, 2010. After post-mortem examination and correlated with the history received from the police and relatives of the deceased, it was confirmed that in 320 cases (4.65 %), the victims had died because of hanging. These 320 cases are the part of the study. Amandeep Singh [4] encountered the incidence of hanging as low as 1.28 %.

In our study highest incidence (128 cases forming 32.98 % of total) was noticed in the age group of 21-30 years. Amandeep et al [4] also found nearby results with highest incidence (59.24 %) amongst the population of 15-25 years. Whereas Azmak D et al [5] describes described highest victims (20.8 %) between 30 to 39 years. It is clear that in majority age groups males' outnumbered female with a male: female ratio of 1.5:1. (Table 1)

On eliciting the detailed history from the police and relatives of the deceased, we came to know the fact that majority of the victims (308 victims, 96.25 %) were recovered from closed areas that is mostly at home or work place. Only 12 victims (3.75 %) hanged themselves to the twig of a tree or a beam at open place under the sky (Table 2). In the study of Sharija et al [6] at Southern part of Kerala, 28.73 % victims were recovered from open places whereas remaining 71.27 % from enclosed area in the room.

Out of 320 cases, 316 victims (98.75 %) were recovered completely hanging from a higher point (complete hanging), whereas only 4 (1.25 %) were recovered in kneeling down position or with toes or feet touching the ground (partial hanging); most likely because of slipping of the knot at the higher point by weight of the body. (Table 3)

Seen from present study, in 8 cases (2.5 %), hanging was accidental as described in history and police paper and the sufferers were either children of 11-20 years age groups or

adults who were hanged accidentally while performing their duties as a part of the occupation. The remaining 312 cases (97.5 %) were considered to be of suicide, as hanging is always considered suicidal in nature until contrary is proved and all the cases under the study had not shown any other injury or defense wounds on post-mortem examination, thus excluding the possibility of homicidal hanging. (Table 4) However, O. Gambhir Singh et al [7] and Naik S et al [8] have described a few rare cases of homicidal hanging.

Our study shows that, in 132 cases, the victims committed suicide because of personal problems which may be failures in examinations, psychiatric problems or long time illnesses. In 88 cases (27.5 %), social/family/domestic problems played role. 48 cases (15 %), were classified to be of unknown reason as the deceased was unidentified or proper history was not available with the police or relatives of the deceased. (Table 5) Borrowings/financial problems were responsible for suicide in 32 cases (10 %) and extramarital affairs/sexual problems in 8 cases (2.5 %).

Some of the dead bodies under the study were received with ligature material in situ whereas for remaining cases police officer was asked to supply the ligature material for examination. For the purpose of present study the ligature material is divided into two broad groups. (Table 6)

1. Hard - e.g., electric /nylon wire, rope etc.
2. Soft - e.g., dupatta, bed-sheet, saree etc.

In present study, 'dupatta' was most commonly used ligature material (67.5 %) which is easily available in almost every house. The studies by Sharija et al, Naik S K et al and Sharma B R [6, 8, 9] have shown variation regarding material used for hanging. But all of them are of the opinion similar to present study that soft material being more commonly used than the hard one.

The difference in the studies could be because of fact that suicide is because of an impulse and for that the victim uses whatever material is available nearby on that particular period of time. To conclude it can be said that for a person to end his/her life by hanging, he/she may use any material available in the vicinity.

As the knot was fixed one in 248 (77.5 %) cases and of running type in 72 cases (22.5 %), (Table 7) The ligature material was cut away from the knot, the cut ends tied with strings and preserved for examination at FSL. The knot impression over neck was compared with the actual knot. On the basis of the position of the knot-mark over neck (correlated with the actual

knot of ligature material), the hanging was typical (knot impression over the sides of the neck) in only 8 cases (2.5 %) whereas it was atypical in 312 cases (97.5 %) (Table 3)

On external examination it was seen that in all the 320 cases (100 %) of hanging one or more signs of asphyxia were noticed and the ligature mark was obliquely placed. In 256 cases (80 %), the mark was situated at and above the level of thyroid cartilage. In all these cases soft and broad material was used as ligature. (Table 8) In remaining 64 cases (20 %) the ligature mark was because of hard material and situated above the thyroid cartilage. None of the case showed ligature mark below the thyroid cartilage as the ligature slips upward in hanging position. Congestion of face because of venous occlusion was noticed in 248 cases (77.5 %).

Dribbling of saliva from the angle of mouth opposite to the knot, the surest sign of ante-mortem hanging [10-12] was noticed in 228 cases (71.25 %). In 60 cases (18.75 %) the distribution of post-mortem lividity was typical of hanging means in legs, feet, hands and forearms suggestive that lividity was fixed as the body was suspended for more than 4 to 6 hours.

In 104 cases (32.5 %) the lividity was noticed on back side only when body was released from the point of suspension within a few minutes after death. In 156 cases (48.75 %) the mixed picture of lividity was seen because of shifting of the lividity when the dead body was released from the point of suspension within 4 to 6 hours after death. 88 victims (27.5 %) presented with ecchymosis along the edges of the ligature mark because of violent movements at the terminal event.

Discharge of semen was seen in 56 cases (17.5 %) whereas discharge of urine/faeces was noticed in 44 cases (13.75 %). La facie sympathetic and defence wounds were noticed in none of the cases under the study.

On internal examination all 320 cases (100 %) presented with white-glistening subcutaneous tissue and neck muscle contusion was detected in 20 cases (6.25 %). (Table 9) In no case under study rupture of the strap muscles, fracture of thyroid cartilage or hyoid bone or tear in the intima of the carotid artery was detected.

Conclusion:

The incidence rate of hanging is 4.65 % (320 out of 6880) in the present study with a male: female ratio of 1.5 and 21-30 years age group being most commonly (40 %) involved population. 312 cases (97.5 %) under the study were suicidal and remaining 8 (2.5 %) were

accidental. Personal reasons (136 cases, 42.5 %) and family problems (88 cases, 27.5 %) were encountered to be the common reasons for committing suicide. Soft material (80 %) was more commonly used as ligature than the hard one (20 %). However, on an impulse for suicide the victims used whatever material available on the particular time.

Correlation of the history with post-mortem findings are very helpful in cases of corpses presented with ligature mark around the neck as dribbling of saliva, the considered surest sign of ante-mortem hanging was noticed in only 228 cases (71.25 %). Examination of scene of incidence has an immense value in such cases.

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Table 1: Age and Sex Wise Distribution

Age grs (yrs)	Gender of the deceased		Total
	Male	Female	
0-10	00	00	00
11-20	36	40	76
21-30	68	60	128
31-40	44	20	64
41-50	24	04	28
51-60	20	04	24
Total	192 (60 %)	128 (40 %)	320 (100%)

Table 2: Place for Hanging

Place of Hanging	Cases
Open place	12 (3.75 %)
Closed place	308 (96.25 %)
Total	320 (100 %)

Table 3: Type of Hanging

	Type	Cases (%)
On basis of position of knot	Typical	08 (2.5)
	Atypical	312 (97.5)
	Total	320 (100)
On basis of degree of suspension	Complete	316 (98.75)
	Partial	04 (1.25)
	Total	320 (100)

Table 4: Manner of Death

Manner Of Death	Cases	Percentage (%)
Suicidal	312	97.5
Accidental	08	2.5
Homicidal	00	0
Total	320	100

Table 6: Ligature Material Used For Hanging

Ligature Material	Hanging (320 Cases)
Soft Material	
Bed Sheet	32 (10 %)
Dupatta	216 (67.5 %)
Sarree	04 (1.25 %)
Piece Of Cloth	04 (1.25 %)
Subtotal	256 (80 %)
Hard Material	
Electric Wire	04 (1.25 %)
Rope	60 (18.75 %)
Subtotal	64 (20 %)
Total	320 (100 %)

Table 9: Post-Mortem Findings on Internal Examination

Internal Findings	Hanging
Subcutaneous tissue	White glistening 320(100%)
	Contused 00
Fracture of thyroid	00
Fracture of hyoid	00
Neck muscle contusion	20(6.25%)
Strap muscle rupture	00
Intimal tear of carotid artery	00

Table 7: Type of Knot

Type Of Knot	Hanging
Fixed	148 (%)
Running	172 (%)
Total	320 (100 %)

Table 5: Reason for Death

Reason for Death	Cases
Personal	136 (42.5 %)
Social/family/domestic problems	88
Borrowings	32
Extramarital affairs/sexual	08
Not known	48
Accidental	08
Total	320 (100 %)

Table 8: Post-Mortem Findings on External Examination

External Findings	Hanging (320 Cases)
Placement of ligature mark	Oblique (100 %)
Place of ligature Mark at neck	above thyroid 20 (6.25 %)
	at & above thyroid 300 (93.75 %)
	Below thyroid 00
Congestion of face	248 (77.5 %)
Dribbling of saliva	228 (71.25 %)
La facie sympathique	00
Postmortem Lividity	Typical 56 (17.5 %)
	On back 164 (82.5 %)
Ecchymosis along edge of mark	88 (27.5 %)
Discharge of semen	56 (17.5 %)
Discharge of urine/faeces	44 (13.75 %)
Struggle marks	00