

Medico-Legal Study of Hanging Deaths



Forensic Medicine

KEYWORDS : Hanging, Asphyxia, Suicide.

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ABSTRACT

Background: Hanging is a form of violent asphyxia death in which body is suspended by means of ligature tied around the neck. Hanging is a common method of committing suicide among suicide cases. In hanging, cause of death can be asphyxia, venous congestion, combined asphyxia and venous congestion, reflex vagal inhibition, fracture or dislocation of cervical vertebrae. Death delayed for several days is rare.

Objective: The present study is a humble effort to correlate the cases of hanging in terms of age groups, sex, manner and post-mortem appearances.

Materials and Methods: It was a prospective study conducted in the Department of Forensic Medicine & Toxicology at Indira Gandhi Medical College & Hospital, Nagpur during March – 1997 to April 1999. A total of 77 cases were examined and recorded.

Results: Most common victims belonged to male, 21-30 yr of age group, Hindu, with different socio economic status. Most of them were suicide by Hanging by Rope.

Conclusion: Most of the deaths are Suicide due to hanging.

INTRODUCTION: Hanging is a form of violent asphyxia death in which body is suspended by means of ligature tied around the neck. The constricting force is the weight of the whole body or weight of the head alone.

The present study is a humble effort to correlate the cases of hanging in terms of age groups, sex, manner and post-mortem appearances.

A form of violent asphyxia death namely hanging is commonly associated with self killing. It is one of the leading manners of suicide in which there is a suspension of body by ligature compressing the neck externally, constricting force being the weight of the body. Hanging is always considered suicidal except accidental hanging in sexual perverts, homicidal in lynching and justifiable suicidal hanging¹

Hanging is a common method of committing suicide among suicide cases².

The death occurs within few minutes of hanging³.

The process is invariably fatal unless the body is brought down in time and ligature released⁴.

In hanging, cause of death can be asphyxia, venous congestion, combined asphyxia and venous congestion, reflex vagal inhibition, fracture or dislocation of cervical vertebrae. Death delayed for several days is rare⁵.

Due to population explosion, poverty and increasing stress and strain in our daily life, we frequently come across cases of suicides, homicides and accidents. Males and females are both exposed to such stresses but it seem that ours being a male dominated society and more exposure to external environment, such cases are commonly seen in males. With urbanisation, rural areas are also not left aloof and this can be seen from the increasing incidence of such cases from these areas⁶.

Considering above facts it is highly essential to diagnose and dif-

ferentiate between different asphyxial deaths, especially between hanging and strangulation by ligature. In addition to the cause of death, the careful post-mortem can also help the investigator to arrive at a conclusion about manner of death.

MATERIAL AND METHODS:

This study was conducted in Forensic Medicine Department, Indira Gandhi Medical College, Nagpur. The cases included in the study were conducted in this department from March – 1997 to April 1999. 77 cases were examined. The details about the victims regarding the age, sex, circumstances of death, manner and supposed cause of death were obtained from police requisition and inquest panchanama. Meticulous postmortem examination was performed. Examination of dead bodies were carried out in sufficient and satisfactory light condition, so as to appreciate even slight degree of cyanosis and color and distribution of postmortem lividity. The natural orifices were examined for the presence of purging of semen, urine and faeces. Ligature mark was meticulously evaluated with respect to dimensions, age of injury, color and presence of trace evidences like fibres and hair. Neck was opened by by two techniques of incision. In the first one, a straight midline incision was given from symphysis-menti to manubrium. In the second technique, incision was given from mastoid process and carrying the incision along the lateral aspect of neck upto the manubrium and then reflecting the flap of the neck skin.

OBSERVATION & RESULTS:

As hanging is considered as painless & easy way of death, majority of victim were observed in their reproductive period. Table no. 1 showed that the maximum number of cases was observed in age group 21-30 yrs i.e. 22(28.75%) followed by 31-40yr i.e. 17(22.08%), and male predominance 59 (76.62%)

Table no. 2 showing the distribution of various types of hanging deaths with respect to manner of deaths as per police in which it was observed that in 71(92.20%) cases hanging were suicidal in nature while in 6 (7.8%) cases manner of death cannot be ascertained.

In this study ligature material brought for examination were rope 10, saree 5, dupatta 6 and electric wire 1, but most of cases rope was used as ligature material.

Out of 22 ligature material present in situ, 17 (77.27%) cases knot was fixed type while in 5 (22.73%) cases slipping knot was present.

Table no. 3 showed all post mortem examination findings in cases of hanging in different cases with varying percentages.

DISCUSSION:-

In Our study the maximum number of cases was observed in age group 21-30 yrs. 22(28.75%) followed by 31-40yr i.e. 17(22.08%),

Study of Basawaraj Patil et al⁷ shows hanging was more common in 3rd decade of life (31.78%) and least after 6th decade (6.54%), and Dere et al⁸ Hanging was most common in age group 11-20 years 21(26.25%) followed by 21-30 and 31-40 age groups 18 (22.5%) and 15 (18.75%) respectively.

The present study showed male predominance i.e. 59 (76.62%).

Study of Basawaraj Patil et al⁷ shows there was male preponderance in hanging (71.96%), findings in study consistent with the study conducted by Momenchand et al⁹.

Study of dere et al⁸ showed hanging among violent Asphyxial deaths were 73 (91.25%).& Hanging deaths were around 51(63.75%) in males and 22 (27.5%) in females. Similar findings were also the observations made by Chormunge et al¹⁰ (73.53%), Amandeep Singh et al¹¹ (67.56%), Sayed ZAT¹² (75.68%), Salachin et al¹³ (75.6%), Momanchand et al⁹ (80.3%), Gross VA et al¹⁴ (90%) and Srinivasa Reddy P¹⁵ (59.14%).

In our study ligature is brought for examination are rope 10, saree 5, dupatta 6 and electric wire 1, but most of cases rope was used as ligature material.

In Study of Basawaraj Patil et al⁷ observed that Dhoti - 11.71% Saree - 12.61% Wire - 17.12% Ropes - 55.86% Others - 2.70%. The ligature material most commonly preferred in this study was rope. This finding is comparable with that of, Reddy¹⁶, Luke¹⁷, Simonsen¹⁸ and where hard material was most preferred (57%).

In present study Fracture of either of greater horns of hyoid bone at the junction of outer 1/3 rd and inner 2/3 rd were at around 19 cases i.e.(24.67%).

Basawaraj Patil et al⁷ The hyoid bone fracture is present more in males (80%) than in females (20%) and similar opinion was expressed by Feigin¹⁹.

In this study protrusion of tongue was present in 56(72.72%) cases.

Basawaraj Patil et al⁷ Protrusion of tongue was seen in 20% of hanging. Sarangi²⁰ mentioned in his study that the tongue was protruded in 8.66% of hanging.

The probable reason for this phenomenon could be that the constricting force of the ligature causes upward pressure on the neck structure causing elevation of the tongue.

In the Basawaraj Patil et al⁷ study Hyoid bone was fractured in 3 cases (2.8%) of hanging. This is comparable with the study conducted by Khokhlov²¹ (5%) and Reddy¹⁶ (6%).

The possible reasons could be; firstly, in the present study a larger proportion of the victims are young i.e., age below 40 years. It is generally considered that frequency of fracture of hyoid bone increases when it is ossified and hence it becomes liable for fracture. But Luke et al¹⁷ (27.22%) and Simonsen¹⁸ (30%) noticed the hyoid bone fracture in victims aged less than 40 years.

Secondly, the fracture of hyoid bone also depends on the ligature material used as was observed by few investigators, like Luke¹⁷ and Simonson¹⁸. They say that hard variety of ligature material used for hanging could cause increased frequency of hyoid bone fracture.

Thirdly, duration of suspension is said to be the factor for increased frequency of fracture of hyoid bone and thyroid cartilage as was observed by Simonsen¹⁸.

In the Basawaraj Patil et al⁷ study left greater horn was fractured in 1.87% and right greater horn in 0.93% cases of hanging. Similar observation was made by Feigin¹⁹.

In the Basawaraj Patil et al⁷ study Inward displacement of fractured fragment was present in one case (33%) of hanging, outward displacement was present in 2 cases (66%) of hanging. This finding is consistent with the opinion stated by Reddy¹⁶.

Present study observed that most of hanging cases were suicidal 71 (92.2%) while in 6 (7.8%) cases manner of death cannot be ascertained.

Dere et al⁸ study noted 76 (95%) cases were suicidal. Similar findings are also noted by Chormunge et al¹⁰, Patel et al²², Gargi et al²³, Sahoo et al²⁴ and Fimate et al²⁵.

Majority of people follow this mode of intentional self killing for being one of the means of painless death, their acceptability and by socio-cultural norms.

Study of Ajay Kumar et al²⁶ All hanging cases were suicidal, which is similar to the other studies of Azamli et al²⁷ & study of Shaikh et al²⁸

CONCLUSION:-

- Most of the cases was observed in age group 21-30 yrs i.e. 22(28.75%) and male predominance 59 (76.62%).
- Ligature material in most of cases rope was used as ligature material.
- Fracture of either of greater horns of hyoid bone were in 19 cases i.e.(24.67%).
- Protrusion of tongue was present in 56(72.72%) cases.
- Most of hanging cases were suicidal 71 (92.2%) while in 6 (7.8%) cases manner of death cannot be ascertained
- A proper counseling centre should be established in hospitals in suicidal attempts to prevent further suicidal deaths.

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Ethical Clearance: Yes (Taken from Institutional Ethics committee)

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Conflict of interest:- None.

Table No.1 Table showing age and sex wise distribution of 77 cases of Hanging

Age groups in years	Male	Female	Total no. of cases
0-10	0	0	0 (0%)
11 -20	9	7	16(20.77%)
21-30	16	6	22(28.57%)
31-40	11	4	15(19.48%)
41-50	17	0	17(22.08%)
51-60	3	0	3(3.90%)
61-70	2	0	2(2.60%)
71-80	1	1	2(2.60%)
81-90	0	0	0 (0%)
Total	59(76.62%)	18(23.38%)	77

Table No. 2 Table showing Manner of death and type of Ligature material

Hanging cases	Accidental	Suicidal	Homicidal	Not ascertained
77	0(0%)	71(92.20%)	0(0%)	6(7.80%)
Ligature material in situ	Rope	Saree	Duppatta	Electric wire
22	10	5	6	1

Table No. 3 Table showing the postmortem findings in hanging deaths

Sr.no.	Postmortem findings; N = 77	No. of cases
1	Cyanosis	54(70.12%)
2	Dribbling of saliva or presence of dried salivary stains over clothes	37(48.05%)
3	Ligature mark in an inverted V shaped directed upwards, obliquely and deficient posteriorly	77(100%)
4	Ligature mark completely encircling the neck	0(0%)
5	Glove & stock pattern of postmortem lividity	26(33.76%)
6	Tongue clinched in between teeth	56(72.72%)
7	Purging of urine, faeces or semen	34(44.15%)
8	External petechial haemorrhages over conjunctiva, face, forehead	52(67.53%)
9	Internal petechial haemorrhages underscap, pleura, pericardium, lungs	66(85.71%)
10	Extravasation in neck muscles	7(9.09%)
11	Fracture of posterior horn of thyroid cartilage	10(12.98%)
12	Fracture of either of greater horns of hyoid bone at the junction of outer 1/3 rd and inner 2/3 rd	19(24.67%)
13	Fracture of cricoids cartilage at its laminae anteriorly	1(1.29%)
14	Fracture of tracheal rings anteriorly	1(1.29%)

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