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Deaths Due to Hanging: A Retrospective Autopsy Study

Ravi Lamba^{1*}, Gaurav Sharma², Balraj Sharma³, Sangram Singh Yadav⁴, Himani⁵, Rishi⁶, Vandana⁷

¹Post Graduate Resident, Department of Forensic medicine and Toxicology, Bhagat Phool Singh Govt. Medical College for Women, Khanpur kalan, Sonipat, Haryana.

²Professor and H.O.D, Department of Forensic medicine and Toxicology, Bhagat Phool Singh Govt. Medical College for Women, Khanpur kalan, Sonipat, Haryana.

³Assistant Professor, Department of Forensic medicine and Toxicology, NC Medical College, Israna, Panipat, Haryana.

⁴Senior Resident, Department of Forensic medicine and Toxicology, Bhagat Phool Singh Govt. Medical College for Women, Khanpur kalan, Sonipat, Haryana.

^{5,6,7} Post Graduate Resident, Department of Forensic medicine and Toxicology, Bhagat Phool Singh Govt. Medical College for Women, Khanpur kalan, Sonipat, Haryana.

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ABSTRACT

Hanging is one of the most common methods of committing suicide all around the world. This is retrospective study conducted between Jan 2018 to December 2022, which included 48 cases of Hanging which were autopsied in Mortuary of Bhagat Phool Singh Government Medical College for Women, Khanpur Kalan, Sonipat, Haryana during this period. Out of 48 cases of Hanging, 34 (70.8%) cases were males and 14 (29.2%) cases were females. Maximum number of victims 16 (33.3%) were in the age group of 21-30 years. Maximum 42 (87.5%) cases occurred in closed place and least number of cases occurred in open place 06 (12.5%). Cyanosis was seen in around 43(89.5%) of cases and face congestion seen in around 24 (50%) cases. Ligature mark present above the level of thyroid cartilage in maximum number of cases 43 (89.5%). Fracture of hyoid bone present in 6 (12.5%) cases. Aim of the study was to find out incidence, trends and patterns of hanging in Haryana.

Introduction

Asphyxia is a condition where breathing is obstructed or there is a lack of oxygen in the air being inhaled, leading to oxygen deprivation in the body's organs and tissues. Mechanical asphyxia occurs when external pressure is applied to the neck, chest, or other parts of the body, or when the body is positioned in a way that makes breathing difficult or impossible. This can prevent the normal process of respiration, which is the exchange of air between the atmosphere and the lungs.^[1]

In cases of violent asphyxial deaths, this exchange of air is blocked by some forceful mechanical means. One common example is hanging, where the body is suspended with a ligature (such as a rope) around the neck. This ligature

constricts the air passage, preventing air from moving between the atmosphere and the lungs, leading to asphyxia and eventually death. The constriction can be caused by the weight of the entire body or just the head.^[2] In India, hanging is one of the most common methods of suicide. Other prevalent methods include poisoning, drowning, burning, and jumping from high places or in front of trains.^[3] Main purpose of the study was to find out incidence, trends and patterns of hanging in Sonipat region of Haryana.

Materials and Method

This is retrospective study conducted between January 2018 to December 2022, which included 48 cases of hanging

Corresponding author: Ravi lamba

Email Address: lambaravi786@gmail.com

which were autopsied in Mortuary of Bhagat Phool Singh Government Medical College for Women, Khanpur Kalan, Sonapat, Haryana during this period. The data is collected from Inquest reports and post-mortem reports. The data thus obtained was analysed and the study was done with respect to: age & sex wise distribution, manner of death, postmortem findings & Ligature findings. Information about crime scene obtained from police inquest papers. The Collected data were tabulated on master chart and analysed using Microsoft Excel.

Results

Distribution of Hanging cases according to Age and Sex: Out of 48 cases of Hanging, 34 (70.8%) cases were males and 14 (29.2%) cases were females, thus indicating that majority of victims were males. Maximum number of victims 16 (33.33%) followed by 12 (25%) victims were in the age group of 21-30 years and 31-40 years age group respectively. Minimum numbers of victims were in the age group 51-60 years 04 (8.3%).

Place of occurrence of hanging cases: Out of 48 cases of hanging maximum 42 (87.5%) cases occurred in closed place and least number of cases occurred in open place 06 (12.5%). In most of the cases ligature material was present along with the dead body insitu where as in remaining cases investigating officer was asked to provide ligature material for examination. In the present study ligature material was divided into two broad groups

1. Soft Material – Dupatta, gamcha, Bedsheet, Saree etc.
2. Hard Material – e.g. Electric wire, Nylon rope etc.

In our study, dupatta was most common ligature material seen in 46% of cases. Knot was fixed in 82% of cases where as running (slip) type in 18% of cases.

Distribution of Hanging cases according to post- mortem findings: Out of 48 cases of hanging, cyanosis was seen in 43 (89.5%) of cases, face congestion seen in 24 (50%) cases, sub conjunctival haemorrhage seen in 18 (37.5%) cases, dribbling of saliva was seen in 16 (33.3%) of cases and petechial haemorrhage was seen in 11 (22.9%) of cases.

Location of ligature mark: Out of 48 cases of hanging, ligature mark present above the level of thyroid cartilage in maximum number of cases 43 (89.5%).

Condition of Neck structure: Out of 48 cases of hanging, fracture of hyoid bone present in 06 (12.5%) cases.

Discussion

The use of the term asphyxia (Greek meaning pulselessness) in the forensic field is restricted to those forms of oxygen lack (anoxia, hypoxia) which results from mechanical interference

with the process of respiration, that is, anoxic anoxia.^[4]

Out of 48 cases of Hanging, 34 (70.8%) cases were males and 14 (29.2%) cases were females, thus indicating that majority of victims were males. Maximum number of victims 16 (33.33%) followed by 12 (25%) victims were in the age group of 21-30 years and 31-40 years age group respectively. Minimum numbers of victims were in the age group 51-60 years 04 (8.3%).

Our result was similar to the observations made in the study conducted by Saiyed MZG^[5] the majority of the victims were males 46 (62.16%) while the females were 28 (37.83%) in number. Most vulnerable age group was 21 to 30 years with total cases 34 (45.94%); by Chandegara PK et al^[6] in which males were 63% and females were 37%. Most common age group was 21- 30 years seen in 45% of cases.

Out of 48 cases of hanging maximum 42 (87.5%) cases occurred in closed place and least number of cases occurred in open place 06 (12.5%). The observations in our study were similar to the study done by Patel AP^[7] et al majority of the victims (96.25 %) were recovered from closed areas..

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Our results are similar with the study conducted by Saiyed MZG^[5] where out of 74 cases of hanging, Cyanosis was found in 70 (94.59%) cases. Our results are not correlating with study conducted by Shaikh MMM^[8] where Facial congestion and cyanosis present in 34.88% cases of hanging and Dribbling of saliva was present in maximum 38.37% cases of hanging.

Out of 48 cases of hanging, ligature mark present above the level of thyroid cartilage in maximum number of cases 43 (89.5%). Our results are similar with the study conducted by Dekal V^[9] it was observed that in 192 (84.95%) cases, the level of ligature mark was above the level of thyroid cartilage. Out of 48 cases of hanging, fracture of hyoid bone present in 06 (12.5%) case. The observations in our study were similar to the study done by Shaikh MMM et al^[8] where fracture of hyoid bone present in 11.63% cases; by Miziara ID^[10] in which fracture of hyoid bone present in only 22.6% cases.

Conclusion

In our study we conclude that, out of 48 cases of Hanging, 34 (70.8%) cases were males and 14 (29.2%) cases were females, thus indicating that majority of victims were males. Maximum number of victims 16 (33.3%) were in the age group of 21-30 years. Maximum 42 (87.5%) cases occurred in closed place and least number of cases occurred in open place 06 (12.5%).

Suicide by means of hanging still remains one of the critical

health issues leading to loss of life. Poverty, family dispute, mental illness, unemployment are some the important factor leading to suicide. Government and NGOs should actively participate to overcome this problem. Focusing on stress management and proper mental health education should be provided.

Conflict of interests

The author declares that there is no conflict of interest.

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Tables

Table 1: Distribution of Hanging cases according to Age and Sex:

Age Group (in years)	Male	Female	Total no. of cases	Total percentage (%)
<10	00	00	00	00%
11-20	07	01	08	16.7%
21-30	10	06	16	33.3%
31-40	06	06	12	25.0%
41-50	07	01	08	16.7%
51-60	04	00	04	8.3%
61-70	00	00	00	00%
Total	34(70.8%)	14(29.2%)	48	100%

Table 2: Distribution of Hanging cases according to post-mortem findings:

Postmortem Findings	No. of cases	Percentage (%)
Face congestion	24	50%
Sub conjunctival haemorrhage	18	37.5%
Cyanosis	43	89.5%
Dribbling of saliva	16	33.3%
Petechial haemorrhage	11	22.9%

Table 3: Condition of Neck structure:

Condition of Neck structure	No. of cases	Percentage (%)
Fracture of Hyoid bone	06	12.5%
Fracture of Thyroid cartilage	00	0%
Fracture of Cricoid cartilage	00	0%
No fracture	42	87.5%
Total	48	100%