

Original Research

Assessment of hanging deaths in adult population

Deepak Chaturvedi

Assistant Professor, Department of Forensic Medicine, Rajshree Medical Research Institute, Bareilly, Uttar Pradesh, India

ABSTRACT:

Background: Asphyxia is the generic term for mechanisms that cause a deficiency of the tissue oxygen supply that is required to sustain metabolic function. The present study was conducted to assess hanging deaths in adult population. **Materials & Methods:** 94 hanging deaths of both genders was recorded. Parameters such as time of incidence, type of ligature material, manner of hanging, type of hanging and clinical findings was recorded. **Results:** Out of 94 cases, males were 34 and females were 60. The type of ligature material was dupatta in 20, rope in 36, saree in 24 and towel in 14. Manner of hanging was suicidal in 68, homicidal in 20 and uncertain in 6 cases. Type of hanging was typical in 16 and atypical in 78. Clinical findings were cyanosis in 52, petechiae in 34, visceral congestion in 25, congestion of face in 46 and neck muscle hemorrhages in 30 cases. The difference was significant ($P < 0.05$). **Conclusion:** In most cases, type of ligature material used was rope. Manner of hanging was suicidal, homicidal and uncertain. Type of hanging was maximally atypical.

Key words: Asphyxia, hanging, suicidal

Corresponding author: Deepak Chaturvedi, Assistant Professor, Department of Forensic Medicine, Rajshree Medical Research Institute, Bareilly, Uttar Pradesh, India

This article may be cited as: Chaturvedi D. Assessment of hanging deaths in adult population. J Adv Med Dent Scie Res 2018;6(4):168-170.

INTRODUCTION

World Health Organization stated that suicide is the 13th leading cause of death worldwide. Suicidal behavior ranges in degree from merely thinking about ending one's life, through developing a plan to commit suicide and obtaining the means to do so, attempting to kill oneself, to finally carrying out the act of 'completed suicide'.¹ Suicide attempts are up to 20 times more frequent than completed suicides.² Asphyxia is the generic term for mechanisms that cause a deficiency of the tissue oxygen supply that is required to sustain metabolic function.³ The four physiological causes of asphyxia are reduced oxygen in the environment, reduced blood oxygenation, reduced cardiovascular oxygen transfer, and interference with cellular oxygen absorption.⁴ The mechanisms of asphyxia include mechanical causes, such as strangulation, aspiration of foreign bodies or boluses, or constriction; changes in breathable air, such as flue gas inhalation; strangulation mechanisms, such as hanging or ligature strangulation; positional asphyxia; and drowning.

Deaths due to asphyxia are one of the most important causes in violence deaths. Hanging is being common method of suicides while strangulation as one of methods in homicide.⁵

Many a times suspicions are raised with the manner of deaths in cases of suspension of the body (complete and partial) and position of ligature marks, resulting in punishment of Innocent or sparing the Guilt.⁶ The present study was conducted to assess hanging deaths in adult population.

MATERIALS & METHODS

The present study comprised of 94 hanging deaths of both genders. The consent was obtained from their relatives.

Data such as name, age, gender etc. was recorded. Parameters such as time of incidence, type of ligature material, manner of hanging, type of hanging and clinical findings was recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 94		
Gender	Males	Females
Number	34	60

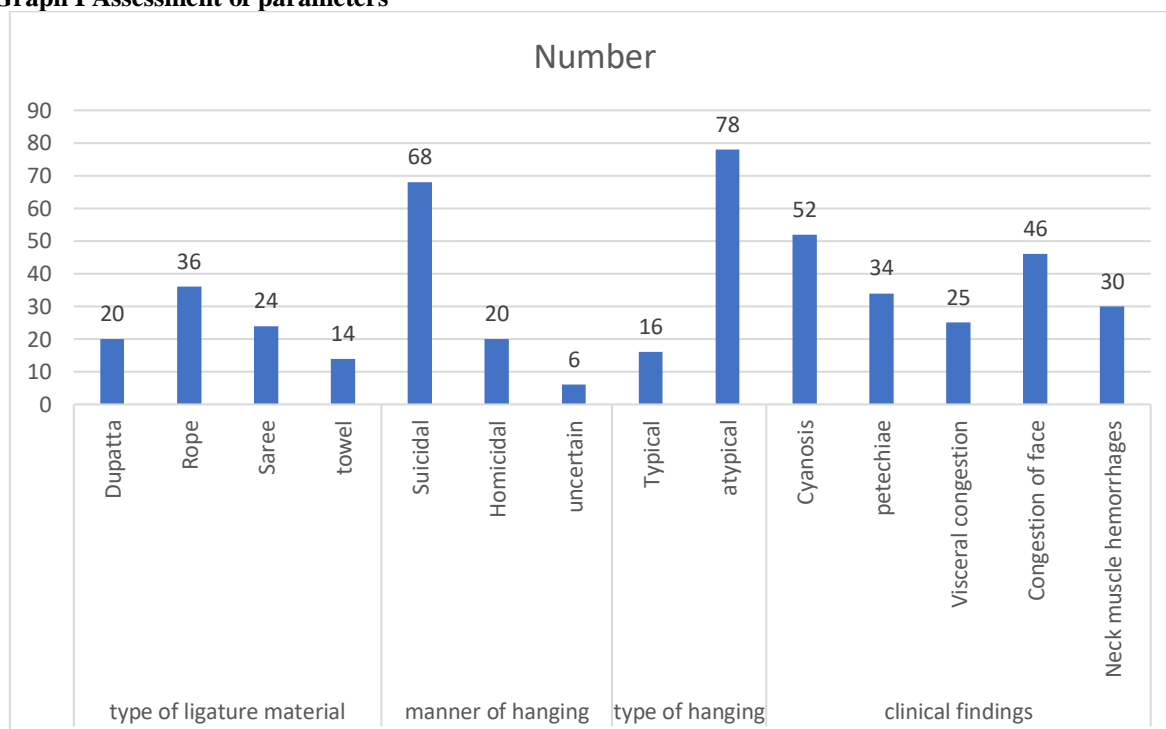
Table I shows that out of 94cases, males were 34 and females were 60.

Table II Assessment of parameters

Parameters	Variables	Number	P value
type of ligature material	Dupatta	20	0.05
	Rope	36	
	Saree	24	
	towel	14	
manner of hanging	Suicidal	68	0.01
	Homicidal	20	
	uncertain	6	
type of hanging	Typical	16	0.01
	atypical	78	
clinical findings	Cyanosis	52	0.17
	petechiae	34	
	Visceral congestion	25	
	Congestion of face	46	
	Neck muscle hemorrhages	30	

Table II, graph I shows that type of ligature material was dupatta in 20, rope in 36, saree in 24 and towel in 14. Manner of hanging was suicidal in 68, homicidal in 20 and uncertain in 6 cases. Type of hanging was typical in 16 and atypical in 78. Clinical findings were cyanosis in 52, petechiae in 34, visceral congestion in 25, congestion of face in 46 and neck muscle hemorrhages in 30 cases. The difference was significant (P< 0.05).

Graph I Assessment of parameters



DISCUSSION

In spite of advancing civilization killing oneself or someone are commonly found these days. Various factors namely, family, structure, and psychosocial environment play an important role for this criminal behavior.⁷ An increasing death rate as a result of

violence constitutes a large group in medico legal autopsies.^{8,9} Though hanging is common in equal proportions to both men and women, it will be great challenge for medical officers in present days where hanging by a women is viewed suspiciously, more so when the hanging is atypical or the when body has

been let down.^{10,11} Absence of ligature mark, double ligature mark or partial hanging with feet touching the ground may mislead the investigating officer and give scope for false allegations as to cause and manner of death and in this situation role of medico legal expert becomes crucial.¹² The present study was conducted to assess hanging deaths in adult population.

We found that out of 94 cases, males were 34 and females were 60. Shiuli et al¹³ in their study all the cases of hanging deaths brought to the mortuary and were studied with respect to incidence, relationship with sex and age, diurnal variations, manner of death, residence, ligature material and various post mortem findings. A total 1180 hanging death cases were autopsied with male dominance (54.66%). Most cases belong to 11-30 years age group. Noon and night were most frequent times. Ligature material used most commonly was saree by males and dupatta (scarf) by females. Most cases were from urban background (64.40%). Cyanosis and visceral congestion was found in every case. Most cases were of atypical hanging and suicidal in nature.

We found that type of ligature material was dupatta in 20, rope in 36, saree in 24 and towel in 14. Manner of hanging was suicidal in 68, homicidal in 20 and uncertain in 6 cases. Type of hanging was typical in 16 and atypical in 78. Clinical findings were cyanosis in 52, petechiae in 34, visceral congestion in 25, congestion of face in 46 and neck muscle hemorrhages in 30 cases. Rao et al¹⁴ in their study a total of 7968 Autopsies were conducted of which 3.31% (n = 264) cases were deaths due to hanging. The most preferred ligature materials were Stole (n = 79) and Bed spread/Sari (n = 68). In 88% of the cases, hanging was complete. Females (n = 136) and males (n = 128) were equally affected. The major age group involved in both the sexes was of 31-40 years, contributing to 50.76% (n = 136) of the self-suspension. In 80.58% (n = 213) of the incidents, ligature mark showed discontinuity (incomplete). A Slip type of knot was used in majority of the noose, contributing to 97.73% (n = 258) of the suspensions. In 87.88% (n = 232) of hanging an oblique shaped ligature mark was noticed. The horizontal and near oblique ligature marks were seen only in cases of partial suspension. In 95.45% (n = 252) of the cases, the ligature mark showed blackening of the skin (friction burn). Only 4.54% (n = 12) showed intact skin. The outer layer of the skin over the ligature mark showed displacement in majority of the cases. Married victims contributed to 70.45% of cases. Domestic issues were the commonest reason (n = 82) for self-suspension, of which female (n = 68) formed the majority of victims. In 70.83% (n = 187) of cases damage to neck muscle fibers and hemorrhage at the Sternal end of the Sternocleidomastoid muscle were present. In 85.61% (n = 226) of cases the cervical vertebra was intact. In 52.27% (n = 138) of the cases the internal carotid artery showed transverse tear. In

99.42% (n = 248) cases the thyroid cartilage was found intact. The hyoid bone was damaged in 6.06% (n = 16) of the victims. Majority of the victims, 59.09% (n = 156) belonged to low socioeconomic class.

CONCLUSION

Authors found that in most cases, type of ligature material used was rope. Manner of hanging was suicidal, homicidal and uncertain. Type of hanging was maximally atypical.

REFERENCES

1. Singh RK, Sanatomba, Devi M. Analysis of Changing Patterns of Unnatural Deaths in Manipur during 1991-1995. *J Forensic Med Toxicol.* 26:23-5.
2. Murty OP, Agnihotri AK. Homicidal Deaths in South Delhi. *J Ind Acad Forensic Med.* 2000;22:9-1.
3. Gargi J, Gorea RK, Chanana A, Mann G. Violent asphyxial deaths - A six years study. *Journal of Indian Academy of Forensic Med.* 1992;171-6.
4. Singh A, Singh D. Comparative study of hanging and strangulation cases in northeast and northwest regions of Punjab. *Journal of Punjab Academy of Forensic Medicine & Toxicology.* 2009;9(1):6-8.
5. Singh A, Gorea K, Dalal S, Thind S, Walia D. A study of demographic variables of violent asphyxial death. *Journal of Punjab Academy of Forensic Medicine and Toxicology.* 2003;3:22-5.
6. Luke L. Asphyxial deaths by hanging in New York City, 1964-65. *Journal of Forensic Sciences.* 1967;12(3):359-69.
7. Michael A Clarke, John D. Feczko D. Hawley, Pless J, Tate L, Fardal P. Asphyxial Deaths Due To Hanging in Children. *Journal of Forensic Sciences.* 1993;38(2):344-52.
8. Petrauskiene J, Kalediene R, Starkuviene S. Methods of Suicides in Lithuania & their Associations with Demographic Factors. *Medicina (Kaunas).* 2004;40(9):905-11.
9. Patel-Ankur P, Bhoor-Rajesh R, Patel-Dhaval J, Patel-Khushbu A. Study of Violent Asphyxial Death. *International Journal of Medical Toxicology and Forensic Medicine.* 2013;3(2):48-57.
10. Sharma BR, Harish D, Pal-Singh V, Singh P. Ligature mark on neck: How informative. *JIAFM.* 2005;27(1):10-5.
11. Prajapati P, Sheikh I, Brahmabhatt J, Choksi C. A study of violent asphyxial death at Surat, Gujrat. *Indian Journal of Forensic Medicine & Toxicology.* 2015(1):66-70.
12. Michael A Clarke, John D. Feczko D. Hawley, Pless J, Tate L, Fardal P. Asphyxial deaths due to hanging in children. *Journal of Forensic Sciences.* 1993;38(2):344-52.
13. Shiuli R, Abhishek P, Anoop KV, Mousami S. Frequency of Hanging Deaths in Lucknow, India 2008-2012. *International Journal of Medical Toxicology and Forensic Medicine.* 2015; 5(3): 126-30.
14. Rao D. An autopsy study of death due to Suicidal Hanging-264 cases. *Egyptian Journal of Forensic Sciences.* 2016 Sep 1;6(3):248-54.