ORIGINAL RESEARCH

Assessment of cases of hanging death

Dr. Amit Pratap Singh Dixit[1], Dr. Satya Prakash Dixit[2], Dr. Rajeev Ranjan[3]

[1]Associate Professor, Department of Forensic Medicine, Prasad Institute of Medical Sciences, Lucknow, Uttar Pradesh.
[2] Medical Officer, Manywar Kanshiram Combined Hospital and Trauma Center, Kanpur Nagar
[3]Assistant Professor, Department of Forensic Medicine, Prasad Institute of Medical Sciences, Lucknow, Uttar Pradesh.

Corresponding author
Dr. Rajeev Ranjan, Assistant Professor, Department of Forensic Medicine, Prasad Institute of Medical Sciences, Lucknow, Uttar Pradesh.

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ABSTRACT
Background: In India, hanging is the most popular means of suicide, accounting for 37% of all suicide cases in 2012. The present study was conducted to assess cases of hanging death.
Materials & Methods: 54 victims of hanging of both genders were studied. Parameters such as type of suspension, type of ligature material used for hanging and subsequent hanging mark produced, clinical course during hospital stay and cause of death was analysed through autopsy files.
Results: Out of 54 victims, 20 were males and 34 were females. Type of suspension was partial in 26 and complete in 28. Ligature material used was nylon ropein 21, cotton rope in 16, lungiin 8 and odani in 9 cases. Cause of death was aspiration pneumonia in 8, hypoxic encephalopathy in 40 and cervical cord contusion in 6 victims. The difference was significant (P< 0.05).
Conclusion: The most common cause of death was hypoxic encephalopathy and commonly used material was nylon rope.
Key words: hanging, death, hypoxic encephalopathy

Introduction

In India, hanging is the most popular means of suicide, accounting for 37% of all suicide cases in 2012.[1] A form of asphyxial death known as hanging occurs when the body is suspended by the neck and the weight of the body acts as the restricting force. Certain patients who suffer a hanging injury and make it to the hospital are referred to as "near hanging".[2] Only 2.7% of documented parasuicides and less than 1% of ICU admissions involve near-hanging patients, respectively. The main cause of delayed deaths in patients who were close to hanging was a hanging-related problem.[3]

The mechanism of death is an interplay between compression of the jugular veins, carotid arteries, respiratory tract, and carotid bodies.[4] These four mechanisms, independently or synergistically, cause cerebral ischemia and death.[5] In judicial hangings, the mechanism of death may also include neurogenic shock due to fractures of the cervical spine and injury to the spinal cord.[6]Having a poor or lower socioeconomic position or being unemployed seems to be another important factor. According to research, a whopping 60% of hanging instances were either unemployment or poor income, and only 7% involved high income.[7] Inside or outside of the home, lonely open spaces, the workplace, jail or prison cells, and hospitals, including mental healthcare facilities and nursing homes, are the most frequent places where people hang themselves.[8]The present study was conducted to assess cases of hanging death.

Materials & Methods

The present study consisted of 54 victims of hanging of both genders. A written consent from family was taken.

Data such as name, age, gender etc. was recorded. Parameters such as type of suspension, type of ligature material used for hanging and subsequent hanging mark produced, clinical course during hospital stay and cause of death was analysed through autopsy files. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table I: Distribution of patients

Total- 54		
Gender	**Male**	**Female**
Number	20	34

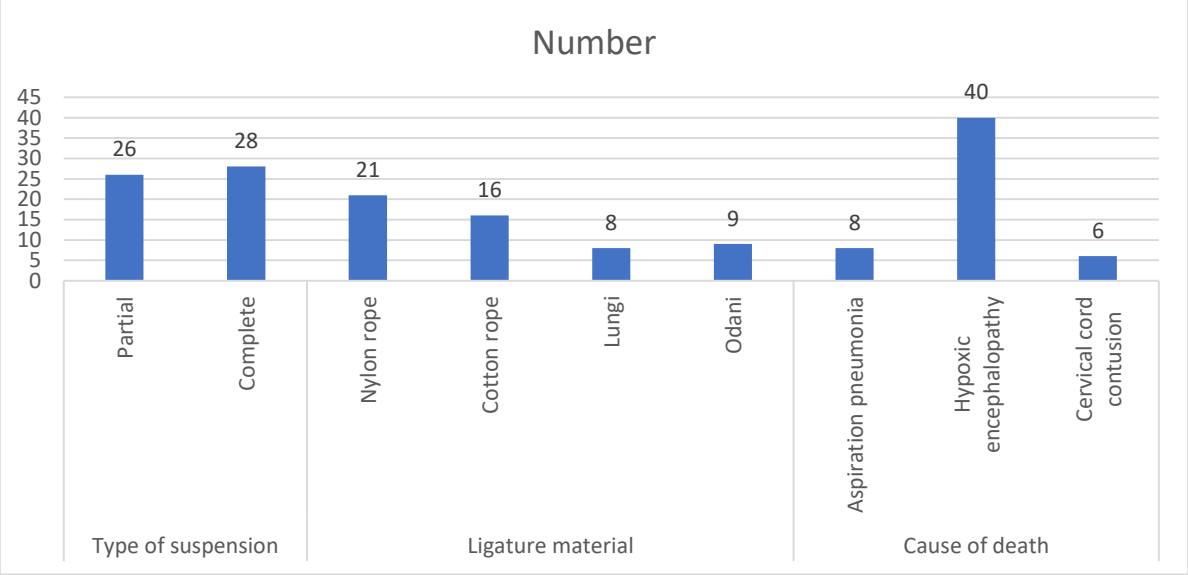
Table I shows that out of 54 victims, 20 were males and 34 were females.

Table II: Assessment of parameters

Parameters	Variables	Number	P value
Type of suspension	Partial	26	0.57
	Complete	28	
Ligature material	Nylon rope	21	0.05
	Cotton rope	16	
	Lungi	8	
	Odani	9	
Cause of death	Aspiration pneumonia	8	0.01
	Hypoxic encephalopathy	40	
	Cervical cord contusion	6	

Table II, graph I shows that type of suspension was partial in 26 and complete in 28. Ligature material used was nylon rope in 21, cotton rope in 16, lungi in 8 and odani in 9 cases. Cause of death was aspiration pneumonia in 8, hypoxic encephalopathy in 40 and cervical cord contusion in 6 victims. The difference was significant (P< 0.05).

Graph I: Assessment of parameters



Discussion

Suicide is a major public health problem more so in the low- and middle-income countries. Every year, around a million people die of suicide.[9] India accounts for one the highest rates of suicide in the world.[10] In India, the common modes of suicide were ingestion of agricultural chemicals, hanging, self-immolation, and drowning. The major cause of morbidity and mortality in hanging is due to hypoxic brain injury.[11]

The likelihood of survival while being suspended relies on a number of variables, but the length of suspension, prompt resuscitation, and force used to crush the neck were the primary ones[12]. The prognosis may be affected by additional variables such as the point of suspension (around the neck), drop force, total hanging time (whether suspended in air or not) and time of neck compression release.[13] The time period will be significantly shortened by states of narcosis and intoxication, extremes in age and physical frailty, and related cardio-respiratory conditions. Reduced hypoxic-ischemic brain damage was also ascribed to partial hanging and incomplete neck ligature encirclement.[14]The present study was conducted to assess cases of hanging death.

We found that out of 54 victims, 20 were males and 34 were females. Smith et al[15] in their study 9085 autopsies were performed; 355 (3.9%) were hanging victims. The median age of the victims was 31.4 (range 11–78) years, with 138 (38.9%) cases being 21–30 years of age. Three hundred and twenty-three (91.0%) of the victims were male, 227 (63.9%) were single, 201 (56.6%) were unemployed, and 129 (36.3%) completed their high school education. The most common location where the hanging occurred was at home. Single, unemployed males 21–40 years of age were found to have the highest risk for committing suicide by hanging. The group at the lowest risk were married and employed individuals older than 60 years, who had a tertiary education.

We found that type of suspension was partial in 26 and complete in 28. Ligature material used was nylon rope in 21, cotton rope in 16, lungi in 8 and odani in 9 cases. Cause of death was aspiration pneumonia in 8, hypoxic encephalopathy in 40 and cervical cord contusion in 6 victims.Ganesan et al[16]studied the profile of patients presenting with near-hanging and their outcome. The mean age of the patients − 31.1 years. Approximately, 43% were complete hanging, while rest were partial hanging. Majority of the patients used dressing materials for hanging themselves. Out of 77 patients, 64 were discharged alive while 2 patients died in the hospital and 11 were left against medical advice.

Sane et al[17] in their study records of 14,000 autopsies was reviewed, and 10 deceased having died delayed deaths after near hanging episode were identified. Demographic and pathological aspects of each case discussed to throw light on autopsy findings in victims who died following near hanging. Complete suspension was present in 3 cases, while partial suspension was present in 7 cases. Survivals in delayed death after near hanging episode have ranged from 9 hours to 72 days. Hypoxic encephalopathy was the most common cause of death, followed by pneumonia.

Siegl et al[18] studied 64 patients. The suicide attempt's method, injuries, hemodynamic state, and medical care were noted. The majority of patients [57 patients (89%)] were men, and the most common ways were hanging [9 patients (14%)], strangulation [9 patients (14%)], and ingesting dangerous objects or chemicals [15 patients (23%)]. Two individuals passed away in the emergency department: one from a self-inflicted gunshot wound to the head and the other from a self-inflicted herbal poisoning. Patients who had made unsuccessful suicide attempts were more likely to require emergency airway intervention [18 patients, 28%, 17.2%, 39%; endotracheal intubation, 17 patients; emergency tracheotomy, 1 patient] than the general population of ED patients [1458 patients (16%).Following attempted survived suicide, 24-hour ED mortality was 3% and 4% within the control group; the difference is insignificant. However, ED mortality showed a trend toward earlier death within the suicidal group.

The limitation the study is small sample size.

Conclusion

Authors found that most common cause of death was hypoxic encephalopathy and commonly used material was nylon rope.

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