

# An autopsy study of death due to Suicidal Hanging – 264 cases



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## KEYWORDS

Hanging;  
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Asphyxia;  
Neck;  
Knot;  
Fracture

**Abstract** The present study was carried out between 2010 and 2013, 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.

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## 1. Introduction

Death due to hanging is not unusual across the world, this makes the majority of Asphyxia deaths.<sup>1</sup> Many a times

suspensions 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. Hence this study is conducted to study in detail the Autopsy findings of deaths due to hanging so as to put an end to these speculations surrounding the deaths in hanging.<sup>2</sup> This study helps to differentiate self suspension from other forms of hanging. This is a prospective study, conducted between 2010 and 2013. In this study only cases of Suicidal

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Hanging findings are analyzed and studied thoroughly, other manners of suspension are excluded. All the information related to the Circumstances was collected from the Police and from the deceased's family members. All factors deemed important to conclude Suicidal Hanging had been considered as the elements of the study (Fig. 1).

## 2. Materials and methods

- The study was conducted between 2010 and 2013. A total of 7968 Autopsies were conducted of which Suicidal Hanging contributed to 3.31% ( $n = 264$ ) of cases.
- All the cases referred to the Legal Medicine Department for Autopsies were the material source for the study.
- Crime scene examination was done in a few cases and in majority of the cases crime scene photographs and investigating officer records were the inputs.
- Autopsies were conducted with enmasse removal of Thoracic and Abdominal Organs and the neck was the last to be dissected after removal of the Cranial Structures.
- External findings of the ligature mark were described, photographed and sketched.
- Internal findings of the neck by layer by layer dissection of the neck.
- Carotid artery damage to the Intimae was by gross examination and Toluidine blue dye examination.
- Cervical vertebra fracture, thyroid, cricoid and hyoid bone fractures were confirmed by Radiological examination and further confirmed through the dissection method.

- The ligature material was always brought along with the dead body with the noose and knot intact (Table 1).

## 3. Results

- The commonest ligature materials of choice were Stole ( $n = 79$ ; 29.92%) and Sari ( $n = 68$ ; 25.76%). The least common ligature material of choice was Waist Belt ( $n = 2$ ; 0.76%). The other materials used were Plastic Rope ( $n = 28$ ; 10.68%), Bed Sheet ( $n = 22$ ; 8.33%) and Cotton Rope ( $n = 19$ ; 7.20%) in decreased order of appearance. The majority of the noose had a Slip type of knot contributing to 97.73% ( $n = 258$ ) of the suspensions and only 2.27% ( $n = 06$ ) showed fixed knot (Table 2).
- Females ( $n = 136$ ) and males ( $n = 128$ ) were closely the victims of self suspension. The major age group affected in both the sexes was in the range of 31–40, contributing to 50.76% ( $n = 136$ ) of the self suspension. The age group preferred for self suspension was between 21 and 30 years, contributing to 31.06% ( $n = 82$ ) of the cases. The least affected ages were in children less than 10 years ( $n = 01$ ). There were no incidents reported above 60 years of age (Table 3).
- In 80.58% ( $n = 213$ ) of cases the ligature showed discontinuity (incomplete) and only 19.32% ( $n = 51$ ) showed complete ligature (Continuity) mark. The oblique shape of ligature mark was present in 87.88% ( $n = 232$ ) of hanging. 6.82% ( $n = 18$ ) of cases showed horizontal ligature mark in partial suspension and 5.30% ( $n = 14$ ) of cases showed near oblique ligature mark. The horizontal and near oblique ligature marks were seen only in cases of Partial Hanging. In

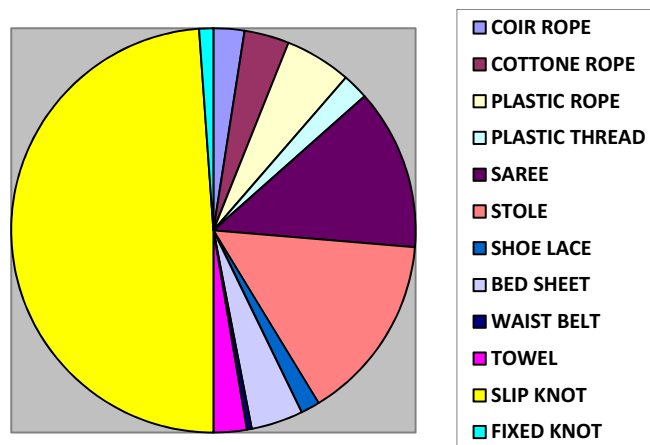


Figure 1 Types of ligature material and knot type.

Table 1 Age and sex distribution.

	< 10 years	11–20	21–30	31–40	41–50	51–60	> 60
Age	01	21	82	134	24	02	00
Male	01	12	18	86	09	02	00
Female	00	09	64	48	15	00	00
Total	01	21	82	134	24	02	00

Total: Male-128; Female-136.

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