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# Self-ligature strangulation by multiple cable ties

**Harshal R. Thube, Mandar R. Sane**

*Department of Forensic Medicine & Toxicology, All India Institute of Medical Sciences, Nagpur, India*

**SUMMARY**

This article reports an autopsy of a 39-year-old deceased male who had done suicidal strangulation using multiple self-locking cable ties. The deceased used seven ligatures, constricting at a different level around the neck to accomplish the suicidal strangulation. Each ligature was made up of two cable ties attached to each other. The detailed autopsy examination and crime scene investigation confirm the manner of strangulation as suicidal. Suicidal strangulation is uncommon but not rare. Varying ligature materials and different locking methods were used for this purpose. The present case is remarkable because of the use of multiple self-locking zip cable ties as ligature material.

**Keywords:** Suicidal Strangulation – Asphyxiation – Self-locking Cable tie – Crime Scene Investigation – Autopsy – Forensic pathologist

## Sebevražda uškrcením větším počtem stahovacích pásek na kabely

**SOUHRN**

Tento článek popisuje případ úmrtí 39letého muže, který spáchal sebevraždu uškrcením pomocí několika stahovacích pásek na kabely. Použil celkem sedm pásek zatažených na různých úrovních krku. Každé škrtidlo se skládalo ze dvou pásek spojených k sobě. Podrobná pitva a ohledání místa činu potvrdily uškrcení v sebevražedném úmyslu. Sebevražedné uškrcení sice není přiliš obvyklé, ale není úplně vzácné. K tomuto účelu bývají použita různá škrtidla a různé metody jejich utažení. Tento případ je pozoruhodný z důvodu použití většího poču kabelových stahovacích pásek jako škrtidel.

**Klíčová slova:** sebevražda uškrcením – udušení – stahovací páska na kabely – vyšetřování na místě činu – pitva – soudní lékař

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Asphyxia means lack of oxygen, but it denotes pulselessness in original terms (1). Asphyxia by mechanical means is classified into different types. Strangulation by ligature is one of the types of mechanical asphyxia caused by constriction of the neck by a ligature without suspending the body (2). Suicidal strangulation is uncommon but not rare. Different authors described many cases of suicidal strangulation. They noted the use of various types of ligature materials and various methods of locking the knots to achieve death. There are no apparent criteria that can easily differentiate between homicidal and suicidal strangulation. But the appearance of ligature mark, complex knot, presence of locking mechanism to sustain prolonged pressure after unconsciousness, and exclusion of other injuries help to decide manner. Careful autopsy examination and crime scene investigation are essential to facilitate this. The article presents a case of suicidal strangulation accomplished by using multiple self-locking cable wire ties.

## CASE DETAILS

A 39-year-old man working as an IT professional in a multi-national company was found dead over the office's terrace in the morning. In one morning security guard found him dead with multiple ligatures around his neck. The body was subjected to a medicolegal autopsy.

The clothes of the deceased were intact and without any stains. The body showed complete rigor mortis formation. Post-mortem lividity was found all over the back, except over pressure points, purple in colour, fixed. The weight of the body was 80 kg and length 173 cms. The face was severely congested. Multiple petechial haemorrhages were present all over the face. Eyes were partially open with congested conjunctiva and multiple petechial haemorrhages over bulbar conjunctiva. The tongue was protruding outside. Whitish froth was present around the mouth. Seven ligature bands were found deeply embedded into the neck skin. Each ligature band was made up of two cable ties attached, completely encircling the neck. Each cable tie was 22 cm in length and 0.4 mm in breadth with vertical striations all over. Of these, three cable tie ligatures were found horizontally, encircling the neck above the thyroid cartilage level. They had fixed self-locking knots of cable tie present anteriorly. Two cable ties were found at cricoid cartilage level with a fixed knot present on the posterior aspect of the neck. One cable tie ligature was present with the knot on the right lateral, and one was found on the left lateral side of the neck (Fig. 1). The skin in between the cable tie was found swollen and congested. Total neck circumference at thyroid cartilage level was 34 cm. Neck skin showed seven dried parchmented ligature marks, three parallel to each other while the remaining were obliquely crossing. Each ligature mark showed an imprint of the pattern of a cable tie. No other injury was noted on the rest of the body.

Layer by layer dissection of neck muscles shows parchmentising of whole ligature marks. Cricoid, thyroid, and tracheal cartilages were intact without any injury. Internal neck muscles were congested. The right sternocleidomastoid muscle showed

✉ ***Correspondence address:***
*Dr. Harshal R. Thube*
*Assistant Professor, Department of Forensic Medicine & Toxicology*
*All India Institute of Medical Sciences, Nagpur*
*State- Maharashtra. Country- India. 441108.*
*e-mail: drharshalthube@gmail.com*
*tel.: +919975649865*

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**Fig. 1.** Multiple plastic cable ties around the neck at different levels.

2 cm x 1 cm haemorrhage formation at the clavicle end. Deep neck muscles and posterior neck muscles did not show any haemorrhage or contusion formation. The brain was severely congested, and white matter of brain parenchyma showed petechiae formation. Both lungs were congested and edematous. Interlobar surface showed multiple petechiae formations. Rest other organs didn't show any pathological anomaly. Toxicological analysis of gastric contents and blood was normal and devoid of any alcohol, narcotic substance, or other poisonous material.

After the autopsy, it was concluded that death might have occurred due to asphyxia following ligature compression of the neck. The scene of incidence was visited after the autopsy. No signs of dragging the body were noted on the deceased's clothes or the terrace's floor. No suicide note was found at the crime scene, his workplace, or his residence. No blood stains or body fluid stains were noted at the crime scene. The CCTV footage of the staircase shows that the deceased went to a terrace late-night alone. No other person went to the terrace after him.

## DISCUSSION

Strangulation is not the preferred method of suicide. It is uncommon but not rare. There are no predefined criteria and particular characteristic features to differentiate self-strangulation from homicide (3). But a detailed analysis of the type of knot, the position of knot, and the deceased's easy access to the knot can throw light on the manner of ligature compression. The self-pressure over the neck initially produces effective asphyxia and ischemia of the brain. It is followed by unconsciousness leading to muscle flaccidity and removal of constricting pressure over the neck. Death can occur if sustained pressure is maintained over the neck by elastic ligature material, complex knot, or other locking mechanisms. Many available types of ligature material were used to achieve suicide by maintaining pressure, such as satin fabric (4), shoelace (5), nylon stocking (6), telephone wire (6), fabric hangers (3), gymnastic bands (7), ropes (8), seat belt (5). Apart from using different types of ligatures to succeed in suicide, a lever, ratchet, or special devices with the self-locking mechanism were used to maintain the effect of pressure over the neck until death (4,9-11). Sometimes, like the Spanish windlass technique, a stick or rod is introduced underneath the ligature, and the rod is twisted to tighten the noose. This type of technique was observed in a deceased found in strangulation suicide at the wheel (5,9,12). Complex knot sometimes denotes homicide, but multiple knots (11), posterior knot (3), multiple turns of ligatures (3), and more than one ligature material were reported in self-strangulation cases (11). Various cases of suicidal strangulation by using cable ties were reported in the literature (3,14-16).

Cable ties were first used in the aeroplane to harness wires. The initial material used was metal, later modified to plastic and other flexible material for different uses. The usual cable tie available nowadays has serrations that act as an in-built tensioning device. This acts as a self-locking ligature with a unidirectional and single-time movement that gives sustain pressure over the neck (17). The tension produced varies depending on the cable tie's dimension. The usual cable tie used in the present case was of length 22 cm & breadth 0.4 cm, which in a single attempt could not produce unconsciousness in the victim. The deceased used multiple cable ties to reach the desirous effect constriction of the neck. Suicidal ligature strangulation achieved by cable ties in reported literature (13-16) shows the use of multiple cable ties to achieve constriction. They indicate that several attempts were necessary to achieve the desired tension on the ligature to cause unconsciousness and death. In the present case also, multiple cable ties were used to achieve constriction of the neck. Apart from the above cases of suicidal ligature strangulation, a homicide is also reported by use of cable tie (18). Hence, it becomes vital to differentiate between the manner of death in such cases.

Autopsy findings of the internal neck can easily differentiate suicidal strangulation and homicidal strangulation. Prominent petechial haemorrhages can be seen in self-strangulation cases due to prolonged venous occlusion with intact circulation through the arterial system results in increased cranial venous pressure, which leads to the formation of petechia in lax and unsupported tissues such as eyes, pleura, and pericardium (1,19). Sustained pressure over the neck for long-duration in suicidal strangulation leads to more petechial haemorrhages seen in many reported cases (3,8,15,16). In homicidal strangulation of elderly individuals, injury to the hyoid bone and larynx cartilages can be seen because of calcification. Many authors report the absence of fracture of hyoid bone and cartilages in suicidal strangulation cases (3,11,13,15,16). Some authors also noted minimal or no haemorrhages or contusion in internal neck muscles (15,20,21). Degree of petechial haemorrhage, congestion in face absence of fracture of cartilages and hyoid bones, minimal or no haemorrhage or contusion of internal neck muscles facilitates the process of deciding manner of death. Both extensive congestions of the face and the absence of larynx or hyoid bone fractures characterizes a suicidal action (20). In the present case, we observed extensive petechial haemorrhages over the face and eyes, minimal haemorrhage in internal neck muscles, absence of fracture of hyoid bone and laryngeal cartilages. No haemorrhage was noted from the nose, mouth, or ears. All are favoring suicidal constriction of the neck.

In doubtful cases, crime scene examination always serves as a critical factor in deciding death's manner. The absence of any tear in clothes, no signs of struggle over the body and at the surrounding, and the presence of a suicide note clears the self-strangulation picture (9,13,20).

### CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

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