

## CASE REPORT

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### Suicidal Strangulation with a Double-Knotted Noose

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**REFERENCE:** Zečević, D., "Suicidal Strangulation with a Double-Knotted Noose," *Journal of Forensic Sciences*, IFSCA, Vol. 27, No. 4, Oct. 1982, pp. 963-967.

**ABSTRACT:** The paper describes an unquestionable case of suicide by strangulation. The case is of special interest because in addition to two single knots there were two double knots in the noose. As a rule strangulation with a double-knotted noose is seen only in cases of murder. The data attained at autopsy and the findings of the detailed police investigation are discussed.

**KEYWORDS:** pathology and biology, suicide, strangulation

Rare and unusual forms of suicide always attract attention. Special notice is given to cases of suicide by strangulation by ligature. Most authors in the forensic science literature believe such a form of suicide is very rare, that such cases nearly always involve murder [1-3]. It has not yet been satisfactorily determined whether or not suicide by strangulation with a double-knotted noose is possible. The problem is clear—the second part of the knot *does not* tighten the noose any further; it only *fixes* the first part of the knot so that the compression of the noose does not loosen. The loss of consciousness that occurs at some point because of the increasing pressure on the neck from the noose is generally believed to preclude the suicide's tying the second part of the knot.

Cases of suicide committed with a double-knotted noose are very rarely reported. Mueller [4] mentions an unwritten observation by Klein concerning a 65-year-old woman found strangled. She was found with a double-knotted noose; one part had been tightly bound and the other was loose. Two similar cases were reported by Simpson [5]. Both those suicides were committed by women, one young, one elderly. They were both found in their apartments, strangled by double-knotted nooses. In both cases, persons close to them were accused of murder. On autopsy, large quantities of barbiturates were found in the bodies of both women. Unfortunately, Simpson does not give the details of the police investigations or of subsequent findings, which are of crucial importance in cases like these, as the author himself points out. In the same report, he mentions that he had successfully tied a double knot on a noose on himself before losing consciousness and that another doctor trying to do the same had lost consciousness and was saved with the greatest difficulty.

This paper reports the case of a 20-year-old university student found dead in Zagreb, Yugoslavia. The cause of death was strangulation. On the basis of the police investigation and

Received for publication 3 Aug. 1981; revised manuscript received 10 Feb. 1982; accepted for publication 16 Feb. 1982.

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the results of the autopsy I performed, the case was unquestionably found to be suicide, even though two double and two single knots had been found in the noose around the neck.

The police investigations were very thorough [6]. The records show that the body of a young girl was found in early February in the remotest outskirts of Zagreb. It was lying in an 80-cm-wide passage between the rear wall of a country cottage and the almost vertical slope of a hill. The corpse was lying on its back with the forearms on the rib cage and the legs extended with slightly bent knees. A handbag was found near the head of the corpse. The body was dressed in a woolen winter coat, light gray with orange and green threads. It was buttoned up with eight buttons. The upper part of the body was dressed in a cardigan and a green blouse, the lower part in jeans with a zipper in front that was closed. She wore short brown boots and short brown socks.

There was no evidence of a fight in the vicinity of the corpse. The leaves and ground around her showed no trace that the body had been either moved or dragged along the ground. On the side of the hill, near the corpse, were moss and dry twigs, both of which were loose and therefore had not been disturbed. There were also some intact cobwebs. The handbag contained an identity card, a university student's booklet, a streetcar pass, a polythene bag, and various other small objects.

Before autopsy the matter on both hands was removed with cellophane tape, the nails were clipped, and samples of hair were taken for police examination. The clothes were carefully removed and examined. The underclothes—a brassiere, a white vest, and a pair of underpants—were undamaged.

Examination of the body showed that rigor mortis had already set in. On the back, lividity patterns were clearly visible. The skin on her face was cyanotic, and beneath the junction of the eyes there was spotty bleeding on the skin. On the temple near the hairline we found a 4-mm linear laceration of the skin. A mound of parasite eggs was in the left corner of the mouth. Nylon stockings were wound around the neck several times (Fig. 1). After they were unwound, they were found to be tights. The unwinding was performed as follows:

1. At the front of the neck under the chin there was a single knot of the noose.
2. Knot 1 having been untied, we found another single knot of the noose at the back of the neck.



FIG. 1—*The noose around the neck.*

3. After untying the single Knot 2, we found a very tightly compressed double knot of the noose directly under the chin at the front of the neck.
4. At the back of the neck the legs of the tights crossed on top of the hair.
5. At the front of the neck under the chin another double knot was found.
6. At the back of the neck the legs of the noose crossed over the hair again.
7. The legs of the noose crossed at the front of the neck.
8. The legs of the noose crossed at the back of the neck over the hair, trapping a lock of it.
9. The legs of the noose crossed at the front of the neck.
10. The legs of the noose crossed at the back of the neck under the hair.
11. The legs of the noose crossed at the front of the neck; after the legs of the tights were removed the skin at the front of the neck could be seen.
12. On the back of the neck the elastic part of the tights was placed on the skin *under* the hair. This is where the winding had started.

On the front side of the neck several small oval and linear tears of the skin were found (Fig. 2). External examination of the body showed no other traces of injury.

Internal examination of the body showed small subcutaneous bleeding on the neck. The tongue bone and tracheal cartilages were not injured. In the upper part of the esophagus we found one whole pill and four halves of pills. In the lower part of the esophagus, a whitish, shapeless mass of dissolved pills was found (Fig. 3). A whitish mass similar to that found in the lower part of the esophagus was also found in the stomach. Samples of the contents of the esophagus and stomach were taken for toxicological analysis, as were samples of the liver, kidney, and blood. The blood samples were analyzed for alcohol content. The contents of the vagina and rectum were also analyzed.

Toxicological analyses of the contents of the esophagus and the stomach (stomach contents were very small) showed pills—*aspirin*, *phenacetin*, *phenobarbital*, and *caffeine*—while the results of liver, kidney, and blood toxicological analyses were negative. No alcohol was found in the blood (0.0%). No trace of sperm was found in the vagina or rectum.

Following is a summary of the results of the police examinations:

1. Under the nails of the right hand we found two black synthetic threads, often seen in fabric.
2. On the palm of the left hand one black-brown synthetic thread and one green thread were found. Both threads originated from the victim's clothes.



FIG. 2—The neck after the noose was removed.



FIG. 3—Partially dissolved pills found in the esophagus.

3. Several human hairs were found on the clothes (coat, cardigan, jeans). They had characteristics almost identical to those of the victim.

4. Traces of the earth from the shoes and a sample of the earth taken near the body had identical specific weights.

The inspector working on the case gathered, among other data, the following information: the mother and sister last saw the victim on Saturday, 9 Feb. 1974 at about 2 p.m., before she left the house to go to the Faculty to see whether she had passed the examination she had taken on February 7. (Her parents were divorced, and she lived with her mother and sister.) Before she went to the Faculty she said that if she did not pass the exam she would not meet the requirements for enrolling in the following year of study and would, should this happen, go to her aunt in the country. When she had not returned home by Monday, her mother went to the university and found out the student had failed the exam. The sister, in a statement to the police, said that several days previous to this the student had talked about a will, telling the sister what she would leave to the sister and to the mother.

On Sunday, February 10, a conductor on a bus going to the suburb in which the body was found saw a tall, blond young woman get on the bus at its first stop. She bought her ticket and sat directly behind the driver. She had looked depressed and lost, and when asked why she was so sad turned her face towards the window. He did not see where she got off the bus. In the morgue he identified the body as that of the person he had seen on the bus at 8 o'clock on Sunday.

Her friends from school and the Faculty said that she had been a quiet girl, had had a tendency to daydream, and had suffered from an inferiority complex and did not make friends. She had been a very good student in high school, but if she got a bad mark would often cry and become upset.

Among her things at home, police found a diary starting on 5 Jan. 1971 and ending on 4 Feb. 1974. Among other entries was this one (29 Oct. 1973):

The happy days seem to have passed. I feel as if I were the greatest blockhead of all the block-heads at my Faculty. I failed the oral exam i.e. I didn't do well enough etc., etc....I am fright-

ened for myself and for my study not because of this oral exam but because of everything that is going on . . . I can't stand anyone. I am sick of friendship and of everything that hasn't to do with me.

The last entry, on 4 Feb. 1974, three days before the exam, read:

This New Year 1974 is a horror. It has begun awfully. I have failed three exams in a row. If I don't pass this one on the seventh, I shall kill myself. The stupid should not live. (Kill: life is not for the stupid.) Black humor.

The dead body (of the then-unidentified girl) was found by local residents on Tuesday, February 12, in the afternoon, at dusk. The autopsy was performed the following day.

It would require a longer description of the autopsy results and the results of the police investigation to present a clear picture of events. The results of the police investigation and the autopsy show beyond any doubt that she committed suicide. This conclusion is based on the completely undisturbed state of the place where the body was found, on the fact that the winding of the noose started at the back of the neck under the hair, on the knots of the noose at the front and rear of the neck, on the finding of pills in the esophagus, on the threats of death in case of failure, on the statement of the witness (the conductor), and on her psychological make-up. In addition, there were no facts that could stand up to critical evaluation apart from the previously described knot on the noose to support the case for murder, that being the only other possibility. All the knots, single and double, were firmly tied. Unwinding them, one could not have said that any of them had been in any looser than the others. During the autopsy, when some of the important facts were still unknown to us, these double knots were very confusing.

In describing this suicide we have, unfortunately, not come any nearer to answering the question, "Can a suicide achieve strangulation by ligature with a double knot of the noose?" In this case, the crucial fact is perhaps that *the last* knot of the noose was single, although no difference could be found in the tightness of the noose and the compression of the neck between this knot and the double knots. The experiment reported by Simpson seems only at first to be an irrefutable proof. We must not forget essential circumstances: by tightening the noose the suicide uses much greater strength than is perhaps necessary (*he wants to die*) while the person conducting an experiment tightens the knot in a very controlled way because he *wants to live*, and in doing the experiment, he, perhaps unknowingly, by dropping his head in front of him, also increases the volume of the neck.

Every future case of strangulation with a double knot of the noose will certainly present the same dilemma: was it suicide or murder? The logical thing in such cases is to think of murder first. But, if a number of relevant facts point to suicide, and there are no facts pointing to murder, we must allow the possibility of suicide.

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