An Unusual Suicide Case by Combination of Choking and Hanging

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Abstract: A 40-year-old man was found dead in his prison cell, hanging on a twisted bandage tightened around his neck. His permanent metal tracheostomy tube was completely corked with a piece of paper wrapped with transparent cellophane from a cigarette case. After police investigation and complete autopsy, suicide was determined as the manner of death. Although suicides by 1 form of asphyxia are relatively common, combination of several different forms of asphyxia is far less frequent. We present this unusual and very rare case of suicide by combination of 2 forms of asphyxia, that is, choking and hanging, along with autopsy findings and discussion.

Key Words: forensic pathology, combined mechanical asphyxia, suicide, hanging, choking

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According to the known literature and traditional terminology, asphyxias include suffocation, strangulation, and chemical asphyxia. Recent reviews show that the most frequent method of asphyxiation is hanging, followed by drowning and carbon monoxide poisoning. Ligature and manual strangulation each constitute less than 3% of all asphyxial deaths. Although suicides by 1 form of asphyxia are relatively common, combination of several forms of asphyxia is far less frequent. Smothering, as a form of suffocation, is caused by mechanical obstruction or occlusion of the external airways (nose and mouth). For choking, on the other hand, there are more definitions. These include food or foreign-body inhalation regardless of the anatomic location; obstruction at the level of the mouth and oropharynx; obstruction of the larynx, trachea, or bronchi; obstruction of the airways; obstruction at the level of the mouth and oropharynx; obstruction of the internal airways; obstruction of the upper airways; and obstruction of the internal airways. Hanging is a form of strangulation in which death is caused by compression of blood vessels and air passages, where a person’s own body weight tightens the noose in the neck region. Recent literature reviews confirm a long known fact that most hangings are suicidal in manner. According to the foregoing statements, this case represents a combination of 2 forms of asphyxia: choking and hanging.

CASE REPORT

After committing homicide, a 40-year-old man attempted suicide using a 7.9-mm rifle. As a result of a self-inflicted gunshot wound on the face with the entrance hole under the chin, nasal cartilages and facial bones were partially destroyed, and facial soft tissues were deformed, which resulted in partial obstruction of the upper airways. Because of the nature and extent of injuries, a permanent metal tracheostomy tube was placed after surgical treatment.

Six months later, the convicted perpetrator was found dead in his prison cell, where he was all alone, hanging on a twisted bandage tightened around his neck without touching the ground with his feet or any other part of his body. Deaths in custody always have serious legal consequences, so police investigation of the crime scene was thorough. No signs that could indicate homicide were observed. The body was transported to the Institute of Forensic Medicine for an autopsy.

During external examination, it was noted that the deceased was 161 cm in height, well nourished, with a slightly less developed muscular build. Facial tissues were deformed with multiple irregular scars across the face (Fig. 1). Face and conjunctivae were pale, and no petechiae were found. After removing the loop made of twisted bandage, the ligature mark was found in the upper part of the neck (Fig. 1), located above the thyroid cartilage, going around both sides of the neck and behind the ears, and finishing in the left occipital region where the knot impression was found. The metal tracheostomy tube was completely corked with a piece of paper wrapped with transparent cellophane from a cigarette case (Fig. 2). No other signs of mechanical trauma were found.

Internal examination revealed subpleural petechial hemorrhages, moderately congested and edematous lungs, and congestion of internal organs. There was mild atherosclerosis of coronary arteries with no other macroscopic pathological findings on the heart. No fractures of the thyroid cartilage or hyoid bone were found. Microscopic findings were nonspecific, revealing only mild fibrosis of the myocardium. The toxicology screening result was negative.

According to autopsy findings, police investigation, and all surrounding circumstances, the mechanism, cause, and manner of death were determined as hanging by asphyxia.
death were determined. The mechanism of death was mechanical asphyxia, and the manner of death was determined as suicide. Despite that compression of air passages is not necessary to cause death in hanging and that there were individuals who have hanged themselves with a noose above the larynx and a permanent tracheostomy opening below, we attributed the cause of death to the combination of 2 asphyxial methods: hanging and choking.

**DISCUSSION**

Unusual cases of mechanical asphyxia are well documented in the medicolegal literature. Sauvageau and Yesovitch\(^2\) reported an unusual suicide case of choking on toilet paper. The authors emphasized the statement that suicide by choking is difficult to accomplish and that autopsy findings must be combined with crime scene findings and psychological and personal histories of the deceased individual. Saint-Martin et al\(^3\) reported a case of plastic bag asphyxia that was proclaimed as suicidal. Mehmet\(^4\) reported an unusual case of suicide using a tourniquet method with the help of a walking stick. DeRoux and Leffers\(^6\) reported 2 cases of asphyxiation by occlusion of the nose and mouth by duct tape. In all of these cases, the main problem was to determine the manner of death, which theoretically could have been suicide, homicide, or an accident. Therefore, one cannot emphasize enough the importance of a detailed investigation before determining the manner of death.

As previously mentioned, combination of several forms of asphyxia is rarely seen. Turillazzi et al\(^8\) presented a very unusual homicide of 2 children by smothering and strangulation by means of a rubber adhesive band carried out by their mother who committed suicide by the same manner. This case underlines that one must increase awareness of homicidal and/or suicidal death by more than 1 mechanism of asphyxia in an attempt to reduce the potential for underdiagnoses or mistakes. Asamura et al\(^9\) reported a death by combination of different asphyxial methods, in which a man died of suffocation by adherent tape wrapped around his head and ligature strangulation by an electrical cord.

Regarding the mechanism of death in this particular case, it is difficult to separate the sequence of events that resulted in death. In choking, asphyxia is caused by obstruction within the air passages, whereas in hanging, it is secondary to compression of neck structures, predominantly blood vessels, so there is insufficient amount of oxygenated blood that reaches the brain. In this case of complete hanging, there was sufficient amount of pressure to occlude carotid arteries, which is in concordance with autopsy findings (pale face, no petechial hemorrhages in conjunctivae). In cases where there is occlusion of both carotid and vertebral arteries, loss of consciousness is obtained within 5 to 11 seconds and death occurs after 4 to 5 minutes because of anoxia of the central nervous system.\(^10\) In this case, one can only conclude that the victim had lost consciousness within several seconds and died within minutes, but it is virtually impossible to single out the predominance of either choking or hanging.

During our previous 20 years of work in the Centre for Forensic Medicine in Novi Sad, we have not found any case that could be described as a combination of various forms of mechanical asphyxia.

Death in custody always represents serious legal and medical issues. The main task for all those involved is to determine the cause and manner of death. Suicides committed by a combination of several forms of asphyxia have rarely been reported in the past. There was a reported case of complex suicide, but it was a combination of hanging and a gunshot.\(^11\) Suicidal combination of choking and hanging was not found among reviewed articles, so we present this case as the first one where hanging and choking were the asphyxial methods used to commit suicide. It is even more interesting having in mind that the deceased was aware of his health condition and used the exact methods necessary for complete obstruction of air passages, along with the pressure to blood vessels of the neck due to hanging.

**REFERENCES**