G78 Forensic Point of View in Manual Strangulation

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After attending this presentation, attendees will understand some principles of danger to life in manual strangulation.

This presentation will impact the forensic science community by the fact that the cause of death in manual strangulation is not yet elucidated.

Strangulation accounts for 2.5% of traumatic deaths worldwide and up to 10% of all violent death in the United States. Many people who are strangled survive. Much of forensic analysis and knowledge on manual strangulation was based on homicide victims. Serious damage to the vital structures in the neck was specific. Assessment of life-threatening injuries could be characterized as malicious intent.

All studies involving life-threatening and non-life threatening manual strangulation were reviewed. Are there any specific findings in clinical forensic medicine or in radiological investigation between deceased and living victims? Is the assessment of danger to life based on cerebral hypoxia and or cardiac reflex?

Only five studies were found in international literature. Only one, performed by a Swiss team, was clinical, all remaining studies were radiological. Three of them focused on the criteria between life-threatening and non-life-threatening manual strangulation. One compared strangulation signs between autopsy findings and multislice computed tomography and with magnetic resonance imaging. The clinic study proposed the categorization of strangulation victims who survived in three degrees of assault intensity (light, moderate, severe). It was stated that the duration of the neck compression would be associated with a high probability of a reflex cardiac arrest. Signs of typical manual strangulation prove the length and the forcefulness of the accused man. In contrast, radiological studies state the danger of life.

The appropriateness of life-threatening manual strangulation is crucial for forensic pathologists. The degree of penalty for the offender depends on this forensic point of view. Assessment of intensity and duration of manual strangulation by the injuries is still controversial when the cause of death remains obscure. There are four mechanisms of strangulation leading to death: venous obstruction leading to cerebral stagnation, arterial spasm due to carotid pressure leading to low cerebral blood flow, vagal collapse caused by pressure to carotid sinuses, and increased parasympathetic tone and obstruction of the airway by pressure on throat skeleton (unremitting manual pressure on the throat during four minutes seems practically unattainable). Mechanisms of death could be mixed in manual strangulation. The role of cardiac reflex by pressure on the neck in manual strangulation is still a controversial subject in forensic medicine.

Because of this, assessing life-threatening injuries is still difficult. When exactly does manual strangulation become a danger to life?

The clinical study explains that the classification should be considered as a proposition and forensic assessment is still individual. Radiological studies demonstrate the added value to forensic assessment by offering visualization of internal neck findings in victim survival or death. Forensic radiology studies concluded that the value of inner neck injuries is necessary. Forensic evaluation of danger to life needs reference standards and the small number of cases limits the results.

Further studies of survivors of manual strangulation have to be done. Comparative studies between forensic autopsy and forensic radiology must include more cases.

Manual Strangulation, Cause of Death, Danger to Life

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