

## Importance of Forensic Assessment of Postasphytic Cases

**Sarvar Abduazimovich Khakimov,**

PhD student, Senior lecturer

Department of Forensic Medicine and Medical Law,

Tashkent Medical Academy

**Khvan Oleg Innokentievich,**

Deputy Director for Research, Doctor of Medical Sciences

Republican Scientific-Practical Center of Forensic Medicine,

**Amiriddin Suvanovich Umarov,**

Deputy Director for Expert Affairs,

Republican Scientific-Practical Center of Forensic Medicine,

**Bakhodir Abduhoshimovich Abdikarimov,**

Deputy Director for General Affairs, Candidate of Medical Sciences,

Republican Scientific-Practical Center of Forensic Medicine,

**Li Artur Vladimirovich,**

Expert of Tashkent city branch,

Republican Scientific-Practical Center of Forensic Medicine,

**Fazliddin Nurslomovich Muhammadiyev**

Head of Surkhandarya Regional Branch,

Republican Scientific-Practical Center of Forensic Medicine,

**Abstract:** The article presents the results of the analysis of materials of the forensic medical examination of living persons in post-asphytic conditions, carried out in 2017-2019 in Andijan and Fergana regions. They accounted for 0.58% of the total number of examinations of living persons and mainly arose after self-hanging, more often in men, in persons aged 19-39 years. In most cases (92.9%), the victims sought medical help. Attention is drawn to the type, material of the loop and the duration of strangulation. In 58.5% of cases, a coma of the II and III stages was diagnosed and, on the basis of a danger to life, the injuries were classified as serious. It is emphasized that the analysis of forensic medical examination materials serves to improve the examination data.

**Keywords:** mechanical asphyxia, post-asphytic state

**The urgency of the problem.** Oxygen, along with other factors, plays an important role in the functioning of the tissues and organs of the human body. Lack of oxygen in the external

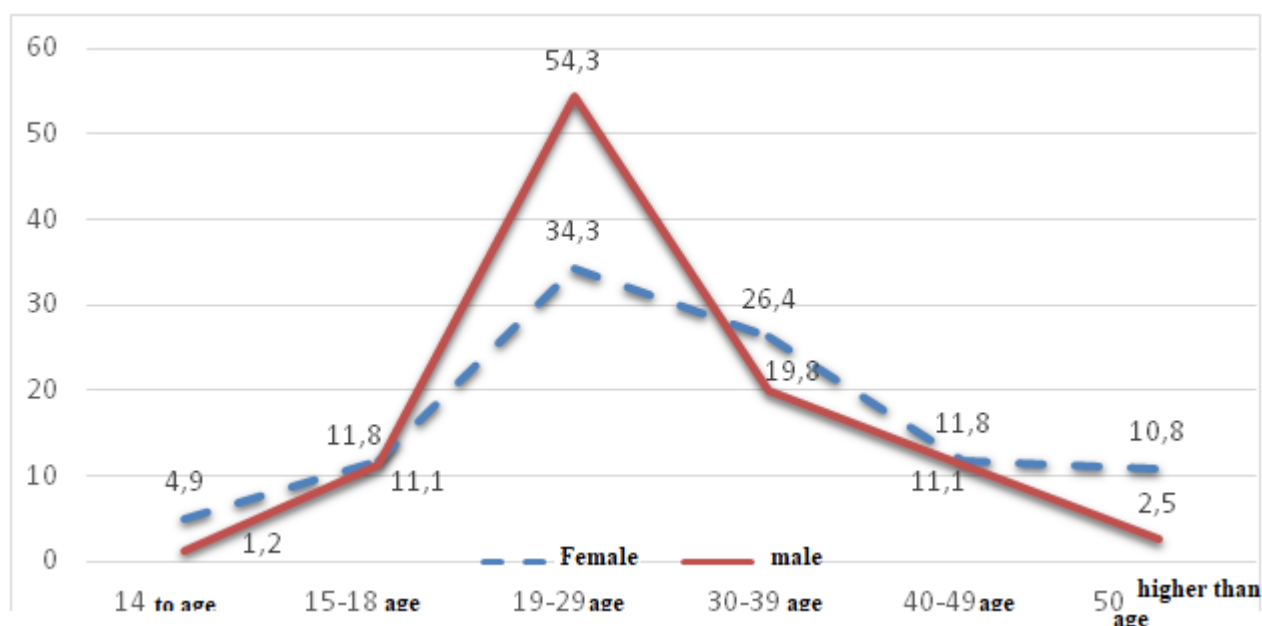
environment or in the body, i.e. hypoxia, can lead to serious illness or rapid death of the organism. [1,3,5,9,12]. A special place in the practice of forensic medicine is occupied by cases of oxygen deficiency caused by external influences. It should be noted that any asphyxiation does not end with death. Such cases require a specific approach in forensic medical examination. Therefore, post-psychiatric cases are included in the list of complex examinations and are evaluated by studying and substantiating its important objective features [2,4,10].

Among the objects of forensic medical examination, a special place is occupied by cases of suicide and attempted suicide, and this is associated not only with the examination of corpses, but also with the examination of living people. It should be noted that in most of these cases, strangulation asphyxia, mainly hanging, is observed. There are many studies in the specialized literature on forensic medicine devoted to the study of various aspects of completed suicides. At the same time, the issue of forensic medical examination with incomplete asphyxiation is somewhat overlooked [6,16]. However, according to the World Health Organization, parasuicide cases are more than twenty times more likely to be fatal [7,11,13].

**The aim of the study** is a comprehensive analysis of postpsychiatric cases based on the materials of forensic medical examination of living persons.

**Inspection methods and materials.** The object of the study was the results of forensic medical examinations of living persons carried out in cases of incomplete asphyxia in Andijan and Fergana regions in 2017-2019. During these years, a total of 69 forensic medical examinations of post-psychiatric cases were conducted. They were all about trying to kill themselves by hanging. In each case, the details of the incident, medical records and anamnestic data, and the results of a medical examination were carefully studied. For a comprehensive analysis, a special questionnaire was created, which included all the information. In this regard, special attention was paid to the age, sex, location, time, identified injuries, their severity and type of hanging, the location of the ligament and its node, the material of the ligament, the duration of exposure to the ligament, the duration of unconsciousness. The recorded data were digitized using the appropriate code and statistically processed using a specially designed computer program. The results obtained are presented in the form of tables, graphs, diagrams.

**Research results.** During the study period, post-psychiatric cases accounted for 0.374% of the total forensic medical examination of survivors. The ratio of incomplete and completed asphyxia cases ranged from 1: 3.38 to 1: 3.94. Among the victims, men were slightly more numerous (55.7%). In terms of age groups, 19-29 and 30-39 years were relatively majority (43.2% and 23.5%, respectively). Consequently, no significant differences were found in different sexes in this regard (Fig. 1).



**Figure 1. Age groups by sex (%)**

According to the details of the incident, in most cases there was a typical, i.e. free hanging. In 60.9% of cases the shell is made of semi-rigid, 33.3% - of soft material. The victims mostly used the nodular slippery ligament, and the ligament nodule was usually localized. According to medical records and forensic medical examinations, in 92.7% of cases, strangulation was found in the victims, in 79.7% of cases, strangulation occurred in the upper part of the neck, in 14.5% - in the middle part of the body.

Based on the materials of the forensic medical examination, 233 (92.5%) cases were treated, of which 85.3% were treated in a hospital. According to the medical document, tonic and 9 (9.5%) tonic-clonic seizures were observed in 132 (52.3%) cases. More than two-thirds of the victims (69.6%) were diagnosed with amnesia, which was mostly retrograde in nature. According to the details of the incident, only in one case did the postasphytic condition occur after manual neck strangulation. All other cases were related to attempted suicide by hanging. In 96.8% of cases, a typical hanging (suspension of the body on the surface) was observed. Suicidal people used a rope made of more semi-rigid material (ordinary rope) (63.4%). In 30.3% of the observations, the slide was made of soft material. In women (44.5%), this figure was much higher than in men (18.6%) (Figure 2).

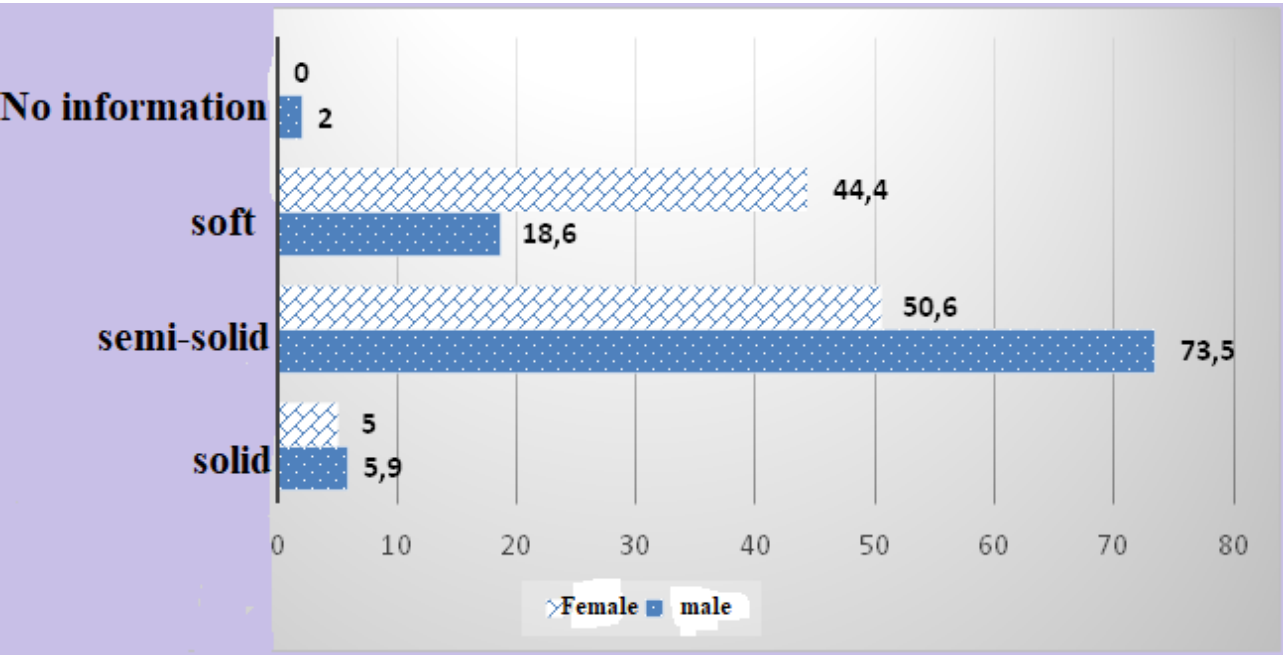


Figure 2. Shell materials of different sexes (%)

To assess the degree of incomplete asphyxia, different criteria can be used depending on the requirements of the rules of forensic medical assessment of the severity of existing injuries [6]. A life-threatening sign can only be used in cases where there is a threat to life. In other cases, the duration of the deterioration in health or the degree of permanent loss of general working capacity is applied.

As a rule, a life-threatening postoperative symptom is mainly associated with a dysfunction of the brain, or rather, with the development of a deep or terminal coma. Almost all of the victims were found to have varying degrees of impairment of this activity (Figure 3).

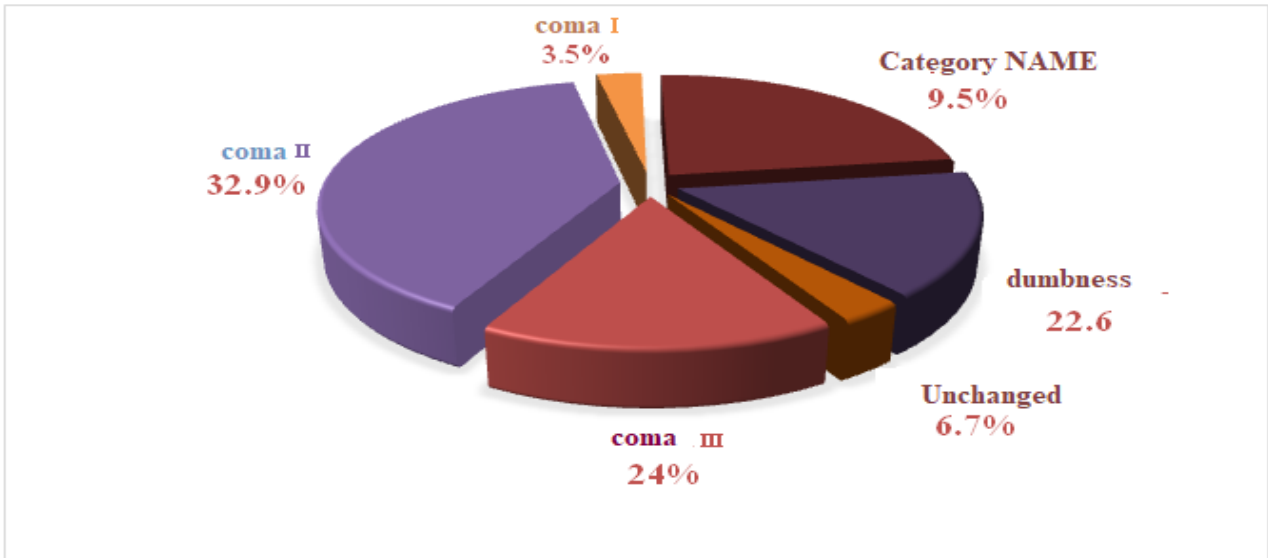
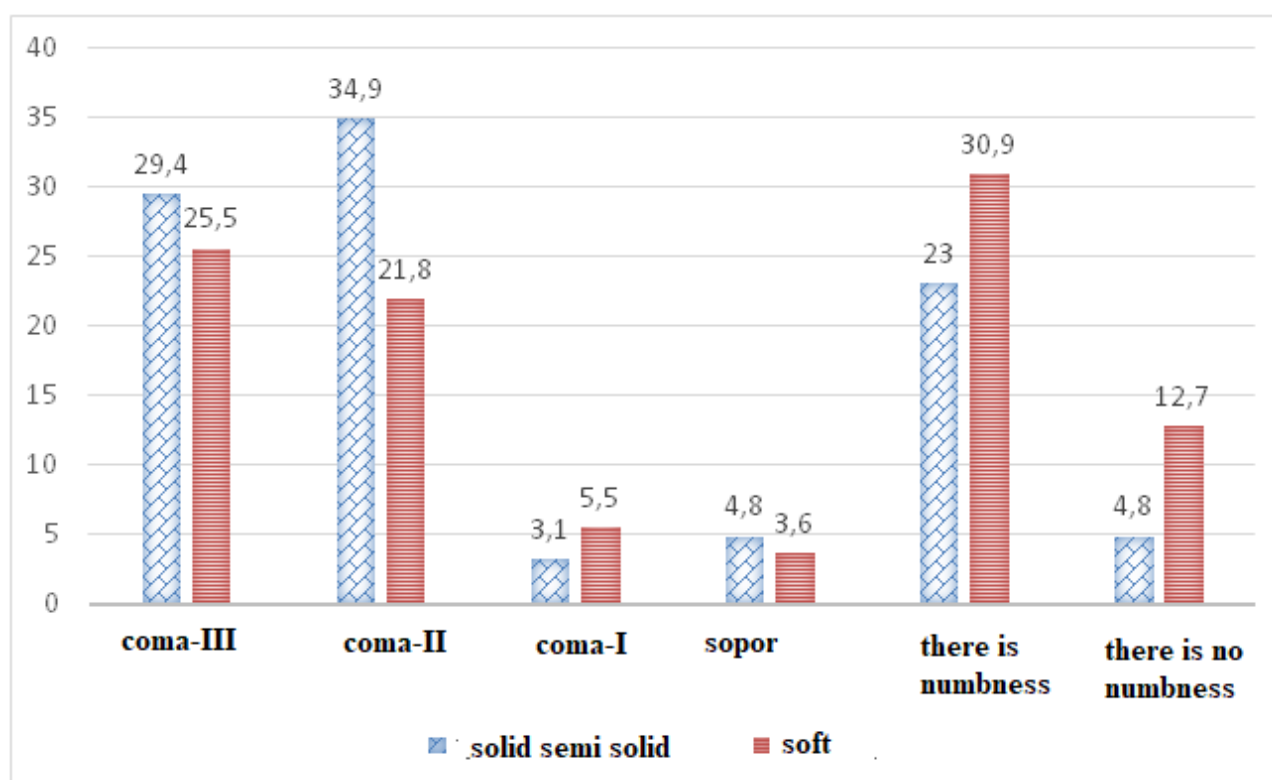


Figure 3. The state of consciousness in the victims.

The incidence of brain dysfunction was not significantly different in representatives of different sexes. At the same time, in this regard, certain features were identified in Fergana in terms of age groups, the material of the ridge and the duration of strangulation. Grade II and III coma was more common in young people (under 18 years - 65.4%, 19-29 years - 60.7%). In 94.5% of cases where the asphyxia effect lasted longer than one minute, grade II and III coma developed, while when the effect was shorter, the figure was 2.8%. Grade II and III coma was noted in 47.3% of cases of soft material strangulation (mainly women's head scarves), and in strangulation with hard and semi-hard material stigma - 63.5% (Figure 4).



**Figure 4. Table comparing the state of consciousness with the loop material.**

According to the results of the analysis, 145 (57.5%) victims developed second- and third-degree coma, and accordingly, the bodily injuries were assessed as severe as a sign of life-threatening. In 94 (37.3%) cases, bodily injuries were assessed on the basis of the duration of the health disorder. However, in 13 (5.2%) cases, the severity of bodily injuries could not be determined due to the lack of complete data in the medical records.

**Discussion of research results.** According to the data obtained, the analysis of the materials of forensic medical examinations on post-psychiatric cases conducted in the regions for 3 years revealed that the absolute and relative indicators of these examinations are much lower than the number of completed suicides. Thus, in the years of analysis, these examinations accounted for 0.18% -0.37% of the total examinations of living persons. In fact, although parasuicide cases are

much more common in practice, the level of coverage with forensic examinations is much lower for a variety of reasons. Postasphytic cases were relatively more common in men, especially older adults.

According to the details of the incident, all the cases were related to an attempt to commit suicide by hanging, often a typical hanging was observed on a knotted, slippery surface made of semi-rigid, soft materials. In most cases, the sciatic node is typically located. Accordingly, a strangulation band was identified in the victims' necks.

Two criteria were used by the examiners to determine the severity of the bodily injuries. In 57.5% of cases, second- and third-degree coma developed and severe bodily injuries were identified as life-threatening. In the remaining cases, the criterion of duration of health impairment was used.

Postasphytic cases occurred mainly after attempted suicide by hanging, and in most cases were typical hanging. 30.9% of the victims used soft material as a bandage and the figure was higher in women. In most cases, medical attention was sought after the incident and 92.4% of the victims were hospitalized. Consequently, no examination of any living person associated with obstruction, compression, and asphyxia in a confined environment was reported during the study period.

Naturally, the nature and course of postasphytic conditions depend on the health status of individuals, the characteristics of strangulation, and the medical care provided [8,14,15]. According to the results of the study, more severe cases of incomplete asphyxia occurred in representatives of the younger age groups when using a bandage made of rigid and semi-rigid material, as well as with prolonged compression of the neck.

In these cases, medical records that contain complete information are of great importance in the forensic assessment of existing bodily injuries. Unfortunately, there are a number of shortcomings in this regard. In particular, in some cases, medical records are inaccurate, non-informative, and do not reflect the dynamics of clinical changes. For the same reasons, the severity of bodily injuries was not determined in 13 (5.2%) examinations during the analysis period.

### **Conclusion:**

Postasphytic cases most often occur after suicide attempts among men aged 19-39 years.

1. In determining the severity of bodily injuries in post-psychiatric cases, life-threatening criteria are used only in the development of second and third degree coma, and in other cases, the criteria for the duration of the disorder are used.
2. Forensic medical examination of postpsychiatric cases, in addition to medical documentation and examination data, should include a detailed study of the details of the

incident and anamnestic data.

3. Based on the specifics of these forensic examinations, it is important that the information in the medical records is complete and informative in the forensic assessment of bodily injuries.
4. In the forensic medical assessment of cases of incomplete asphyxia, along with the details of the incident, anamnestic and examination data, it is necessary to carefully study the medical documents related to the medical care provided to the victims.
5. A comprehensive analysis of forensic materials on post-psychiatric cases serves to improve the level of reliability and validity of the results of such examinations.

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