



Clinical Morphological Forensic Medical Aspects of Postasphyctic Cases

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Abstract: In the course of research, clinical signs of incomplete asphyxiation cases, morphological changes in the victims were analyzed according to the information provided in the medical documents and the injuries detected in the forensic medical examination. The main attention was paid to the signs and changes considered significant in the forensic assessment of these cases.

Keywords: Mechanical asphyxia, postasphyctic conditions.

The post-asphyctic condition is about 30% of cases of manual suffocation. In all of these cases, in the medical documents, the expert examination described injuries in the form of blisters and bruises on the necks of the victims. Their location, shape and size are proportional to the injuries caused by the impact of the fingers.

Among the clinical symptoms, 78.4% of the total inpatients were diagnosed with vegetative disorders - weakness, nausea, skin hyperesthesia. 42 (10.9%) injured patients had involuntary urination and defecation in the hospital admission department. In the initial period, tachypnea in 88 (22.9%) cases, bradypnea in 125 (32.5%), wheezing in 83 (21.6%), tachycardia in 283 (73.6%), tachycardia in 255 (66, in 4%) - a decrease in blood pressure, in 68 cases (17.7%) an increase in body temperature up to 38°C was observed. In several cases, pain in the heart area was observed, angina pectoris, myocardial infarction was suspected, but they were not clinically diagnosed.

In three cases (0.6%), the victims had clinical signs of severe acute cardiovascular and respiratory failure - tachypnea, tachycardia, decreased blood pressure, muffled heart sounds, corresponding changes in the electrocardiogram, shortness of breath, wet wheezing in the lungs, hypoxemia in arterial blood. . These cases were observed in victims over 50 years old, with a number of concomitant diseases (cardiovascular, respiratory systems). In no case was the injury of the sublingual bone and thyroid gland noted.

In 55.7% of the observations, various sized hemorrhages (subconjunctival ecchymoses) were detected under the mucous membrane of the eyeball and eyelids. In the same number of cases, according to the medical records, amnesia was recorded in the victims, which often had a retrograde tone. Consequently, subconjunctival ecchymoses were found in 99.6% of cases with amnesia.

Loss of breath in post-asphyctic conditions

In the analysis of clinical signs in cases of non-lethal asphyxiation based on the materials of the forensic examination, special attention was paid to signs such as loss of consciousness, amnesia, and the development of convulsions, which are directly related to brain dysfunction.

According to the obtained results, an elderly quarter of the victims did not lose consciousness at all, and the rest were unconscious for different periods of time (Table 1). In order to ensure the reliability of these indicators, the information recorded in the medical history was taken into account.

Table 1. Information on the duration of loss of consciousness

Loss of consciousness	Abs. number	%
did not lose	111	24,4
up to 1 minute	6	1,3
up to 30 minutes	49	10,7
up to 1 hour	31	6,8
up to 6 hours	54	11,9
up to 12 hours	44	9,6
up to 24 hours	28	6,2
up to 3 days	95	20,8
up to 5 days	21	4,6
More than 5 days	17	3,7
TOTAL	456	100%

Certain differences in loss of consciousness were also noted in representatives of different age groups. This issue is somewhat generalized, that is, when two groups - children, adolescents and older victims were compared - the percentage of those who did not lose consciousness was similar in both groups (respectively - 25.4% and 24.2%). However, children and adolescents were more likely to lose consciousness for a longer period of time. If 40.7% of children and adolescents were unconscious for more than one day, 8.5% of them were unconscious for more than five days, in adults, such cases are less (27.5% and 3.0%, respectively ($p < 0.05$)). observed.

A correlation was found between the duration of unconsciousness and the duration of seeking medical help and treatment. Specifically, more than two-thirds (68.8%) of those who did not seek medical help did not lose consciousness at all after strangulation, and 28.2% lost consciousness within 60 minutes. For victims who sought medical help but were not treated, these rates were 55% and 45%, respectively (Fig. 1). Meanwhile, a similar relationship was found between the duration of treatment and the duration of unconsciousness (Fig. 2).

Figure 1. Duration of unconsciousness and seeking medical attention

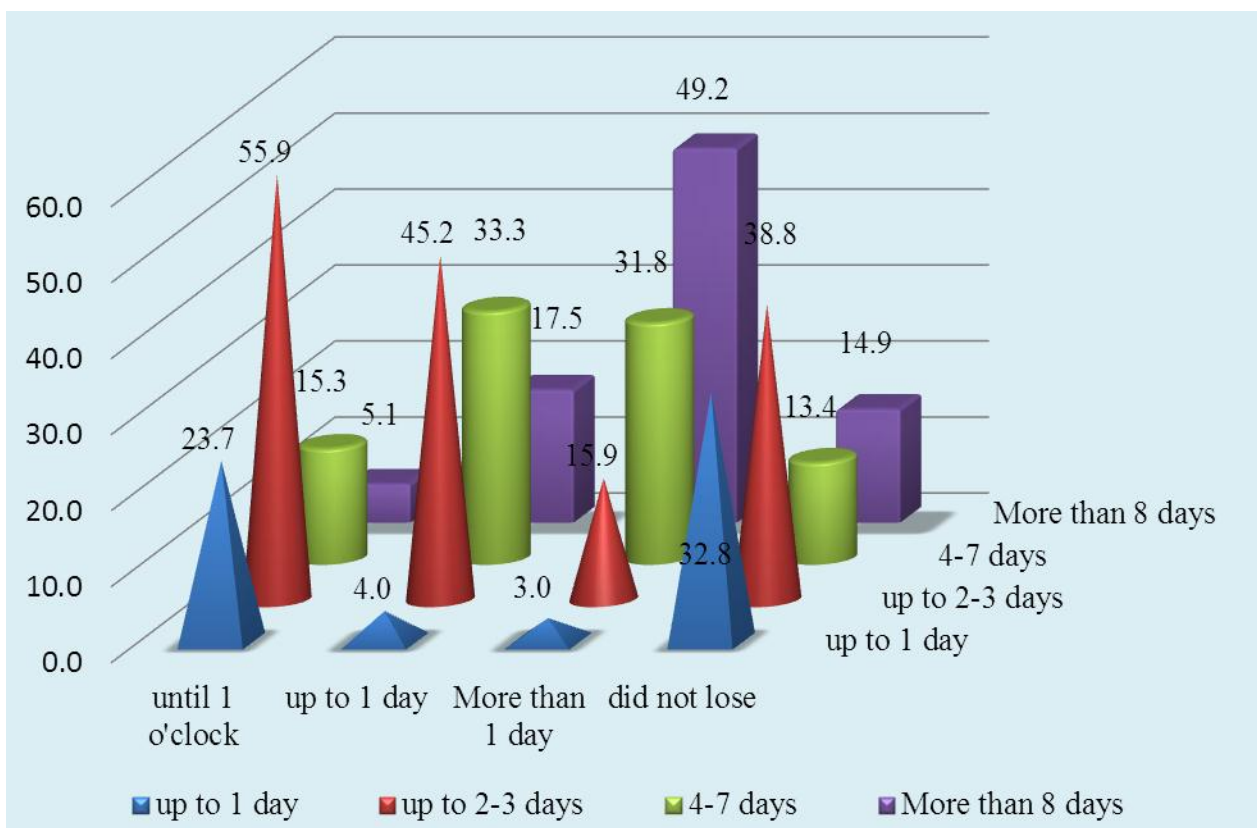
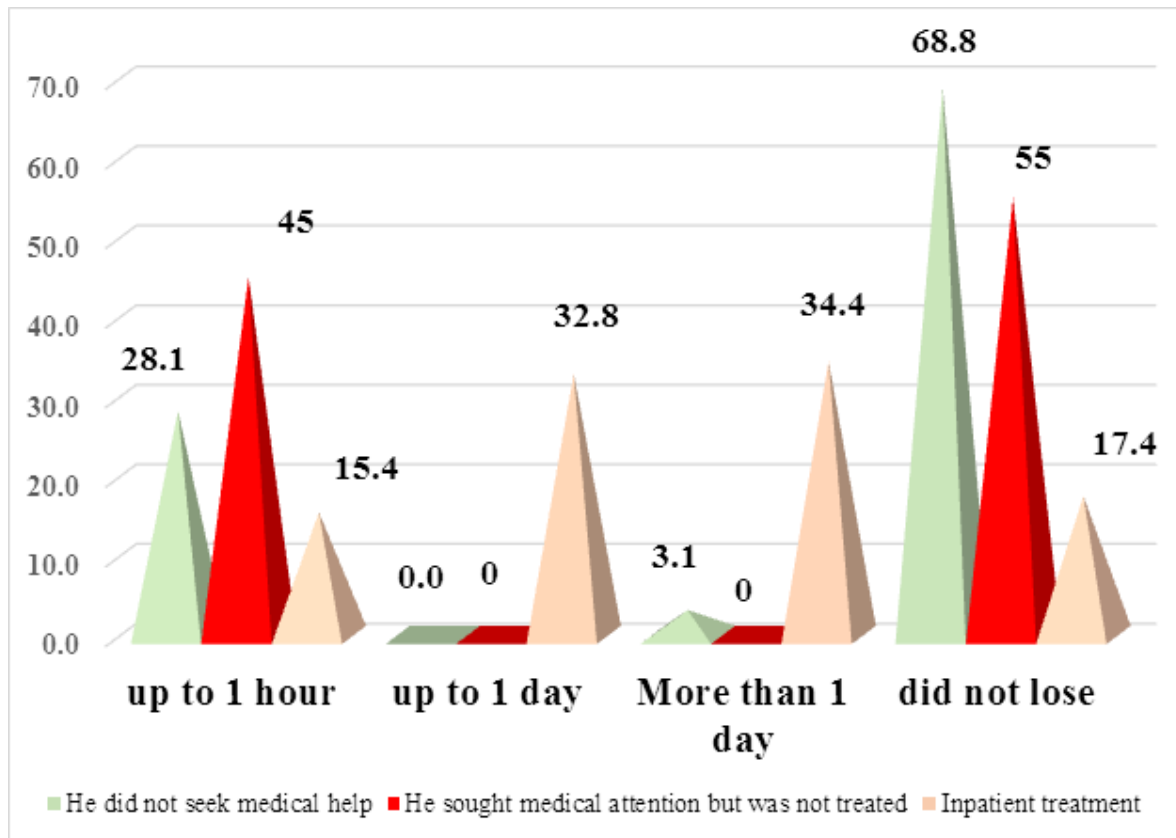


Figure 2. Dependence of loss of consciousness and duration of treatment

Of course, the duration of asphyxiation affects how long the period of unconsciousness lasts. According to the results of the analysis, there was a direct connection between them. Consequently, in 47.2% of all cases of strangulation up to one minute, the victims did not lose consciousness at all. In cases of prolonged asphyxiation, this indicator was equal to 7.3% ($p < 0.01$). On the other hand, 93.2% of those who lost consciousness for more than 6 hours had an asphyxial effect lasting longer than one minute.

Loss of consciousness also had different characteristics in the section of asphyctic effects. In none of the cases of suffocation with a towel, the victims did not lose consciousness. According to the results of the analysis, more cases of loss of consciousness were observed in cases of hanging compared to manual strangulation. For example, 32.1% of those who tried to hang themselves lost consciousness for more than a day, 9.6% of them lost consciousness for a period longer than three days, while in those who were strangled by hand, these indicators were equal to 14.1% and 1.4%, respectively ($p < 0.05$).

Certain differences were noted between the duration of loss of consciousness and the types of treatment and treatment of the victims after the accident. For example, all those who lost consciousness for more than 1 hour (with the exception of 1 case, i.e. 325 out of 326 cases) were treated in an emergency room. Some of the 86 victims who lost consciousness for a short period of time (up to 1 hour) did not seek emergency care at all (9 cases), and were limited to emergency medical care or outpatient care (18 cases).

According to the medical records, 58.1% of the victims had tonic, tonic-clonic convulsions. There is no reliable difference in this issue among representatives of different sexes and age groups. According to the type of asphyctic effect, students were more likely to hang themselves than to be suffocated by hand or suffocation. Convulsions did not develop in those who were suffocated with a cloth, convulsions were observed in 24.0% of those who were suffocated by hand, while this indicator was equal to 64.8% ($p < 0.01$) in cases of hanging.

Table 2. Data on cerebral dysfunction in post-asphyxic cases

№	State of consciousness	In absolute number	%
1	III degree coma	78	17,1
2	II-degree coma	154	33,8
3	I-degree coma	24	5,3
4	Sopor	46	10,1
5	There is numbness	106	23,2
6	There is no paralysis	48	10,5
	Total	456	100%

Men and women have almost no difference in the level of brain dysfunction. But there were some differences among representatives of different age groups. In particular, 57.6% of children and adolescents had II and III degree coma, while this indicator was equal to 49.8% of adults. 19.0% of people under the age of 15 did not have symptoms of cerebral dysfunction, while in other age groups this indicator was in the range of 5.3%-11.1% (Table 2).

Usually cases of amnesia develop in more severe disorders of the brain. According to the results of the analysis, the same relationship was noted.

In particular, in 238 out of 256 cases of coma diagnosis (92.9%), amnesia was detected in victims, and in 238 out of 254 victims who were observed amnesia (93.7%), a clinical diagnosis of various levels of coma was made. Various convulsions were noted in 244 (95.3%) of 256 cases of coma.

The following conclusions can be drawn based on the results of the analysis of the clinical and morphological characteristics of post-asphyxia conditions based on the materials of the forensic examination:

1. There is no uniform approach to hospital admission and treatment of victims in cases of incomplete asphyxia. Depending on their condition, they were hospitalized in different departments and received inpatient treatment for different periods of time. In some cases, necessary consultations of clinicians-experts were not conducted.

2. In most cases, injuries caused by the source of asphyxiation (wipe, hand) were found on the neck of the victims. In the initial period, 78.4% of the victims had symptoms of vegetative nervous system dysfunction, one-third of them had respiratory rhythm disorders, most of them had changes in blood pressure and pulse (greater decrease in blood pressure, acceleration of the pulse).
3. Subconjunctival ecchymoses were detected in 55.7% of observations, tonic, tonic-clonic convulsions in 58.1%, and amnesia was noted in most of these cases. There is a connection between these three signs, and in most cases their combination is observed.
4. 75.6% of the victims lost consciousness for various periods. There is a relationship between the type and duration of asphyxial exposure and the duration of unconsciousness. Loss of consciousness was more common in women, and more than half of them were unconscious for up to a day. Meanwhile, longer periods of unconsciousness are more common in men. Compared to adults, children and adolescents lost consciousness for a longer period of time and also had more seizures.
5. In 56.2% of cases, various degrees of coma were noted in the victims during admission to the hospital. In some of these cases, the degree of coma is not indicated, and in some there are hyper- or hypodiagnostic symptoms. The state of paralysis was not diagnosed at all.

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