INTERNATIONAL JOURNAL OF
INTEGRATIVE AND
MODERN MEDICINE

Forensic Medical Assessment and Statistical Analysis of Mechanical Asphixia

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Abstract: Drowning is an accident. In this case, breathing and cardiac activity are seriously impaired as a result of the airways being filled with liquid (usually water) or liquid masses (mud, mud). Drowning usually occurs when bathing in large bodies of water or for some reason. Even a good swimmer (if he does not follow the rules of bathing and does not take precautions) can drown. Fatigue after swimming for a long distance, as well as an injury when throwing a head (hitting the head on a rock or something hard) can cause drowning. A person who throws a head (throwing a head if he does not know the technique) due to hitting the surface of the water, he will hit the neck, eyes, groin area, which will cause him to faint. Hitting the head on the bottom of the pool poses a risk of breaking the vertebrae of the neck. Drunkenness can also cause drowning, a drunk person can't control himself and violates the rules of bathing. In addition, he can get cold and pass out because he feels bad about the cold. as a result, when the temperature changes sharply, when the stomach is full of food, when the digestion of food accelerates, and when the person is afraid of falling into the water, fainting is observed.

Keywords: drowning, asphyxia, forensic medicine, statistics.

Relevance. Death by drowning is caused by severe pathological changes - hypoxia (lack of oxygen). The closing of the respiratory tract with some liquids is called drowning. In this case, the respiratory tract may be closed due to the body being completely or partially immersed in the liquid. In addition to water, liquid mud, oil, paint, mineral and vegetable oils, various liquids used in production (beer, wine, alcohol, gasoline, kerosene, etc.) are included in the sinking agent. When the airways are closed in the water, reflex respiratory arrest occurs first. Then an inspiratory gasp appears, and water enters the respiratory tract, but at first it does not penetrate deeply, because part of the water is expelled behind due to the force of coughing caused by the action of the mucous membranes. Inspiratory gasps alternate rapidly with expiratory gasps. After losing consciousness, the pupils dilate; convulsions begin and he begins to swallow water through the reflector. Protective reflexes quickly disappear, and water quickly enters the lungs without obstruction. After a short-term cessation of breathing, it resumes in the terminal state, and more water begins to enter the lungs. After the cessation of breathing, a few After a period of time (5-10 minutes), the heart stops beating. the presence of a reddish foam with small bubbles (Krushevsky's sign); acute emphysema of the lungs; light-red diffuse hemorrhage at the base of the pleura (Rasskazov-Lukomsky spots); subsidence in the main bone cavity the presence of fluid (Sveshnikov's sign); the presence of swallowed fluid in the stomach; dilution of blood in the left ventricle and hemolysis of erythrocytes in the blood vessels; the presence of plankton and false plankton in the blood and internal organs; the presence of general asphyxiation signs. A persistent discharge in the nose, oral cavity and respiratory tract is formed by the mixing of water and air. This is the most important sign of active breathing during drowning. Foam in the mouth and around the nose is 42%, and in the respiratory tract it is 58% (S.P. Didkovskaya, 1970). Acute swelling of the lungs is one of the characteristic signs of survival of drowning. boiib, observed in most cases. Hemorrhage at the base of the pleura (Rasskazov-Lukomsky spots) is a common survival sign of drowning and, according to various researchers, is observed in 55 to 93 percent of cases. The presence of fluid in the main bone cavity is also a sign of survival of drowning, and it occurs in up to 65 percent of cases related to drowning. This is called Sveshnikov's sign. Absorption of liquid into the stomach. Dilution of blood in the left ventricle of the heart, as well as hemolysis of erythrocytes in the blood vessel, is

one of the most important signs of life observed only during drowning in fresh water. This is called the Casper sign. Swelling in the location and wall of the gallbladder (Rusakov's sign). Due to strong muscle tension, blood flow to the muscles of the neck, chest and shoulders (Paltauf's sign). Obscuration of the visceral pleura of the lungs. Air embolism on the left side of the heart (Sveshuikov-Isayev sign). Compression fracture of the cervical spine. Rupture of the gastric mucosa (Avdeyev-Gromov sign). Discovery of quartz mineral in liquid (Klepche sign). Freezing of blood on the right and left sides of the heart at different times. Although the above signs are considered to be signs of drowning, there is no permanent and confirmatory sign of drowning. In addition, most of the listed ones quickly disappear in the decay process over time. Therefore, there are many difficulties in the diagnosis of drowning. External signs on the corpse, including goosebumps, shrinking of the scrotum, rapid cooling of the corpse, and the reddish tint of the corpse's stain, only indicate that the corpse was in water. The difficulty of diagnosing drowning, especially in cases of excessive decomposition of the corpse, is always It is proposed to diagnose using different laboratory methods. Laboratory determination of plankton is important in the diagnosis of drowning. In the diagnosis of sedimentation, it is important to identify plant-related plankton-phytoplankton, especially diatoms.

The purpose of the study. The purpose of this study is to conduct a statistical analysis of the occurrence and statistical analysis of drowning from mechanical asphyxiation in forensic medical practice.

Materials and methods. It is strictly forbidden to use tap water for autopsy when drowning is suspected, as plankton in tap water can get into the tissue of the organs being sent for special examination. The method of finding plankton in the blood, parenchymatous organs and the marrow of tubular bones is quite difficult, for this, about 200 g of the liver, brain, kidney, bone marrow. after being removed from and crushed, it is placed in flasks and after pouring a perhydrol solution on it, it is boiled in concentrated sulfuric acid and then treated with nitric acid. At the last stage, a small amount of perhydrol solution is added for clarification. After that, all the organic components of the tissues are completely absorbed, and only inorganic compounds, as well as the silicon cup of the plankton, remain. The clear material in the flasks is centrifuged several times. A preparation is prepared from the resulting sediment in a glass and studied under a microscope. It is advisable to photograph the found plankton. A microphotograph is a document confirming the results of the examination.

Research results. If we analyze cases of drowning due to mechanical asphyxiation in court medical practice, there were 32 drownings in 2020 and 43 in 2021. If we analyze the 32 cases in 2020, it was found that men were more often compared to women. Men - 21, women - 11. 4 cases under 14 years old, 10 cases under 18 years old, 18 cases over 18 years old were observed. If we analyze the 43 cases in 2021, 6 cases under 14 years old, 1 case under 18 years old, 1 case over 18 years old - 36 cases were observed. In men - 27, in women - 16.

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