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Case Report

Gas embolism as a potential cause of death by helium poisoning - postmortem computed tomography changes in two cases of suicidal helium inhalation.

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Title Page

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Temat: Gas embolism as a potential cause of death by helium poisoning - postmortem computed tomography changes in two cases of suicidal helium inhalation.

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Title: Gas embolism as a potential cause of death in helium inhalation cases - postmortem computed tomography changes.

Abstract

Evaluation of two suicidal helium inhalation cases is presented, comprising both conventional autopsy methods and postmortem computed tomography. Conventional postmortem examinations reveal no characteristic changes. Modern diagnostic techniques enabled to disclose the presence of a very large amount of accumulated gas in all examined areas, including veins and arteries of the head, torso, lower extremities, heart chambers, and between muscle fibers in both cases. The changes due to possible putrefaction were taken into consideration - radiological alteration index was calculated. In forensic literature, the reported mechanism of death in helium poisoning is rapid asphyxiation due to oxygen deprivation. However, papers on clinical cases and animal studies with the use of helium report development of gas in body cavities and lethal gas embolism, comprehensible when we take into account the specific physical properties of helium: high permeability and very low solubility in blood. The results reported by the authors are consistent with massive gas embolism similar to changes presented in cases of decompression illness. They suggest this as the cause of death in helium inhalation cases. Undoubtedly, this requires confirmation in further observations, taking into account differentiating diagnosis of air embolism versus oxygen deprivation.

Key words: postmortem computed tomography, helium, suicide, gas embolism, putrefaction gas

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