



K29 A Case of Suicide Using Veterinary Drug T-61® With Subsequent Submergence in the Sea

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After attending this presentation, attendees will understand the suicide case of a man who used Tanax® (T-61®), a drug used for euthanasia in veterinary practices, with subsequent submergence in water.

This presentation will impact the forensic science community by presenting the results of the postmortem examination which showed elements that excluded drowning as cause of death. Instead, histological findings, autopsy evidence, and toxicological analysis (a high level of embutramide and mebezonium iodide in the blood) resulted in the conclusion that death was a result of Tanax® injection.

The present case concerns an acute fatality resulting from self-administration of Tana® (T-61®) in a 35-year-old man, who was found near water and at a first look, appeared like an accidental drowning.

T-61®, consisting of a mixture of embutramide, mebezonium, and tetracaine, is a pharmaceutical used for euthanasia of animals because of its narcotic and muscle relaxant (curariformlike) activity. Embutramide is a general anesthetic that possesses a strong narcotic effect that rapidly induces deep anesthesia. Mebezonium iodide is a quaternary ammonium that paralyzes the skeletal muscles, resulting in a respiratory collapse. Finally, tetracaine, a local anesthetic, is used to reduce painful tissue reactions at the injection site.

A man was found dead near the sea wearing underpants, socks, shoes, and a backpack full of stones; beside his clothes four apparently empty used syringes and a bottle were found. He worked in a drug warehouse, had no known mental disorder, and seemed to be in good health.

The prosecutor arranged for an autopsy on the body to clear up the circumstances of his death and distinguish between homicide and suicide by drowning. A complete autopsy was performed 24 hours after death.

At the external examination, the man showed peculiar lesions on both inner arms, two needle puncture marks, and a remarkable cyanosis of the face, lips, and nails.

All internal organs were congested. The pleural cavities contained 12cc of yellowish fluid. The lungs were edematous with areas of hemorrhage mainly seen on the right side. The pericardial cavity contained 2cc of yellowish fluid. The heart showed few epicardial petechia. The abdominal cavity contained 15cc of yellowish fluid. The stomach was empty. The liver was congested and had steatotic appearance on cut sections. Other organs were unremarkable except of edema. Histopathologic examination showed wide foci of early contraction band necrosis in heart samples. The lungs presented alveolar septa mildly thickened by edema and capillary congestion, alveolar edema. Steatosis was confirmed in the liver. The kidneys presented air bubbles in glomerular capillaries and immunohistochemistry performed with antibody anti-CD 61 and fibrinogen showed a vital reaction, platelet aggregates (anti CD 61 antibody) at the edge of air globules and an adsorbed fibrinogen (anti-fibrinogen antibody) layer to the interface of air globules. In addition, the immunohistochemical study was completed using antibody anti-heat shock proteins researching the renal tissue heat shock proteins (HSP 70, 27, 90) which are a group of proteins that are rapidly induced in response to physiological stress, including hyperthermia, infections, tumors, ischemic stimuli, and exposure to toxicants. The reaction revealed a strong positivity for HSP 27, an intermediate positive reaction for HSP 70, and a mild positivity for HSP 90. During the autopsy, femoral blood and urine were collected for toxicological analysis.

Embutramide and mebezonium iodide were found in both biological matrices using a direct and sensitive liquid chromatography/tandem mass spectrometry method for the simultaneous determination of the two drugs. Lidocaine was used as an internal standard. Limits of detection and quantitation were 0.01mg/L and 0.05mg/L, respectively, for both compounds.

Embutramide concentrations in blood and urine were 10.1mg/L and 0.40mg/L, respectively. The mebezonium iodide concentration was 0.65mg/L in blood and 0.07mg/L in urine. The chromatographic method was additionally optimized for determination of diazepam; diazepam was found in both samples (0.015mg/L in blood and traces in urine). The blood sample collected during the postmortem examination was tested by gas chromatography for detection of ethanol which was found at a concentration of 0.40g/L.



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The urine was further examined for amphetamine and related compounds, cannabinoids, methadone, opiates, cocaine, and its metabolites, all with negative results.

Tanax® (T-61®) Injection, Suicide, Drowning