



K25 Purposeful Destruction of a Flat by an Explosion? Forensic Toxicological and Medicolegal Interpretations of an Unusual Case

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The goal of this presentation is to present three recent autopsy cases demonstrating teamwork between pathologist and forensic toxicologist.

This presentation will impact the forensic community and/or humanity by demonstrating optimized teamwork between forensic toxicologists and forensic pathologists to solve an unusual explosion case.

Case circumstances: A thirty-seven-year-old man was found dead under the rubble after an explosion had completely destroyed the flat he inhabited. His three-year-old son, whom he should have returned to his exwife several hours prior, and a neighbor were also found dead. The man, who had apparently tried to commit suicide several times in the past, had bought three bottles of camping gas the day before for no apparent reason. The circumstances of the explosion were indicative of a suicide with homicide, the motive probably being the frustration due to the separation from his son. The camping gas bottles had been opened prior to the explosion.

Autopsy: Board certified forensic pathologists performed a conventional forensic autopsy. **Toxicology:** The body fluids were analyzed with regard to volatiles using a standard method involving two runs on each of two headspace gas chromatographs with flame ionization detectors (2x HSGC-FID). The screening for drugs and medications was performed by EMIT, GC-MS, and GC-NPD. Confirmation and quantification of Cannabinoids in blood were performed by GC-MS. **Results:** External examination of the body of the man showed extensive excoriations of the skin of the chest, abdomen, and back. Interestingly, singed hair was detected in the face, namely the beard, eyebrows, and head (with exception of the occipital regions) and the forearms and hands. The autopsy displayed extensive blunt trauma of the chest inner organs and the right arm.

Toxicological analysis of the blood demonstrated a THC level of 6 ng/mL, but no THC-COOH. This is an indication that lighting the joint was the cause of the explosion. The bile, by contrast, showed 27 ng/mL of THC-COOH but no THC. Alcohol could not be detected in the blood. In the blood of the man and the boy, traces of butane and propane gas were detected, indicating they were in the same flat exposed to the gas prior to the explosion. The blood of a neighbor analyzed negative for butane and propane indicating that she was in another flat and not exposed to the gas.

Ignition, Gas Explosion, Cannabis Joint