

Strychnine poisoning still happens in 2015

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Introduction: In addition to its reputation as a therapeutic agent, strychnine was used for centuries as a rodenticide, but was banned by the European Union in 2006. Nowadays, strychnine poisoning is increasingly rare.

We report the case of a 54-years old man found dead at home. External examination by the forensic pathologist was unremarkable, and death was thought to be natural. Blood and urine were collected, but not submitted for toxicological analysis. Police investigation succeeded in obtaining the deceased's wife's confession 4 months later. She admitted to have poisoned her husband. Exhumation was then performed for autopsy, when various biological samples were submitted for toxicological analysis. Moreover, a powder was seized at the couple's house.

Methods: As no specific poison was suspected, full drug screen was performed by UPLC-TOF-MS and HPLC-DAD after liquid-liquid extraction. Strychnine was easily identified and quantified by HPLC-DAD.

Results and discussion: Strychnine concentration in blood collected during external examination was 1.51 mg/L, which is in the range observed in other reported strychnine fatalities. Strychnine was also detected in all other biological specimens and concentrations are reported below.

Urine (External exam.)	Illiic blood (Exhumation)	Cardiac blood (Exhumation)	Gastric content	Liver	Kidney	Muscle
0.215 mg/L	31.8 mg/L	56.8 mg/L	172 mg/kg	39.9 mg/kg	53.5 mg/kg	3.39 mg/kg

Table 1: Strychnine concentration in biological samples.

The large variation observed in the 3 blood samples clearly suggests that postmortem redistribution occurred for strychnine. Other psychotropic substances were also identified as fentanyl (9.5 µg/L), citalopram (0.750 mg/L), tramadol (0.821 mg/L), and trace amount of diazepam. An attempt to identify any strychnine metabolites present was also made.

The main pitfall of this case was hair analysis, which couldn't rule out a chronic intoxication. Despite meticulous decontamination procedures, and experimental testing, all of the segments elucidate almost the same amount of strychnine. It was postulated that this was due to contact with putrefactive fluids during the 5 months underground period.

Finally, the powder revealed a concentration of 4.7% of strychnine.

Conclusion: Even if the use of strychnine is prohibited and uncommon, poisoning can still happen and this kind of old toxin shouldn't be disregarded. Typical signs of intoxication, as *opisthotonus* and *risus sardonicus*, are obvious, but postmortem findings are scanty. Moreover, this strychnine related fatality illustrates the need of toxicological analysis, which could have avoided a few months of investigations. Finally, in any case, storing samples without analysis at first can be useful.