



K13 A Suicide By Brake Fluid Ingestion

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The goal of this presentation is to present a case report on brake fluid intoxication and resulting death.

This presentation will impact the forensic community and/or humanity by demonstrating a rarely reported manner of death where the only significant toxicological findings were easily made using routine alkaline drug screen methods and instruments.

Ingestion of brake fluid is a rarely reported phenomenon; in fact, no case reports are present within the English literature. Numerous case reports of ingestion of antifreeze (ethylene glycol) and glass cleaner (ethylene glycol butyl ether) are present within the literature, which are similar chemical compounds to the glycol ethers present within brake fluid.

Both ethylene glycol and EGBE poisoning cause metabolic acidosis. In addition, EGBE causes central nervous system depression and hemolysis. Ethylene glycol causes oxalate crystal formation within the renal tubules and renal failure. Ethylene glycol and EGBE poisonings have been successfully treated with hemodialysis and ethanol infusion.

The authors report a case in which brake fluid ingestion was the MO in a suicide. The decedent was a 38-year-old Caucasian male who drank an unidentified amount of *Snap® Heavy Duty Brake Fluid* an unknown time before his death. The decedent had a previous history of suicide attempts, including a self-inflicted gunshot wound.

An autopsy was performed at the Bexar County Medical Examiner's Office. The autopsy revealed a normally developed, well-nourished, adult Caucasian male, 67 inches tall and weighing 154 pounds. There was no evidence of trauma. The internal autopsy was remarkable for 300 cc of malodorous oily fluid within the stomach, consistent with the brake fluid submitted with the body, marked pulmonary edema and mild hepatic steatosis. A full microscopic examination was performed and showed no abnormalities. Specifically, crystal formation within the renal tubules was not present.

Remarkable toxicology included the presence of several related glycol ethers in the blood and gastric contents. These compounds manifested in an alkaline drug extraction analyzed by GC flame ionization and subsequent GC/MS with electron impact ionization. They may include triethylene glycol monobutyl ether, diethylene glycol monobutyl ether, triethylene glycol monoethyl ether, and diethylene glycol monoethyl ether. Among others, the trade name Dowanol®, a product of the Dow Chemical company, is associated with these compounds. EI fragmentation patterns were confirmed by matching with similar eluting peaks from the remnants of the actual brake fluid container. Verification with pure standards was not pursued, as they are difficult to obtain. Ethylene glycol was notable by its absence in the blood.

Brake Fluid, Suicide, Gas Chromatography