

CASE REPORT

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Suicide by Fire in a Car Trunk: A Case with Potential Pitfalls

ABSTRACT: We present an unusual case in which an adult female committed suicide by fire while enclosed in the trunk of her vehicle. A finding of suicide was reached only because several key investigative facts were uncovered. Without these discoveries the case may still remain open as a suspicious death. Fire is rarely used as a mechanism of suicide in Western culture, and, as such, similar cases should be reported to advance our recognition of this phenomenon.

KEYWORDS: forensic science, death investigation, suicide, arson, self-immolation

Determination of suicide is not always a straightforward endeavor. Fire-related deaths are usually classified as either accidental or homicide. Fire is a destructive process requiring methodical investigative procedures to locate pertinent evidence. Investigators of fire-related deaths in vehicles and structures should rule out any accidental mechanical malfunctions before considering suicide. In the United States, reported cases of suicide by fire seem to occur in less than 1% of suicides (1,2). This paper describes one such case in which the victim committed self-immolation while confined in her vehicle trunk.

Leth and Hart-Madsen (3) reviewed 43 cases of self-immolation in Denmark from 1980 through 1989. Of these cases, two were found in automobiles but not in the trunk compartments. One interesting finding is that none of the 43 victims left a suicide note; however, two victims telephoned parties announcing their intentions. The authors noted that most victims (65%) had some form of mental disorder. Copeland (4), Andreasen and Noyes (5), and Ashton and Donnon (6) all report a higher ratio of females to males in self-immolation deaths.

Shkrum et al. (2) conducted a review of 32 cases of self-immolation suicides in Ontario, Canada, between 1986 and 1988.

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Victims in six of these cases were reportedly found in automobiles; however, none were found in the trunks. One interesting case involved a male who constructed crude wire manacles to fasten his wrists to the steering wheel, apparently in an attempt to prevent escape. This mechanism of restraint should also arouse suspicion of foul play. While dissimilar in form, the restraining nature of the trunk facilitates a similar function for the victim committed to carrying out their suicide. The infrequency of these events and the peculiar nature of circumstances help to explain the astonishment and disbelief evoked from investigators and the general public unfamiliar with these events.

Suicide by fire as an expression of political protest or as a means of disruption and protest within a correctional facility has been previously reported (2,7). Fire is also a symbol of purification, punishment, and sacrifice in many religions (2,7,8). As such, the religious, cultural, and political background of the victim may be relevant. Several authors also associate this behavior with clinical depression and certain mental disorders such as schizophrenia (1-3,6,9,10). These authors also report a high incidence of previous suicide attempts by other means. Given this, it would seem prudent for investigators to review medical and psychiatric records of the victim in fire-related deaths as well.

The Fire Scene

In October of 2000 the burned body of an adult female was found in a closed automobile trunk (Fig. 1 and Fig. 2). The two-door Saturn Coupe was found along a rural county road in eastern Arapahoe County, Colorado. The area is comprised of scattered farms and ranches, as well as occasional industrial centers. A husband and wife, who were returning to their home at about eight o'clock in the evening, found the vehicle pulled off to the right side of the road. The engine was running and the lights were on. The male passenger got out to render assistance to the motorist when he



FIG. 1—*Passenger side of victim's Saturn coupe.*



FIG. 2—*Female on her left side in vehicle trunk.*

noticed flames beginning to emerge from the seams of the trunk and then the rear deck of the back passenger compartment. Thinking there had been a traffic accident, he searched the area immediately around the vehicle for a victim. After a futile search he instructed his wife to call 911 on their cell phone. Members of the local fire district arrived within 14 min of the call and discovered the vehicle engulfed in flames. The female victim was discovered after fire personnel pried open the trunk during fire suppression. The fully clothed 21-year-old adult female victim was found lying

on her left side, facing the rear of the trunk. A melted 1-gal red plastic gas can was found under the victim's left arm. A melted cigarette lighter was found at the victim's knees. A search of the rear passenger compartment uncovered numerous personal effects of the victim including school drawings and projects from kindergarten through high school.

Fire/arson investigators stated that an examination of the char and heat patterns in the vehicle indicated that the trunk was closed at the time the fire began. An examination of the vehicle's ignition

switch determined that the ignition was on and that the engine was most likely running at the time of the fire. The hardware of the rear seat latch was also fastened, indicating that the rear seat had been in an upright and closed position during the fire, but had burned away leaving the latches attached to the brackets. This supported the observations of the reporting individuals. Vehicle tracks on scene and along the road corresponded in physical size and design with the tires on the vehicles present at the scene.

An examination of fire suppression water around the vehicle revealed slight traces of hydrocarbons as would be typical of the residues discovered from the melting of the fuel line during the fire, but also appeared to originate from the fuel line area rather than the trunk area as indicated by the char patterns. Testing of the area under the trunk drain holes indicated increased levels of detectable hydrocarbons; however, the highest levels were detected in the trunk area. Hydrocarbon detection and collection methods had to be improvised due to the cold conditions at the scene as well as because much of the hydrocarbon residue had been washed away during fire suppression and through the burning process. During the processing of the vehicle, investigators had to keep in mind that the type of vehicle involved in the fire contained plastic body panels, which would create similar residues and high heat patterns typically indicated in an accelerated fire.

A careful examination of the vehicle in method recognized by NFPA Standard 921 (11), from the "least damaged areas to most damaged areas" concluded that the area of fire origin was inside the trunk. There were indications of hydrocarbons burning at high temperatures as well as pooled hydrocarbons in the area of the trunk and most importantly under the victim in areas that would typically be protected from a pouring pattern after a body was placed into the trunk. Close examination of the victim's clothing, both charred and noncharred, appears to also support the theory that the fuel was placed into the trunk before the victim was introduced into the trunk.

Examination of the trunk, its contents, including a lighter, melted fuel container, and the victim's position, all provided indicators that the victim was in the trunk at the time the fire started, but after the fuel was introduced. This evidence led fire investigators to a preliminary cause of suicide by fire, but would require the assistance of the pathologist and toxicology results. Fire investigators must understand that the findings of the autopsy are an integral part of the fire investigation process, as referenced in NFPA 921 Chapter 4 (11) and may reveal critical evidence pertinent to the burning process that points to the cause of the fire. These findings coupled with the scene processing, char or damage patterns, evidence collected, and the fire investigators' observations of the scene will provide valuable information necessary to the investigation's conclusion.

Findings

At autopsy, the deceased was an obese female, measuring 5 ft 4 in. in height and weighing 200 lb. Definitive identification was ultimately carried out by DNA analysis since fingerprints could not be obtained and dental records could not be found. Extensive thermal injury to the head, trunk, and extremities was seen, characterized by widespread charring of the skin with focal exposure of the musculature anteriorly. Remnants of charred clothing were found that were otherwise appropriately in place and fastened. The neck was intact externally, and further examination of the airway was remarkable for the presence of extensive soot deposition. Blood carboxyhemoglobin saturation was 45%. Except for

the thermal burns, no other evidence of injury could be discerned. Speculum examination of the vagina and anus revealed no evidence of injury. No spermatozoa were seen on smears of oral, anal, and vaginal swabs. Toxicologic analysis was negative for ethanol or other drugs of abuse. Her death was attributed to asphyxia due to inhalation of products of combustion as well as extensive thermal injury.

Discussion

This case presented a peculiar set of circumstances not indicative of a "typical" suicide. Fortunately, eyewitness accounts surrounding the events of the evening, coupled with the findings at the crime scene and autopsy, indicated that suicide was the manner of death. The victim's roommates indicated that the victim departed their apartment at about 19:30 hours the evening of her death. The crime scene is located several miles off Interstate 70. Investigators made several trips from the victim's apartment to the crime scene during the time frame indicated by the investigation. The average time to get to the scene was 25 min at the posted speed limit. The road on which the victim was found is characterized as a rural farming area. The west end of the road dead ends into several farming residences, including that of the eyewitnesses. There is only one route from the highway to the victim's location. Other routes to the location would not account for the victim arriving at the scene in the time allowed. The reporting parties, also coming from the highway, stated that they saw no other vehicles on the road from the highway that night. These facts indicate a very restricted time frame in which the victim only had time to get to the location and set the fire prior to the reporting party's arrival. The presence of a second vehicle departing the scene after the fire was set seems unlikely.

The victim had a history of setting fires involving the use of accelerants. Several months before her death the victim and her mother had an argument about the type of music the victim was listening to. Enraged, the victim gathered up her music collection, poured lighter fluid on it, and ignited it on her bed. Friends of the victim reported that she had a favorite hip-hop artist she frequently listened to. Researching the lyrics of the artist it was found that three songs contained lyrics describing the placement of a woman's body in a car trunk. While friends and family stated that the victim had been very depressed of late, no previous history of mental disorder could be found. There was a clinical history of depression, and the victim did attempt suicide on a previous occasion by taking pills. No note was found at the scene, and there was no indication of a religious, cultural, or political motive in the suicide.

Conclusion

Suicide by fire is uncommonly encountered and may present suspicious circumstances indicating a camouflaged homicide. Previously reported cases have indicated that these deaths may be attributed to cultural, political, or religious forms of expression and/or protest. The existence of clinical depression or a mental disorder such as schizophrenia are common as well. Many victims also have a history of attempting suicide by other means. These facts reveal the importance of obtaining prior medical and psychiatric records and establishing if any cultural, political, or religious drivers for the suicide exist. A multi-disciplinary approach involving law enforcement, fire/arson, and medical investigators seems prudent. Additional reporting of similar events will undoubtedly broaden our understanding of the mechanisms and nature of these complicated events.

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