Case Report

# Rare Case of Suicide by Run-Over Road Traffic Accident- Interpretation and Analysis of Medico-Legal Findings

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## ABSTRACT

**Background:** In traumatic forensic cases, road accidents represent an essential percentage of morbidity and mortality. The majority of these are unintentional incidents that have the same manner of death.

**Case Presentation:** A 42-year-old man, was admitted to the regional hospital in Pazardzhik with symptoms of epigastric pain, vomiting, and weight loss. Following a physical examination, additional ultrasound tests, laboratory tests, and gastroscopy, which included a biopsy, the results indicated a malignant tumor in the stomach with the morphological characteristics of middle-grade adenocarcinoma. On the fourth day of the diagnostic and treatment process, the patient voluntarily left the hospital without notifying the medical staff.

**Conclusion:** Road traffic injuries are a significant cause of increasing mortality rates among young and middle-aged individuals globally. While suicide is less common among traffic-related fatalities, both accidents and suicides can contribute to road traffic deaths. Suicides continue to be a significant cause of mortality and morbidity worldwide. Understanding the issues surrounding these cases, especially the rarer forms of suicide, is crucial for preventing this negative social phenomenon.

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## Introduction

In traumatic forensic cases, road accidents represent an essential percentage of morbidity and mortality [1-3]. The majority of these are unintentional incidents that have the same manner of death. According to statistics based on these incidents, runovers are a particular subset of accidents that typically occur when pedestrians are struck by heavy vehicles. The use of a car/road network in suicide includes also many other various forms: intentional collision with a stationary object or another vehicle, lying in front of a moving vehicle, jumping from a bridge onto the roadway, using the car as a location for other methods (ligature associated neck injury including decapitation, self-immolation and/or inhalation of toxic gases) and cases where people are injured or killed by their own car (injury during maneuvering, self-harm after a malfunction, etc.) [4-6]. The topic encompasses various disciplines, including psychiatry, forensic medicine, road safety, and the psychology of suicide, among others [7]. Suicides by this kind of accident alone are pretty uncommon, particularly when they are suicidal attempts, and they can be easily confused with the origin of the crime and the accident's context [8]. To ascertain the proper manner, mechanism, and cause of death in such circumstances, the current case demonstrates the critical role that crime scene investigation, forensic cadaver examination, medical history analysis, and extra trace evidence examination play.

## Case Presentation

A 42-year-old man was admitted to the regional hospital in Pazardzhik with symptoms of epigastric pain, vomiting, and weight loss. Following a physical examination, additional ultrasound tests, laboratory tests, and gastroscopy, which included a biopsy, the results indicated a malignant tumor in the stomach with the morphological characteristics of middle-grade adenocarcinoma. On the fourth day of the diagnostic and treatment process, the patient voluntarily left the hospital without notifying the medical staff.

Later during the same day, a call to the emergency telephone 112 was made to report a traffic accident with one deceased person, run over by a light truck. The subject was identified as the person who left the hospital voluntarily. Upon inspection of the death scene, investigators determined that the deceased had been run over by his own vehicle on a downhill road. Blood traces were found near the car (Figures 1 and 2).

During the analysis of the death scene (road


**Figure 1.** Death scene. Blood traces from the cadaver on the road.

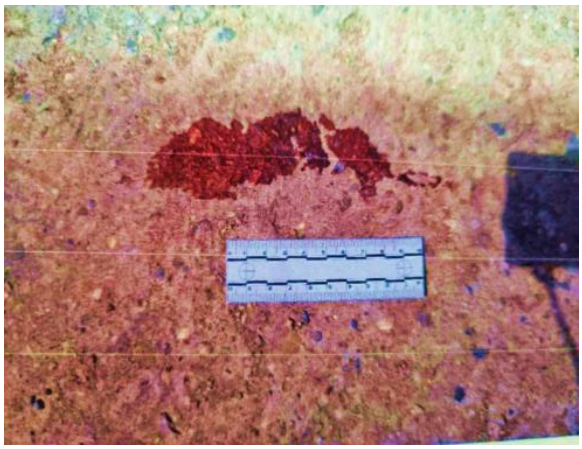


**Figure 2.** Death scene. Blood traces from the deceased near the tires of his own vehicle.

examination), no evidence of brake marks was found. The body of the deceased was transported to the regional hospital for a mandatory forensic autopsy to determine the cause and manner of death.

During the external examination of the body, the signs of death were present - including pale lividity and well-presented muscle stiffening. A minor laceration measuring 3.5 cm was found near the left scapula. Additionally, the abdominal region showed typical signs consistent with run-over trauma, characterized by patterned bruises and dirt staining in the shape of a tyre mark (Figure 3).

The internal examination of the body revealed severe thoraco-abdominal trauma, comprising ruptures and contusions of both lungs, bilateral rib fractures along three anatomical lines, and a fracture of the sternum. 500 ml of blood was measured from the chest

cavity. There were also fractures of the spinous processes of the thoracic vertebrae and severe ruptures of the liver. (Figures 4-6). The abdominal cavity and the retroperitoneal space were filled with approximately 700 ml of blood.


**Figure 3.** External examination. Abdominal region - tire marks represented as patterned bruises and dirt.


**Figure 4.** Severe ruptures of the liver.

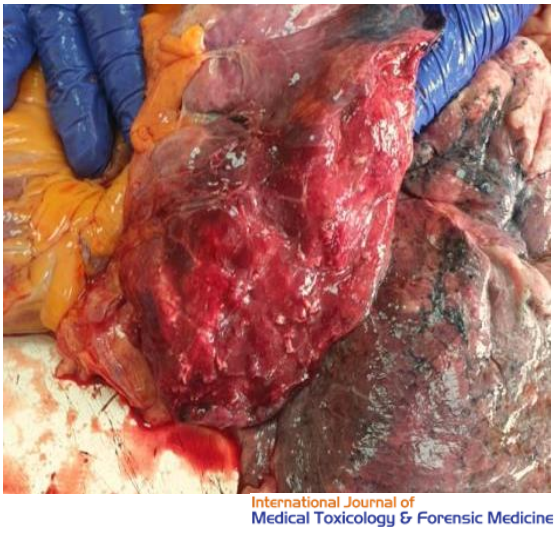


**Figure 5.** Contusions and ruptures of the lung parenchima.


**Figure 6.** Bilateral rib fractures with massive bruises of the soft tissues.

During the examination of the gastrointestinal system, a poorly defined mass with margins of 2x1x1.5 cm was observed, having an internal structure with necrosis and hemorrhages, and adherent to the pyloric part of the stomach wall. On performing additional soft tissue cuts over the lower extremities, there was no evidence for traumatic changes over long bones and over the knee joint structures.

The microscopy revealed a malignant gastric adenocarcinoma of a mild grade. No significant pathological findings were observed in other systems or organs. Chemical analysis of blood samples from the subject indicated a mild concentration of alcohol at 0.9 percent with no evidence of other drugs. DNA analysis of blood samples from the road at the death scene and the tires of the vehicle showed a complete match in the profiling with the victim's DNA. Additionally, DNA samples collected from the interior of the vehicle did not reveal any foreign DNA profile.

## Discussion

Road traffic injuries are a significant cause of increasing mortality rates among young and middle-aged individuals globally. While suicide is less common among traffic-related fatalities, both accidents and suicides can contribute to road traffic deaths [9]. Many researchers have suggested that some fatalities resulting from road traffic accidents may actually be suicides. Furthermore, a review of annual literature and suicidal intent found that over 2 % of traffic accidents may involve suicidal behavior, indicating that this phenomenon could be underreported. [10, 11, 12, 13].

Due to insufficient information, including medical

records, investigators' reports, and forensic data, many cases of suicide involving motor vehicles remain unverified. As a result, this type of violent death is often statistically underestimated.

Determining the exact manner of death (accident, suicide, or homicide) requires a complex analysis that follows several steps. This includes a thourough examination of the death scene, such as looking for brake marks, and assessing the injuries over victim's body to discern if they are consistent with car to pedestrian collision, being run-over, or trauma inside the vehicle with an ejection of the passenger. Toxicological analyses are also essential, as well as presence of any acute or chronic disease or injuries that may have contributed to the situation. History of previous suicidal attemps, presence of suicidale note are important evidence [14, 15]. Furthermore, video recording and eyewitness testimony play significant roles in accurately determining the manner of death.

In the present case, the autopsy findings revealed signs of trauma consistent with a run-over accident. There was no evidence of primary impact injuries, such as patterned abrasions and contusions over the lower extremities, bumper fractures, or Messerer fracture [16, 17].

The measured blood alcohol concentration indicated only mild alcohol consumption, which would likely present as a normal state with moderate euphoria and emotional changes, without significant depression of brain activity. In instances of suicide, such low alcohol levels are often interpreted as an attempt to muster the courage to follow through with a planned action.

Internal examination of the deceased showed a malignant gastric adenocarcinoma of a mild grade. The finding corresponds with the report from the hospital where he was admitted earlier. The connection between oncological diseases and suicidal behavior has been highlighted by many authors, suggesting that such diseases may contribute to suicidal intent [18-21].

The cause of death was determined to be a combination of thoracic and abdominal trauma, with the manner of death classified as suicide. This conclusion was reached after a comprehensive analysis of the available evidence, which included an inspection of the accident scene, specific injuries and stains on the body and the car, as well as information regarding a recently diagnosed malignant adenocarcinoma of the stomach. The evidence supporting the conclusion of suicide includes the fact that the vehicle involved in the incident belonged to the deceased. No other individuals were involved, and a specific location was selected—a sloped area where the car could have rolled away without a driver present.

Public records and statistics often underestimate the frequency of cases in which vehicle involvement is intentional. This underreporting can be attributed to several factors, including the lack of direct evidence of intent and the variations in practices among police and medical examiners. The issue of “hidden” or misclassified suicides is well documented. To address this, it is essential to improve the quality of death certificates, and systematic autopsies can be implemented to ensure the accuracy of these documents [22].

## Conclusion

Suicides continue to be a significant cause of mortality and morbidity worldwide. Understanding the issues surrounding these cases, especially the rarer forms of suicide, is crucial for preventing this negative social phenomenon. A multidisciplinary approach and a thorough analysis of all information gathered during a criminal investigation are essential for determining the correct manner of death in these instances.

## Conflicts of Interest

The authors report there are no competing interests to declare.

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