

Case Report

Suicidal Pattern of Decapitation Injury and Associated Limb Injury in Railway Track Traumas: A Case Series



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ABSTRACT

Suicide by high-speed railway track trauma with complete decapitation is a rare event; however, it is well known and reported in the scientific literature. The authors analyzed 5 cases of suicide with complete decapitation along with upper limb amputation or severe injury by high-speed mainline train subjected to medico-legal autopsies at the Department of Forensic Medicine and Toxicology, Gandhi Medical College, Bhopal between 2019 and 2021. Upper limb injury is considered because of scientific reasons that they have been amputated along with decapitation. Personal, circumstantial, autopsy, and toxicological data and the victim's psychical profile were analyzed, and factors like the type of injury, the vital reaction of wound edges, absence of any signs of defense, alcohol, and drug consumption were also considered.

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1. Introduction

Committing suicide by lying in front of a moving train and being decapitated is an infrequent occurrence concerning the method, dynamics, and the single mortal injury it causes. Its incidence is less than 1% of all suicides, as reported in the literature [1-4]. It has been proved in much scientific literature that complete decapitation is highly indicative of suicide and is often characterized by a single transversal injury at the point where the vehicle passes over with no injury to the rest of the body [1-3, 5-7].

Along with decapitation, amputation of any upper limb is also highly supportive of suicide because a person usually covers their ears with palms to reduce the sound of the train and hesitation; consequently his limb is also amputated at places. Burns and scorch marks are frequently found on the body, caused by the overheated wheels. The greasiness of the skin surrounding the injuries is caused by the greases and lubricants (sludge) used in vehicle maintenance [2, 3, 6-8].

There are continuous nervous, respiratory, and circulatory connections between the head and trunk; as a result, this injury becomes severe, incompatible with life, and leads to immediate death. Decapitation or complete severance of the head from the body is a rare event in the civilian setting, and it has been reported to account for approximately 0.1% of medico-legal autopsies [9].

Complete decapitation along with the upper limb amputation as the combined injury was found in only 5 cases in autopsies carried out at the Department of Forensic Medicine in Gandhi Medical College, Bhopal, between January 2020 and August 2021. The analysis focused on various aspects: an examination of personal and circumstantial details (reported below), the type of injuries found on the body, psychological profile, especially any evidence of planned or previous suicide attempts, and the presence of alcohol or narcotics in the victims' biologic fluids, to establish their state of alertness.

2. Cases Presentation

Case 1

A dead body of a 24-year-old male was discovered on the railway track on Sunday night with his body lying in a supine position between the rails, and his head was thrown outside the rails at a distance of about 1 m; his right upper limb was amputated with fracture of

right humerus, and there was a crush injury to the right shoulder. Most other injuries were on the right side (Figure 1). His family had reported that he had been suffering from depression because of loss in business during the COVID-19 lockdown.

Case 2

A dead body of a 22-year-old male was found on the track on Friday night with his head detached from his body, the shoulders resting on the rail, and traumatic amputation of the left forearm from mid and both lower limbs below the knee were present. His family reported that he had dinner with the family and showed no intention of such an act. After checking his mobile phone and talking to his friends, the police found out he had a tiff with his girlfriend, and she refused to talk to him, after that he did this act (Figure 2).

Case 3

A dead body of a 28-year-old male was found on the railway track on Wednesday night. His body was found between the rail track, and the head was found outside of the rail track. Along with this, complete traumatic amputation of the left upper arm from the shoulder and traumatic amputation of the right arm from mid with humerus fracture were also present. According to his family, In the past, he attempted suicide, but never in this manner (Figure 3).

Case 4

An unidentified male corpse, normal type, middle-aged, aged 40-45, was found on Saturday morning decapitated with his body lying between the rails, and the head was thrown about 5 m outside the rails. Head and face were crushed and challenging to identify; fracture with crushed injury of the left forearm was also present (Figure 4).

Case 5

The body of an unidentified male corpse, normal type, apparently aged 25 to 30, discovered on Monday night decapitated with a portion of the face remaining, part of the body lying between the rails, and half crushed head present outside the rails about 2 m away beside a crushed head and face, a fracture of the right upper limb from mid were present with crushed injury (Figures 5 and 6).

3. Discussion

Decapitation death needs a manifold forensic investigation process in which the role of the autopsy surgeon becomes very vital. All the elements in the crime scene



Figure 1. Complete decapitation with right limb injury, Case 1

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are essential for forensic assessment; that is why crime scenes should be investigated closely and meticulously. In the case of decapitation death, the autopsy must include an examination of the injuries along with the positional relationship between the corpse and each amputated body part.

In the absence of history, determining the manner of death can be challenging. The most common dilemma in such cases is whether the death was an accident or a suicide [10, 11]. The body's position on the rails can also help reconstruct the event: a prone or supine position with the neck resting on one of the rails strongly indicates suicide [1-3]. The wounds caused by train wheels

have clean and straight margins with parallel bruising lines [1, 2]. Along with decapitation, injuries to the other body parts help to diagnose the manner of death. Our investigation considered only those corpses presenting with complete decapitation and upper limb amputation on external examination.

In our cases, vertebral fractures were only in the cervical area and appeared linear or comminuted, with the fragmentation of important underlying nerve structures. In these cases, perilesional blood effusion was significant. The multiple wounds with the edges infiltrated with blood observed on the head can be explained by



Figure 2. Complete decapitation with left limb injury, Case 2

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Figure 3. Complete decapitation with right and left upper limb injury amputation, Case 3

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Figure 4. Complete decapitation with left upper limb injury at the spot, Case 4

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Figure 5. Complete decapitation with right upper limb injury at the spot, Case 5

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the “rolling” of the head after decapitation, often to a distance of several meters away on the rail bed.

No particular injuries were found in other organs in any case. The lack of injury to internal organs is harmonious with the suicide method, as the only injury encountered was transversal to the point at which the corpse

was passed over by the train and thus decapitated, with the rest of the body uninjured. Furthermore, in no case did we find elements that suggested the action of third parties in causing the death, as no other macroscopically visible external injuries or signs of clutching and or de-

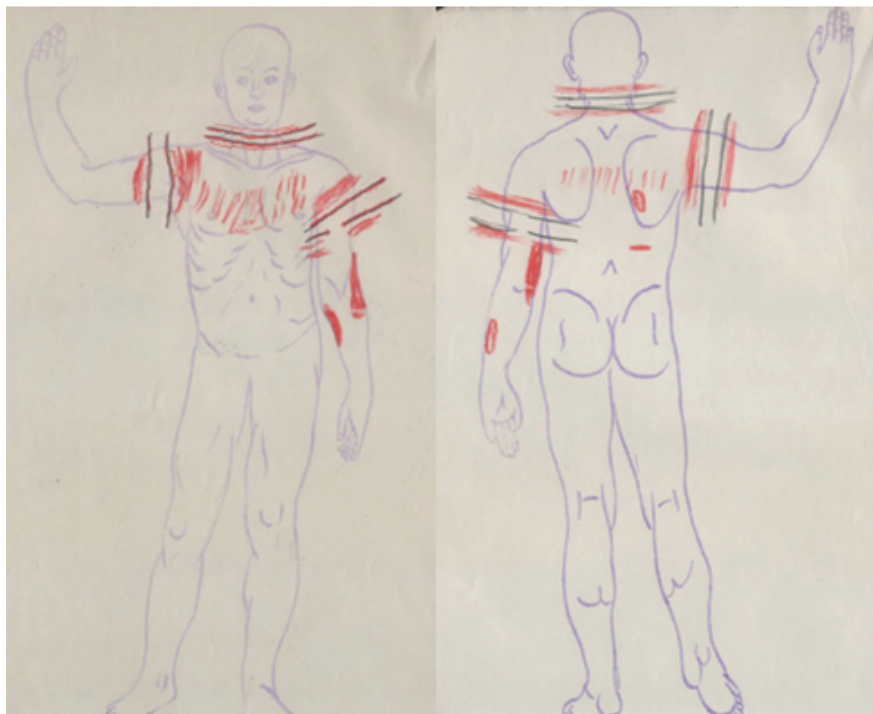


Figure 6. The two diagrams of the anterior and posterior body
The body separation lesions were marked in red pencil.

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fense or any traumatic injuries or contusions of any sort were observed, except for the fatal injury itself.

The literature also highlights the importance of analyzing the victim's psychical profile to reinforce the hypothesis of suicide; specifically, the presence of a depressive disorder or documented previous suicide attempts or plans is a strong indication for this hypothesis [1, 3, 5]. In the cases analyzed, the victim's mental condition and state of mind at the act probably had a significant role in their death. A total of 2 out of 5 cases were under disturbed mental conditions for various reasons, while one had already attempted suicide through other means, without success. The means of suicide subsequently used (impact with a rail vehicle) by the victims was probably intended to ensure the certainty of death due to the sheer power of the chosen means and the fact that it is unstoppable [8].

All subjects ended their existence by lying down, placing their neck on one of the 2 rails at an isolated point of the line near a bend and therefore poorly visible to the drivers, so they would not have time to work the brakes after spotting the subject on the line. Therefore, the unequivocal desire of these subjects to commit suicide using a means considered certain to result in death seems evident in all cases. Biological fluids of the subjects (thoracic blood, femoral blood, urine, bile) have been tested for alcohol and drug toxicity; it is a known fact that suicides often use more than one means to achieve their goals [7].

Out of 5 cases, 4 committed suicide in the nighttime because of low visibility people prefer this time, and also, there is a reduced risk of being caught or mingled by anyone. Out of 5 cases, 3 cases were reported on weekends and 2 on weekdays.

According to Nikolić and Zivković, individuals who lie across railroad tracks to commit suicide hold the palms of their hands against their ears to avoid the noise produced by the oncoming train [12]. In such cases, the arms and shoulders are abducted with the elbows flexed, which results in contiguous injuries of the neck and arms, as marked in red [12].

Similar to our study, according to Panigrahi et al., in the case of suicidal death, external decapitation, amputation of limbs, and transaction are the most common [13]. Although a positive blood alcohol test is not uncommon in suicides [1], in the literature, having high alcohol levels is considered more suggestive of an accident than a suicide [5]. In our cases, all samples were negative for alcohol and other poisons.

4. Conclusion

There are rare cases of suicide by rail transport involving a complete decapitation that are difficult to interpret on the autopsy table. For accurate differential diagnosis of suicide, homicide, and accidents, a detailed analysis of individuals and situations, types of injuries, and their vital reactions, as well as psychological profiles and toxicological test results, are always needed. Our cases have been thoroughly investigated, allowing us to make informed decisions about the cause of death. There was an "intentional decapitation" in all cases, along with the injuries to the upper limbs.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by Institutional Ethics Committee of Gandhi Medical College, Bhopal (MP) affiliated to Madhya Pradesh Medical Science University, Jabalpur (MP), India (Registration No.: ECR/1055/Inst/MP/2018).

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Authors' contributions

Methodology, Formal analysis, Investigation, Data curation, Data analysis, Writing – Original Draft Preparation, Dr. Sahajad Khilji; Conceptualization, Review, Editing, Supervision, Visualization: All authors.

Conflict of interest

The authors declared no conflict of interest.

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