

How the Movement of the Body and the Firearm Weapon helped to prove an Incident to be a Case of Suicide

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Abstract:

Crime scene reconstruction is a process in which the action or events, occurred at the scene are determined or eliminated through the analysis of location and position of evidence present at scene. Reconstruction process of the crime scene can help the investigating agencies to conclude the findings to a logical end. Sometimes, the facts at hand seem to be contradictory at the preliminary level, which then, are conformed to the reality in the reconstruction process, which includes the four basic principles i.e. recognition, identification, individualization and reconstruction used in forensic examination of evidence. In this study, one such case of firing, the reconstruction approach was used for deciding the case. The knowledge of linear and angular momentum of physics was used as tool for reconstruction approach in the case under study.

Keywords: *Impact, Inertia, Recoil Momentum, Point of Intersection, Ricochet, Droplets, Scattering*

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Introduction

This is a case of death of a constable due to fire arms injuries with his .303 caliber rifle on duty at sentry post of a senior police officer residence. At the sound of firing, his colleagues rushed to the place and found the constable lying down in blood pool on the floor. This was in early in the morning hours of the day. Some good witted fellows captured the scene through their mobile phone camera. After the postmortem examination, the last rites were performed by the family but the problem started as the constable sustained entry wound at the back of neck and the exit at the right eye area, unusually of suicidal incidence. Higher authority decided to register a case under section 302 of IPC. The reconstruction of crime scene approach was used to know how exactly the incident occurred. Finally, the forensic reconstruction process proved this incidence as a case of suicide.

The Problem Addressed to Forensic Unit

Circumstantial evidences suggested that the incidence was of suicidal nature but the position of the body and the entry & the exit wounds prima fascia did not suggest the incident as suicide. After having a case registered, it became technically a problem for investigating team to provide scientific explanation for this incidence.

With the study of the photographs taken before removing the body and the reconstruction process at the scene, scientific explanation for the incidence could be provided to investigating officer of the case.

The Reconstruction Process

The lattice points for the crime scene-

- The point of impact of the bullet on the roof
- The point of entry on the head
- The point of exit on the face
- The recoil impact marks on the floor and the wall
- The point where the eye lace was found stuck on the roof
- The point where the face struck the side wall with blood stains
- The cluster of the points of blood droplets

The information from the photographs taken at scene of crime are-

- The position of the dead body

- The position of the rifle and the chain attached to it
- The position of the shoe with sock inside it

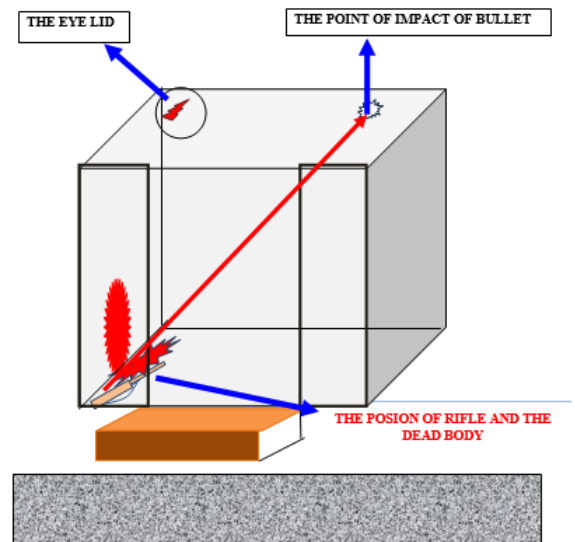


Figure 1 – Hypothetical Reconstruction of the Case

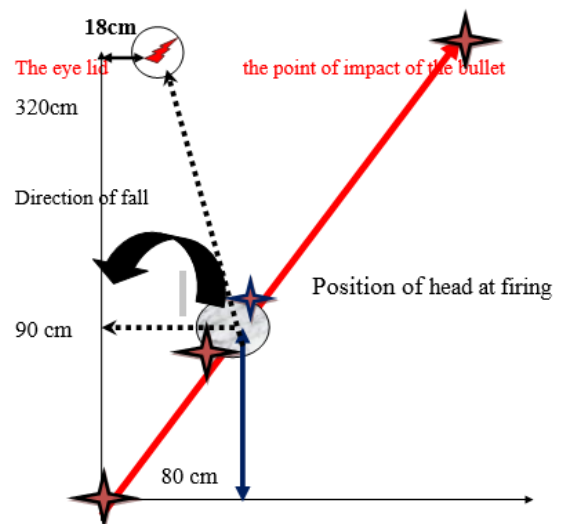


Figure 2 – Graphical Representation of Reconstruction Process



Photo 1 – The Scene of Occurrence



Photo 2 – The Scene of Occurrence – The Entry Post

The problem addressed to -

1. Can the position and the posture of the person who sustained fire arms injuries be assessed just at the time of incidence?
2. Where was the fire arm (the rifle) involved in the incidence at the time of firing?

The approach used for the reconstruction -

Considering the recoil movement of the body and the fire arm, it is essential to study all possible body posture assessments-

About the Body

1. When the person is in standing posture and there is no exit wound of fire (the bullet embedded in head) – The body of the person is likely move in such direction as to have the total linear

momentum of the system conserved. This result is in the form of jerk to the upper limb (head) and then falling down the moment consciousness is lost. The person is likely to have sustained injuries like abrasions and contusions due to the impact of fall on the surface of the ground.

2. With the same standing posture and with an exit wound of the fire – The person is not subjected for directional movement due to the impact of projectile, rather remains static due to inertia and falls only after losing the consciousness. The direction of fall is according to the movement of the center of gravity of the person. There is again a possibility for having abrasions and contusions to be present on the body.
3. When a person is sitting on knees posture and there is no exit wound of fire – The effect is that the body would move in the direction of firing line to counter the imbalance orientation the body posture existed at the time of firing.
4. Such findings are different if the person has the exit wound – The inertial impact moment on the part of the body is not initiated but the whole body falls down due to the imbalance orientation after losing the nervous control.

About the Weapon (Hand Gun)

1. In Case of Homicide – The position of the weapon can be located after assessing the line of fire according to the entry and the exit (when present) wounds. Other factors required for confirmation of the distance and angle of firing include the autopsy report, the scene of occurrence, recovery of the empty cartridges.
2. In Case of Accidental Firing – The weapon is ought to be recovered in its original location when the scene of occurrence is not disturbed. The location and the size of the firing wounds on the body should be coherent in with the direction and distance of firing. The problem arises when the weapon is removed and case is reported to as homicide. In such situations, other details about the scene of crime become crucial and deceive to prove the case as of accidental firing.
3. In Case of Suicidal Firing – The weapon is ought to be recovered in its original location when the scene of occurrence is not disturbed. The location and the size of the firing wounds on the body and the recovery place of the weapon, all should be coherent in with the direction and distance of firing. Nonetheless, the recovery place of the empty cartridge and the bullet/ scattering of pellets also conforms the firing incidence.



Photo 3 – Overview of the Scene of Occurrence at the time of Reconstruction



Photo 5 – Position of the rifle correlated with the Impact Mark



Photo 4 – Impact Marks of the Butt on the Wall & Floor due Recoil Movement of the Rifle



Photo 6 – Absence of the Blood Droplets on the Rifle



Photo 7 – Absence of Entry Point



Photo 8 – Height of the Blood on Wall



Photo 9 – Location of the Right Foot Shoe

Conclusion

The incidence can be viewed as a case of suicide since the following points were proved scientifically.

1. The recoil momentum of the rifle is found to be in accordance with the recoil momentum of the bullet and the body.
2. The position of the rifle at the time of firing is in the outer right lower corner of the sanitary post with the ends of the butt resting at the floor and the wall in vertical plane.
3. The position of the person sustaining the fire arm injuries is found to be in sitting posture resting on knees close to the right lower corner.
4. The sequence of the event after the firing is that just after the firing, body did not move due to recoil action but fell down forwardly the moment body lost the conscious thus the face collided with the wall.