A Rare Case of Suicide by Multiple Gunshot Wounds to the Head

Filippo Milano¹, Michele Treglia¹, Anna Mancuso¹, Stefania Urso¹, Gian Luca Marella²

¹Department of Biomedicine and Prevention, ²Department of Experimental Medicine and Surgery, University of Rome “Tor Vergata”, via Montpellier 1, 00133, Rome, Italy

ABSTRACT

Firearm injuries represent a significant topic of forensic pathology. The literature in this regard is innumerable, and can seem to have extensively covered the topic of this paper. However, the biological reality and the unpredictability of the concrete cases, continue and will always continue to present unusual circumstances that are worth examining for forensic pathologists. In this case report, we performed a comparative analysis between a particular case and the scientific literature. The case in question concerns suicide by single-shot short firearm, in which the subject shot himself three times on two sides of the head, without affecting the brain during its self-suppressive intent. Cases similar to this are always cause for reasonable doubt, which can only be solved with the contribution of forensic pathology and in-depth research.

Keywords: forensic science, multiple gunshot wounds to the head, suicide, ability to act, firearms, suicide, gunshot injury

INTRODUCTION

According to the data from the Italian Institute of Statistics (ISTAT) on total suicide rates in 2014, the percentage of suicide by gunshot wounds was 11.3%. Firearm injuries with suicidal purpose are therefore a significant component of the total medical-legal cases¹-³. Ordinarily, it is commonly believed that use of a firearm is an immediate and painless way of achieving suicide. However, suicide with multiple gunshots is mentioned in the literature, although quite rare, it occurs when there is a non-immediate onset of subject’s incapacitation⁴,⁵. The authors submitted a rare case of suicide with three self-inflicted gunshot wounds to the head.

Case Report: A 75-year-old man was found dead in his home. Through the information reported by the family members, the victim’s psychological profile was characterized by various overlapping medical problems that would have caused the onset of deep depression, enhanced by the news of having to undergo permanent dialysis and another surgery to create an arteriovenous fistula. Investigators also learned from the victim’s son that his father had already stated in the past the will to act insane if he had not been self-contained. At the crime scene investigation, the corpse was found supine on the bed, with the right arm flexed on his chest and the left positioned on the bedside table, his head was facing the roof and the lower half limb was protruding from the bed (figure 1). A “STAR” brand handgun was found on the nightstand near his left hand; also, a 7.65 caliber bullet and a case were found nearby on the floor. Unused bullets of the same size were also found in the kitchen, with a letter from the victim. The corpse was wearing a white-colored long-sleeved jersey and blue pants heavily covered in blood, two plastic sheets and numerous towels were placed on the bed beneath the body. The puddle of blood, at the time of the inspection, extended from the left shoulder of the jersey to the entire right side of the chest, and a lot of blood was found on the trousers. Blood splatters were found in other parts of the house: in the bathroom on the sink, on the bedroom closet, and near the doorjambs. A scratch caused by one of the bullets and small blood stains were also found on the wall behind the bed.
Autopsy Findings: Twenty-four hours after the crime-scene inspection, the autopsy examination was performed according to the guidelines of the Italian Group of Forensic Pathology (GIPF) in case of death due to gunshot wounds. The presence of a star-shaped entry hole with frayed edges was found on the left mandibular angle with the involvement of the ear lobe, from which there was a deep hole starting from the underlying planes and terminating behind the left ocular bulb with traumatic left eye enucleation (figures 2, 3). There were also two additional entry holes, both located on the right jaw and covered with a bloody gauze (figure 4, 5). The medial hole was in the mandibular body and the lateral hole was near the corner of the mandible. The two sites were observed using a probe; the medial entry hole had a superficial interface that resulted in a maximum 2.8 cm semicanalicular-shaped exit wound. At the opening of the oral cavity, there was extensive ecchymosis on the mucous membrane of the entire right cheek, with the absence of continuous solutions. The lateral entrance hole was deep into the underlying tissues with a downward-upward direction, a right-to-left inclination with a posterior obliquity, ending in an exit hole irregularly oval-shaped at the level of the left eyebrow in the medial position. The cadaveric dissection was performed revealing the following findings: a bilateral infiltration of temporal bones, the integrity of the cranial vault, with congestion of the leptomeninges (figure 6). The brain presented a normal shape and size with edema, did not exhibit significant traumatic alterations except a modest subarachnoid hemorrhagic spread in the left frontal lobe (figure 7). We also observed that the basal vessels and neurocranial bones were intact. By prolonging the scalp up to the nasion, chipping of bone tissue from the left orbit medial angle was observed. The enucleation of remaining tissue of the left eye showed the dislocation and fracture of all periorbital bones. Nothing worth noting was observed at the chest level, while at the abdominal level the organs appeared pale, the spleen was shrunken and there was a slight presence of hypostasis.

Toxicological Findings: Biological samples (femoral blood, urine, bile, brain and liver) were collected to perform toxicological analyses during the autopsy. Enzyme immunoassays of bile and urine were performed. GC/MS of bile, blood and urine did not show any presence of drug-related peaks or antipsychotic drugs. The blood alcohol content was 0.05 g/L.
DISCUSSION

Suicide by firearms represents a significant topic of forensic pathology, but it rarely involves multiple self-inflicted gunshots. The occurrence of suicide by multiple wounds (gunshots or sharp force injuries) is usually linked to a psychiatric illness. The frequency varies between 1% and 8% of all suicides with firearms, based on the nationality of the sample being analyzed. These percentages also have a high degree of variability in relation to permissive laws on firearm possession, also because they include suicidal events with gunshots to different parts of the body not just to the head. Specifically, compared with the results found in the literature, the location and number of victim’s self-inflicted blows to the head without causing immediate death, essentially represent the peculiarity of this case. In fact, the subject was able to move around the various rooms of the apartment after the first two shots, even roughly medicating the two entry holes with gauze, before the last shot was fired, which was likely responsible for the loss of consciousness. This fact is indicative, at least initially, of slow blood loss, probably less than 25% of the total volume, which became significant with the third blow responsible for the rapid incapacitation of the subject until death. The subject’s extended survival is mainly attributable to the sagittal position of gun during the shot. Johnson et al. report that it is statistically evident that the sagittal direction of shots with an entry hole near the jaw are associated with minor fatalities, since the bullet hitting...
the bone structure of the splanchnocranium disperses a substantial part of its kinetic energy before entering the brain. The subject examined in this case didn’t have any traumatic direct lesion to the brain, because the first two gunshots did not injured the neurocranium, while the last gunshot caused a hemorrhagic suffusion of the left frontal lobe, due to indirectly propagating the kinetic energy through bone structures. Therefore, considering the findings from the inspection and autopsy, the cause of death was attributed to an hemorrhagic shock due to heavy blood loss consequent to three gunshot wounds, two of them did not damage the neurocranial membrane of the splanchnocranium, or cause lesions of particularly vascularized regions. The most reliable reconstruction hypothesizes that when the subject shot himself the first time he was holding the handgun with his right hand, the bullet entered the right mandibular region resulting in a deep hole into the subcutaneous underlying tissues, with a downward-upward direction, a slight tilt from right to left and slightly oblique back to front, which produced a semicanalicular-shaped lesion of the zygomaticotemporal process. After the first self-inflicted wound, the subject gripped the handgun once again with his right hand and shot himself for a second time on the right mandibular angle, the bullet perforated the splanchnocranium and exited medially from the contralateral eyebrow. Finally, the subject shot himself for the last time holding the handgun with his left hand, penetrating the left jaw corner and ending at the level of his left eye. The characteristics of the entry wounds indicate that the right-side shots were fired at close range, but not at a contact distance, while the contralateral hole, due to its star-shaped appearance and large dimensions, is compatible with a much closer firing distance, almost in contact with the skin.

CONCLUSION

Suicide by multiple gunshot wounds is a plausible conclusion, especially in cases where the subject’s incapacitation is not immediate. However, in the literature it is now established that a significant percentage of subjects do not die and do not undergo immediate incapacitation even after more than two gunshots at a cranial level. In these cases, it is important to exclude a homicidal hypothesis through an in-depth analysis both in the examination and in the psychological history of the victim. However, a definite conclusion can only be reached by performing an autopsy, which allows for a clear understanding of the connection between the environmental findings and the actual disabling ability of self-inflicted lesions that caused the fatality.

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Ethical Clearance: Informed consent was obtained from legal guardian for uses of the case materials for research purposes and publication findings.

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REFERENCES


