

CASE REPORT**PATHOLOGY AND BIOLOGY**

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Suicidal Shotgun Wound Employing a Shotgun Barrel, a Shotgun Shell, and a BB*

ABSTRACT: A vast majority of firearms-related suicides involve the conventional use of a properly functioning, intact firearm. Occasionally, forensic investigators encounter a case wherein the firearm suicide victim employs some form of unconventional use of a weapon, or utilizes an unusual weapon type. In this case report, the authors present an unusual case in which a man committed suicide by using a shotgun shell, a shotgun barrel (separate from the rest of the gun), and a BB. Some confusion as to the cause and manner of death was present during the initial scene investigation. Examination at autopsy revealed the cause of death to be a shotgun wound of the chest and prompted further scene investigation. Therefore, this case serves as another example of the importance of cooperation between scene investigators and forensic pathologists when investigating a death. A review of suicidal firearm cases using unconventional means and/or firearms is presented.

KEYWORDS: forensic science, forensic pathology, suicide, shotgun, scene, investigation, homemade guns, zip guns

Suicidal gunshot wounds are common in the United States. Many of these cases involve handguns; however, the use of long guns such as rifles or shotguns is also prevalent. Occasionally, an individual will employ the use of a homemade firearm or “zip gun.” Creative or elaborate mechanisms for pulling the trigger are sometimes devised, and some individuals go to great lengths to conceal the weapon, confusing the issue and making the suicide appear as a homicide. In this report, we describe an unusual suicidal shotgun wound, in which the victim used a shotgun barrel (without the rest of the gun), a shotgun shell, and a BB.

Case Report

A 54-year-old man was being assisted by his daughter and several friends in moving out of his house. The daughter had been assisting the man during the morning and called several friends at around 1130 to lend further assistance. The daughter left for a period of time. The friends and the daughter arrived at around 1300 and were surprised to find the father missing. The entire group proceeded to search for him, and he was found, after a 30-min search, in the basement of the home, lying on the floor with an obvious

chest wound. Emergency services were called and they pronounced the man dead at the scene.

When the police arrived, they found the decedent lying on his back on the floor of the basement laundry/utility room. A broken pair of black and gray-framed glasses with the left lens and temple missing was found in the basement hallway, and other fragments of gray and black plastic were found throughout the scene. At the entrance to the laundry/utility room the rusty barrel of a shotgun without any other parts of the weapon was observed, along with a metal clothes hanger (Fig. 1). Blood spatter with pieces of body tissue was observed in the doorway and into the room along the door. A BB was also seen on the floor near the body with additional BBs present on a nearby dresser.

The decedent was lying on his back and was dressed in a button down shirt and t-shirt, blue jeans with leather belt and boots. The anterior portions of both shirts were soaked with blood. The deputy coroner arrived, and a more thorough examination of the lower left chest wound was performed. The amount of blood present made it impossible to ascertain the type of weapon used. There did not appear to be any powder burns or stippling on the decedent's clothing or skin, and investigators initially believed the victim had been impaled with something. Because of the presence of an apparently lethal injury, in combination with the absence of an obvious weapon, and the presence of certain scene factors that suggested a possible struggle, the police and coroner presumed that the case represented a homicide.

On initial examination at autopsy, the forensic pathologist recognized the wound as a shotgun wound, and investigators were immediately informed of this fact. The body of the 54-year-old white male revealed a 1 × 5/8 inch roughly oval-shaped wound in the left chest just above the inferior edge of the rib cage (Fig. 2). The wound was surrounded by a circumferential marginal abrasion with distinct widened areas of abrasion at the 2 o'clock, 4 o'clock,

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FIG. 1—Scene photograph showing the body in relation to a rusty shotgun barrel and a clothes hanger.

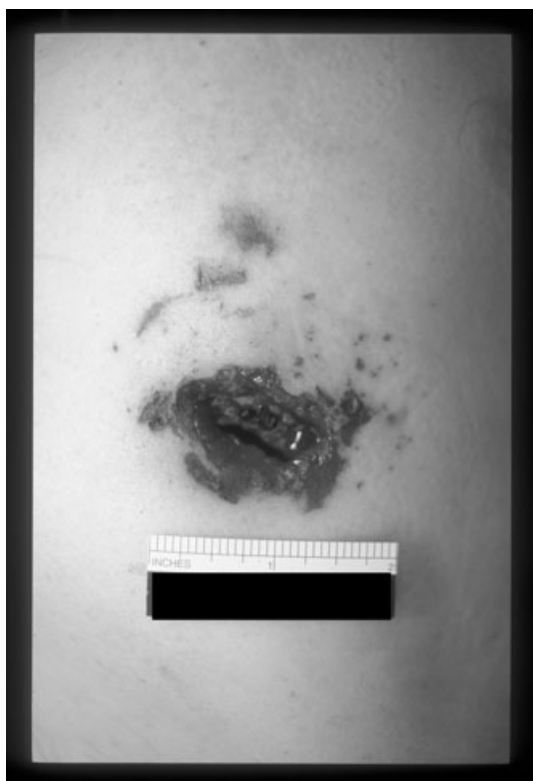


FIG. 2—Photograph taken at autopsy depicting the location of the wound on the left chest.

7 o'clock, and 9 o'clock positions. There were also stipple marks surrounding the wound. A single satellite birdshot pellet was observed 1/4 inch from the wound margin at the 2 o'clock position. There was also a $3/4 \times 1/16$ inch superficial possible graze-type abrasion on the left chest.

The charge followed a path through the skin and subcutaneous tissues of the left lower chest through the anterior left chest wall, fracturing rib 6. It proceeded through or into the left ventricle, the left lower lung, left hemidiaphragm, stomach, left lobe of the liver, and spleen. Pellets were also found in the posterior chest wall. About 1550 mL of liquid with clotted blood was found in the left chest cavity. Birdshot and plastic wadding fragments were recovered from the wound and tissues.



FIG. 3—Photograph of breech end of the shotgun barrel with spent shell casing. Note the multiple BB-sized indentations on the casing including the primer.

After notification from the pathologist regarding the nature of the wound, further investigation was conducted at the crime scene, and the rusty barrel of a shotgun was found containing a spent shotgun shell lodged in the breech end. The base of the shell contained multiple indentations, including one on the primer (Fig. 3). The indentations were consistent with having been produced by a BB found on the floor of the basement with a blackened circle surrounding the BB (Fig. 4).

The decedent had apparently loaded the barrel of the shotgun with a shell and placed a BB on the basement floor. Then, leaning over the BB with the loaded barrel, he attempted to strike the BB with the shell's primer thereby firing the weapon. After several attempts, as evidenced by the multiple BB-sized indentations found on the base of the shell, he was ultimately successful. The decedent had had prior issues with depression as was noted by a friend during an interview with the police. The same friend noted that the decedent had tried to hang himself the previous winter. The patient was recently evaluated for depression and was taking an antidepressant. The cause of death in this case was a shotgun wound of the chest. The manner of death was suicide.



FIG. 4—Photograph of shotgun with shell casing as well as BB placed in indentation on the basement floor. The outline of the back of the shell casing is seen on the basement floor.

Discussion

Suicide is relatively common in the United States. With the availability of firearms, it is not surprising that firearms-related suicides represent a significant percentage of all U.S. suicides. There were 32,439 suicides reported for 2004, and of those 51.6% were committed by firearms (1). Despite the widespread availability of properly functioning, production-grade, manufactured firearms, occasional suicidal firearms cases involve the use of homemade firearms (so-called "zip guns"). Still other cases utilize some type of mechanical manipulation of or attempts at hiding the firearm. Finally, as the current case illustrates, other firearms-related suicide cases involve the unconventional use of firearms or parts of firearms.

There are a number of cases in the literature documenting the use of homemade firearms or zip guns of varying levels of construction (2–4). Such guns are common in areas of poverty or in areas where the ownership of guns is more tightly controlled (5). They were popular in the United States during the 1950s but the relative wealth of today's criminal population and the availability of inexpensive handguns makes them much less common today (5). Their use is still very prevalent in other areas of the world such as Zululand, South Africa (2). An example of an effective homemade shotgun was recently reported in Italy (6). The perpetrator in this murder-suicide had constructed a shotgun using two pipes and a conical "firing pin." One pipe served as a barrel while the other fit over this barrel. The firing pin was welded to the end of the overriding pipe, and the weapon was discharged by sliding the two pipes together and ramming the firing pin into the primer on the loaded shotgun shell (6). In a different recently reported case the decedent employed a zip gun made from an air hose nozzle, a pipe, and a nail held together by a connector (7). Another example of a home-made firearm is the pen gun. These weapons may be converted tear gas pens modified to fire a bullet. These weapons are often difficult to distinguish from a normal pen, but can still be lethal (8,9).

Not all cases of firearms-related suicide involve discharge of the weapon by conventional means. In some cases the weapon may be held in a different position and the trigger depressed by a toe (10) or a thumb (5). In still other cases, a mechanical device may be used to assist pulling the trigger. This is especially true if a long weapon such as a rifle is used as it may be difficult for the individual to keep the weapon properly aimed and depress the trigger simultaneously. A stick is a commonly used tool (11,12). Combinations of ropes and or sticks are also used (11,13,14).

Other decedents attempt to disguise their suicide as an accident or a homicide. One individual was reported to have secured his shotgun to a tree and through the use of a rope was able to shoot himself in the back, leaving a distant wound (14). Others have attempted to dispose of the weapon after their demise. One man used a rubber band to pull the gun back into a concealed location (15). Others have employed a system reminiscent of one found in the Sherlock Holmes Story: The Problem of Thor Bridge where a young woman uses a length of rope attached to a weight to pull a gun from a bridge into a river after shooting herself. This arrangement has been documented on several occasions (16,17).

The unconventional use of weapons, parts of weapons, or the use of unconventional ammunition/projectiles is a final point for consideration. Standard weapons can be fired using blank cartridges, and these cartridges have the capacity to cause harm and even kill, especially at contact range (5,18). In many cases, the rapidly expanding gas released by the blank produces sufficient injury in and of itself, without requiring a bullet (18). The expansion of

gas caused by firing a blank can also be used to propel a projectile. In one such case the individual affixed wooden dowels to the tips of the blank cartridges so that they would be projected from the gun upon firing (19). This weapon, which was not designed to ever fire a projectile, had been extensively modified by the decedent in order to do so (19). The case presented in the current case report represents an example of a portion of a weapon (the barrel) being used in combination with standard ammunition and some ingenuity (the BB on the concrete floor), to produce the desired effect (discharge of the weapon).

The present case serves to remind death investigators of the importance of a thorough scene investigation as well as the importance of maintaining an open mind regarding the cause and manner of death. In this case, the initial concern was for a homicide with an impaling wound. Autopsy and subsequent investigation revealed the truth—a suicide employing a shotgun fired in a very unique manner. The case provides another example of how suicidal individuals can be very creative when it comes to discharging a weapon.

References

1. Suicide from firearms. <http://www.cdc.gov/ncipc/wisqars/>.
2. Book R, Botha J. Zulu zip-guns and an unusual murder. *Am J Forensic Med Pathol* 1994;15(4):319–24.
3. Ordog GJ, Cotta KY, Wasserberger J, Balasubramaniam S. Homemade guns. *J Trauma* 1987;27(6):646–50.
4. Graham M. Case study FR-09. Northfield, IL: College of American Pathologists Forensic Pathology APEX Program, 1996. <http://www.cap.org>.
5. DiMaio VJM. Gunshot wounds: practical aspects of firearms, ballistics, and forensic techniques. 2nd edn. Boca Raton, FL: CRC Press, 1999.
6. Maglietta R, Di Fazio A, Greco M, Introna F, De Donno A. A singular case of murder-suicide committed with a homemade firearm. *Am J Forensic Med Pathol* 2005;26(1):89–91.
7. Cunliffe CH, Denton JS. An atypical gunshot wound from a home-made zip gun—the value of a thorough scene investigation. *J Forensic Sci* 2008;53(1):216–8.
8. Hartshorne NJ, Reay DT, Harruf RC. Accidental firearm fatality involving a hand-crafted pen gun: case report. *Am J Forensic Med Pathol* 1997;18(1):92–5.
9. Cingolani M, Tsakri D. Planned complex suicide: report of three cases. *Am J Forensic Med Pathol* 2000;21(3):255–60.
10. Henderson PB. Shotgun suicide with a difference. *Med J Aust* 2000;173:604–5.
11. Mant KA. Forensic medicine: observation and interpretation. London: Lloyd-Luke LTD, 1960.
12. Dolinak D, Matshes E, Lew E. Firearm injuries. Forensic pathology: principles and practice. Boston, MA: Elsevier Academic Press, 2005.
13. Fatteh A. Handbook of forensic pathology. Philadelphia: J.B. Lippincott Company, 1973.
14. Durak D, Fedakar R, Turkmen N. A distant-range, suicidal shotgun wound of the back. *J Forensic Sci* 2006;51(1):131–3.
15. Gerdin B. A case of disguised suicide. *Forensic Sci Int* 1980;16:29–34.
16. Gross A, Kunz J. Suicidal shooting masked using a method described in Conan Doyle's novel. *Am J Forensic Med Pathol* 1995;16:164–7.
17. Prahlow JA, Long S, Barnard JJ. A suicide disguised as a homicide: return to Thor Bridge. *Am J Forensic Med Pathol* 1998;19(2):186–9.
18. Giese A, Koops E, Lohmann F, Wesphal M, Puschel K. Head injury by gunshots from blank cartridges. *Surg Neurol* 2002;57(4):268–77.
19. Padosch SA, Schmidt PH, Madea B. Planned complex suicide by self-poisoning and a manipulated blank revolver: remarkable findings due to multiple gunshot wounds and self-made wooden projectiles. *J Forensic Sci* 2003;48(6):1371–8.

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