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A Suicidal Gunshot Wound of the Back

One is tempted to say categorically and without fear of contradiction, "People do *not* intentionally shoot themselves in the back." This paper, then, could be subtitled, "At last I have seen a purple cow!"

We recently investigated and evaluated the death of an 18-year-old woman who had contact-range gunshot wounds of her right temple, presternal region, and posterior thorax. The latter finding would ordinarily preclude a consideration of suicide. However, our postmortem anatomic observations, combined with the results of thorough police investigation of the scene of death and discovery, scrutiny of physical evidence relating to the fatal missiles and responsible weapon, and fruitful inquiry into the decedent's psychiatric history convinced us that the manner of death was suicide.

We feel this case is worthy of report and comment because (1) an intentionally self-inflicted gunshot wound of the back is unique in our experience, and (2) it emphasizes the importance of considering nonanatomic evidence in the evaluation of deaths requiring medicolegal investigation, a lesson sufficiently important to warrant frequent repetition.

Case Report

Circumstances and Scene of Death

The decedent resided with her parents and a brother in a single family home. She had been unemployed for several months and last worked as a bank clerk.

On the day of her death, the other family members left for work at or before 7:00 a.m. The mother talked to her daughter on the telephone at 9:00 a.m. and perceived nothing unusual in their conversation. At approximately 9:30 a.m., a neighbor, who had been ironing near a window with an unobstructed view of the victim's home, heard what sounded like several gunshots. The neighbor saw no one enter or leave the house before or after she heard the gunshots and did not hear the noisy family dog barking. When the mother returned from work at 4:05 p.m., the house was locked and its contents were undisturbed. Investigation disclosed no sign of forcible entry into the dwelling.

The decedent was discovered lying on her bedroom floor with her head resting on her right hand, which held a revolver. Her body was cold and in firm rigor mortis. The distribution and configuration of blood splatters on the floor adjacent to the right side of

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her head (Fig. 1) indicated that blood droplets were traveling outward, away from the position of her head depicted in the photograph. Splattering of blood in this fashion, opposite the direction of fire, is commonplace in contact-range wounding of the head. In this instance, the blood splatters showed that her head was near the floor when the shot was fired and helped to explain how the gun remained between her right hand and the right side of her head without invoking the mechanism of cadaveric spasm.

Autopsy

The decedent was clad in a long nightgown which had a V neck and low back (Fig. 1). Gunshot wounds of her chest and back involved exposed portions of the trunk and had not perforated the garment. Although her scalp, face, trunk, arms, and hands were extensively blood-stained, no blood was found on her feet. A necklace with an attached religious medallion was looped around her right ring finger and hand in a figure-8 fashion (Fig. 2).

Pertinent anatomical findings were restricted to gunshot injuries. She had three typical, loose-contact wounds which were situated in her right temple, presternal area, and mid-back (Figs. 3–5). Each of the cutaneous entrance wounds consisted of a central perforation with densely blackened, burned margins and a compact, narrow halo of fouling, which also flared radially from the margins of the posterior thoracic wound (Fig. 1). The subcutaneous wound tracks contained abundant powder residue, and skeletal muscle adjacent to the wound tracks showed pink discoloration.

The posterior thoracic wound was situated over the middle third of her back 45½ in. (1156 mm) above the heels and ¾ in. (19 mm) to the right of the midline (Figs. 1 and 3). The bullet traveled upward and to her left in passing from back to front. It perforated the soft tissues of her back, left transverse process of the tenth thoracic vertebra, and peripheral parenchyma of the left lung. The bullet exited from the left

FIG. 1—*Decedent's body at the scene of death: arrow indicates gunshot wound of the back, and blood splatters show her head was near the floor when the right temporal gunshot wound was fired.*

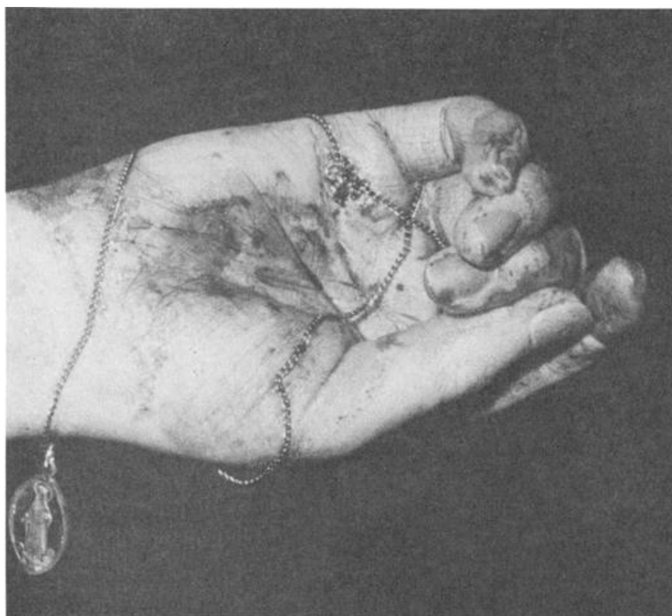

FIG. 2—*Victim's blood-stained right hand with religious medallion on necklace.*

pleural cavity by passing through the third intercostal space in the anterior axillary line and lodged subcutaneously in her left axilla 53 in. (1346 mm) above the left heel and 5 in. (127 mm) to the left of the midline.

The presternal gunshot wound was centered 53½ in. (1359 mm) above her heels and ¾ in. (19 mm) to the left of the midline (Fig. 4). This bullet's track was oriented from front to back, right to left, and downward. It entered her left pleural cavity through the third intercostal space, missed her heart, perforated the left lung, exited from the posterior aspect of the pleural cavity through the eighth intercostal space and ninth rib, and lodged in her back 48 in. (1219 mm) above the left heel and 3½ in. (89 mm) to the left of the midline. Her left pleural cavity contained 800 ml of blood. This examination showed that neither of the thoracic gunshot wounds would have produced immediate incapacitation.

Her fatal, right temporal gunshot wound was centered ¾ in. (19 mm) above the superior attachment of the external ear (Fig. 5), the bullet traveling upward and backward in passing from right to left. It perforated her right temporal and parietal lobes, emerged from the paramesial aspect of the right parieto-occipital junction, struck the skull by passing through the sagittal sinus, ricocheted across the surface of the left parietal lobe by following the curvature of the inner table of the skull, hit the left petrous temporal ridge, and bounced into the left temporal lobe where it came to rest. The unci and hippocampal gyri were focally contused where they faced the tentorium cerebelli.

Analyses of the decedent's blood, urine, and bile were negative for alcohols, barbiturates, opiates, phenothiazines, amphetamine, and glutethimide. Examination of her blood-smeared hands by the Harrison-Gilroy technique [*1*] failed to detect a residue of lead or barium. Approximately one third of the victims of self-inflected gunshot wounds examined at our office with this technique have no detectable residue of barium or lead on their hands.

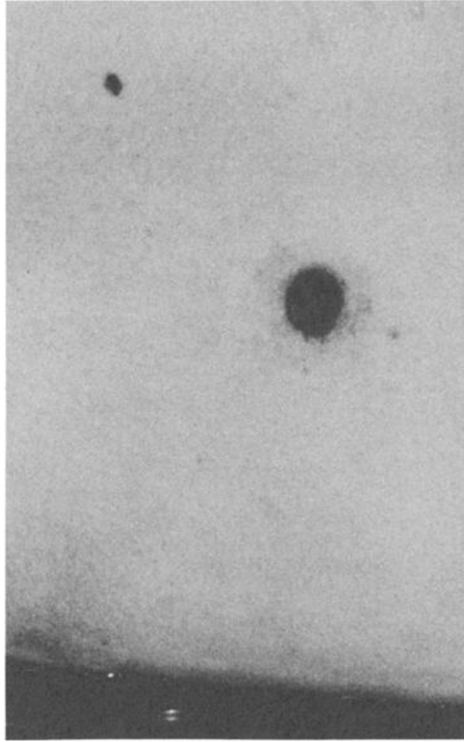

FIG. 3—*Close-up of the posterior thoracic wound. The decedent's left side is up, and her head is to the right.*

The Gun

The gun was a decrepit .38 caliber Hopkins & Allen five-shot revolver. Its cylinder contained four spent shell casings and one misfired, live round of .38 caliber Smith & Wesson ammunition. (One shot had been fired into the bedroom wall.) Firing pin impressions and breechblock markings on the spent shell casings matched those on comparable ammunition test-fired from subject revolver. Three bullets recovered from the decedent's head and trunk at autopsy had the same class characteristics as test pellets fired from the subject revolver. The weapon's barrel was extremely corroded and gave irreproducible, finer striations to the fired pellets, negating the possibility of definitive bullet comparisons. Police investigation established that the decedent had purchased the revolver at a nearby flea market.

Psychiatric History

The decedent had been under psychiatric care for eight months prior to her death and had been admitted to mental hospitals three times during this interval because of suicidal drug ingestions.

Her attending psychiatrist believed that she had long-standing mental problems manifested by extreme timidity, poor social adjustment with her peers, feelings of inferiority, and conflicts over sexual identity. Her first psychotic episode and suicide attempt apparently were precipitated by a break in her relationship with a boyfriend, who probably was the only sexual partner she had known. She was preoccupied with

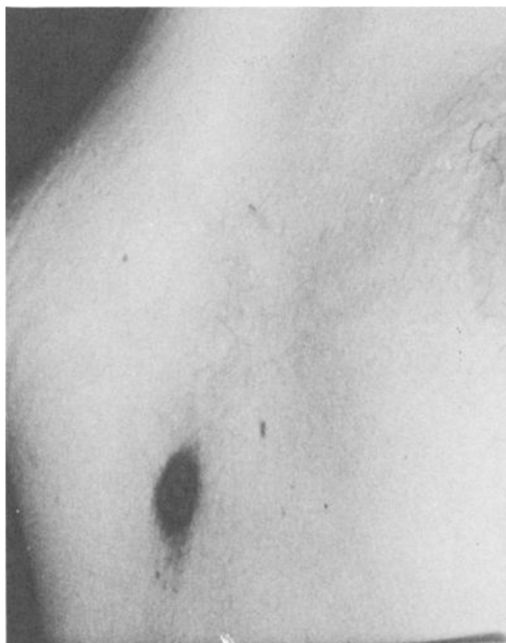

FIG. 4—*Presternal gunshot wound.*

thoughts of death and with concern over her physical appearance which she described as "ugly." Facial acne, which failed to clear following various treatments prescribed by two dermatologists, and a recent weight gain, which had resulted in an unattractive accumulation of fat over her lower trunk and legs, magnified her self-resentment. The psychiatric diagnosis was schizophrenia, schizo-affective type.

A few months prior to death, she stole a revolver from the home of a friend, took it to the basement of her home, and fired a test shot at the wall to familiarize herself with its operation. The loud noise and ominous power of the weapon terrified her, and she confided to the psychiatrist that she could not turn it upon herself for fear of inflicting grotesque disfiguration. He was not surprised to learn that she finally had taken her own life or that she had shot herself in the back.

Discussion

Suicide by firearms is a common method of self-destruction in contemporary American society. Indeed, of all suicides in the United States, conservatively estimated to be currently in excess of 26 000 annually [*2*], 47% are accomplished with some type of gun, making this the most common method of self-destruction [*3*].

Our experience at the Cuyahoga County coroner's office, which serves Cleveland, Ohio and its suburbs, is similar. During the 15-year period from 1960 through 1974, we certified 3005 deaths as suicides. Firearms accounted for the largest fraction of this category of violent deaths (Table 1). Moreover, our data indicate a progressive increase in suicides from these lethal instruments during the past decade [*4*].

Two aspects of the case reported here merit comment: (1) the entrance wound on the dorsum of the victim's trunk, and (2) the three gunshot injuries.

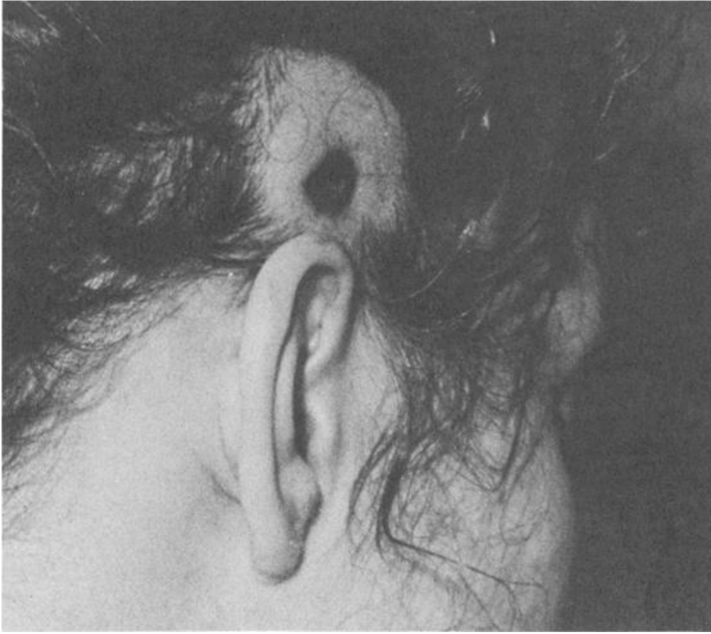

FIG. 5—*Right temporal gunshot wound.*

Sites of Self-Inflicted Injury

The anatomic area(s) selected as the target(s) for the fatal suicidal shot(s) fall into a fairly well-defined pattern. The most common "site of election," as the British say, is the head (including the oral cavity), followed by what the potential victim of felo-de-se by gunshot believes to be the precordial region, and finally the epigastrium. Rarely does one encounter suicidal abdominal gunshot wounds in the infra-umbilical region, and intentional, self-inflicted gunshot wounds of the neck are infrequent. Suicidal gunshot wounds of the extremities are practically nonexistent, unless one happens to have been incurred by "accident," that is, where the suicide victim shoots himself in this site by mishap or misadventure while he is preparing to inflict the fatal damage elsewhere.

Table 2 lists the sites of entry of the fatal gunshot wound in a consecutive series of 450 suicides by gunshot observed over the 5-year period indicated.

Of interest is the dorsal location of one of the victim's self-inflicted gunshot wounds. A suicidal, contact-range gunshot wound of the back has never been observed previously by either of us and it stimulated a good deal of thinking and some simple but informative "experimenting" on our part. Each of us encountered no difficulty in placing the revolver to his own back so that the muzzle touched a point corresponding to the location of the decendent's wound. In so doing, the angle of the weapon was such that the emerging bullet would have reproduced the trajectory of the wound track observed in the victim. This maneuver is facilitated when the experimenter's thumb serves as the "trigger finger." The only hindrance is one of minor inconvenience. Indeed, there is no physical reason which bars large areas of the dorsum of the trunk from being the sites of entrance for would-be suicidal gunshot wounds. Nevertheless, whether on the basis of custom, usage, tradition, or some subtle psychodynamic mechanism, it is a fact that, with rare exceptions, persons intent on shooting themselves do not place the muzzle of the gun against the back of their trunk.

TABLE 1—*Suicides by method, Cuyahoga County coroner's office (1960–1974).*

	Fire-arms	Drugs and Chem-icals	Hanging	Carbon Monoxide (Auto Exhaust)	Jump from Height	Cutting and Stabbing	Drowning	All Others [a]	Total
Number	1100	583	492	423	174	86	60	87	3005
Percentage	36.6	19.4	16.4	14.1	5.8	2.9	2.0	2.9	100

[a] Includes such modalities as self-incineration, inserting head into plastic bag, throwing self under wheels of moving motor vehicle or train.

TABLE 2—*Locus of fatal entrance wound in 450 consecutive suicides by gunshot.*

Year	Total Firearm Suicides	Site(s) of Injury			
		Head [a]	Chest	Abdomen [b]	Neck
1970	75	56	15	2	2
1971	77	60	14	3	0
1972	88	62	20	5	1
1973	102	82	12	6	2
1974	108	84	22	2	0
Total	450	344	83	18	5
Percentage	100	76.4	18.4	4.0	1.1

[a] Includes intra-oral.
[b] Epigastrium.

Multiplicity of Traumas in Suicide by Firearms

That a would-be victim of suicide by a firearm can fire the gun several times in the determined effort to do away with himself or herself is a well-known fact in any busy medicolegal office. The 450 fatal, suicidal, gunshot wounds listed in Table 2 include two instances of two head wounds (one victim also had a graze wound of his cheek), two instances of a fatal head wound in association with a self-inflicted chest wound, and two cases of multiple chest and epigastrium wounds. One victim of a fatal head wound had a characteristically suicidal incised wound on the flexor surface of his left wrist, and one victim of a fatal head wound was found hanging by a rope around his neck.

Comment

In every death which requires medicolegal inquiry, the investigating team must bring an open mind to the problems. A biased investigator is a useless investigator. Those who have the responsibility to rule on the case must consider every possibility, and they must come to a conclusion only after thoughtfully evaluating all the evidence. Each case must be decided on the basis of its own peculiarly individual characteristics. Our verdict of suicide in this death rests on the total evidence.

Finally, our purpose in reporting this case, besides its rarity, is to call attention once more to the general principle that "If anything can happen, it will happen," if one waits long enough. The truism that "The rare things are rare, and the common things are common" does not exclude the occurrence of the most infrequent events. "Once in a lifetime" events do occur in one's lifetime.

Summary

An 18-year-old woman committed suicide by shooting herself in the right temple, presternal region, and lower thoracic back. The anatomic and other investigative data on this case are reported and discussed in the perspective of our experience with suicides by firearms.

Acknowledgments

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