

## CASE REPORT

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### Determining Sequence of Fire in Gunshot Wounds: Two Case Reports

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There are many facts that can usually be learned about a gunshot wound during a forensic autopsy. These include the range of fire (contact, near, or distant range), the path through which the bullet entered the body, what caliber bullet or bullets were used (and which was probably the fatal shot), and, finally, specifically, what gun fired the fatal shot if the bullet removed at autopsy is found to match a suspected weapon. Sometimes, when a defective weapon has been used, the bullet holes and the bullet will show that the firearm was defective. All of these facts are very helpful in understanding the circumstances surrounding a death.

One of the more helpful facts in a murder oftentimes cannot be determined: the sequence of fire. It would often be very useful to know that the first shot was fired into the back of the victim in a situation where the defense attorney is making a case for self-defense.

There are some occasions when the sequence of fire can be determined, such as in multiple gunshot wounds of the head where the fracture lines meet. The subsequent fracture line will not cross the existing fracture lines [1]. In suicidal gunshot wound cases in which the pistol or ammunition malfunctions so that two or more bullets penetrate the scalp but only one enters the head and is the fatal gunshot wound, it is reasonable to assume that the fatal shot was last.

Generally, there must be some unusual occurrence for information of a factual nature on sequence of fire to be available at autopsy. We frequently have subjective opinions about the sequence of fire in the "usual shooting" where the path of the first shot (surprise shot) in the body is horizontal to the floor (or ground) and the subsequent shots pass down into the front of the body as the victim reflexly bends forward in the fetal position. If the victim continues to move, the shots entering the back may pass upward as the victim wheels to take flight. However, this is all subjective reasoning.

Since the number of situations where the sequence of fire can be established are few, the authors thought it was appropriate to present two cases where sequence was established by collisions between successive missiles.

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## Case 1

### History

A man was found shot six times with a .22-caliber semiautomatic pistol found in the next room. His wife was charged with the murder. At the trial, the 155-cm (5-ft. 1-in.), frail lady claimed self-defense. Her defense was that the first shot at her 234-cm, 111-kg (6-ft. 2-in., 245-lb), muscular husband went through his right hand from ulnar to radial aspect as he tried to hit her with a judo chop. She then continued to fire until the pistol was empty because he kept coming at her.

### General Autopsy Findings

The autopsy revealed four gunshot wounds with roughly parallel paths that entered the victim from above and from the left (Fig. 1) and two gunshot wounds whose paths passed down the right back (Fig. 2). One of the latter two bullets first passed through the right hand from ulnar to radial surface, then penetrated 6.4 mm (0.25 in.) into the top of the right shoulder without striking any bones in the shoulder. The bullet was badly deformed which, along with the shallow penetration, was consistent with it passing first through the hand. There were a few powder burns (tattooing) around one of the four shots in the left shoulder, neck, and back region. Five of the six bullets were recovered from the body. The sixth passed through the neck and was found in the wall a few inches above the back of an easy chair.

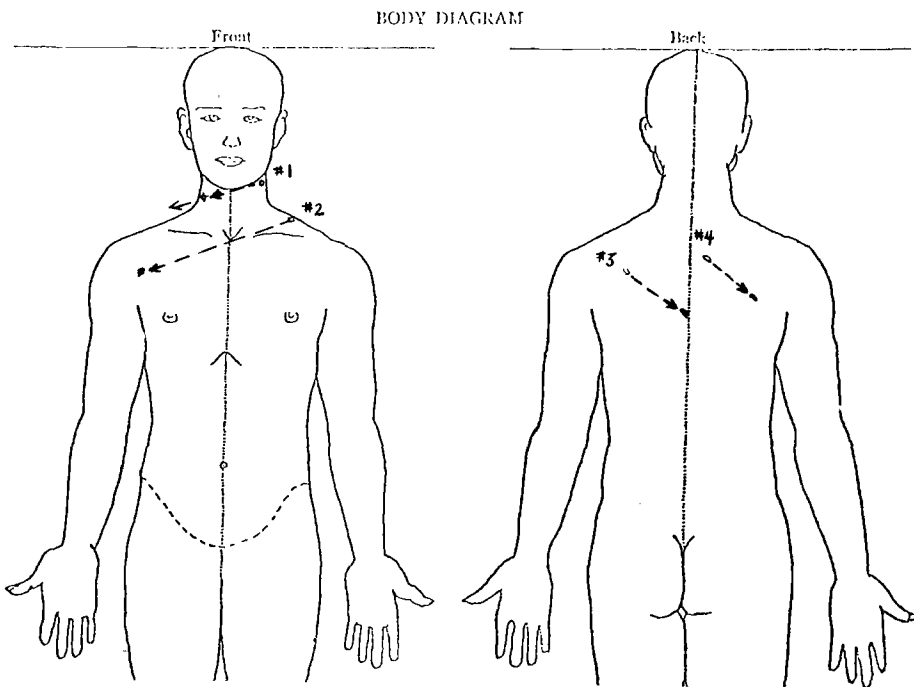


FIG. 1—Diagram showing parallel paths taken in the body by the first four shots (Case 1).

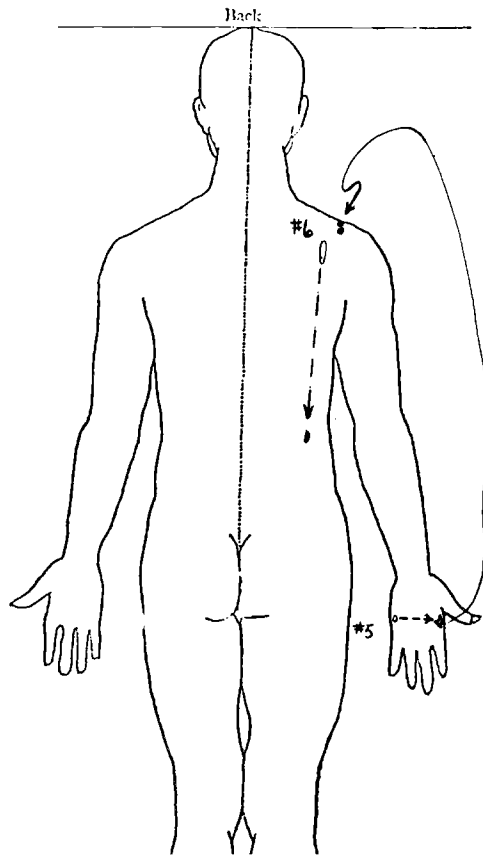


FIG. 2—Paths taken by last two shots (Case 1).

### *Scene Findings*

There were four empty shell cases found to the right of the easy chair in the bedroom doorway (Fig. 3) and two empty cases found next to the wall in front of the easy chair midway in the room. The deceased was found lying in a pool of blood on the floor in front of the easy chair. There was a sweater on the back of the easy chair with several through-and-through holes evident in the folds of the sweater. There were blood and the decedent's glasses on the easy chair.

### *Unique Autopsy Finding*

The unique finding at autopsy was the fact that one of the four bullets that entered from above and from the left passed across the back to come to rest in the right midback slightly medial to the posterior axillary line. At this point, it was struck by one of the two bullets that entered from above the right shoulder. The Y-shaped missile paths (Figs. 4 and 5), the exaggerated hemorrhage along the path after the point of intersection, and the flattened surfaces of the two bullets that had struck no bone (Figs. 6 and 7) clearly indicate the bullets collided. These facts also indicate that the four shots from the left and above in all probability preceded the two shots from above the right side.

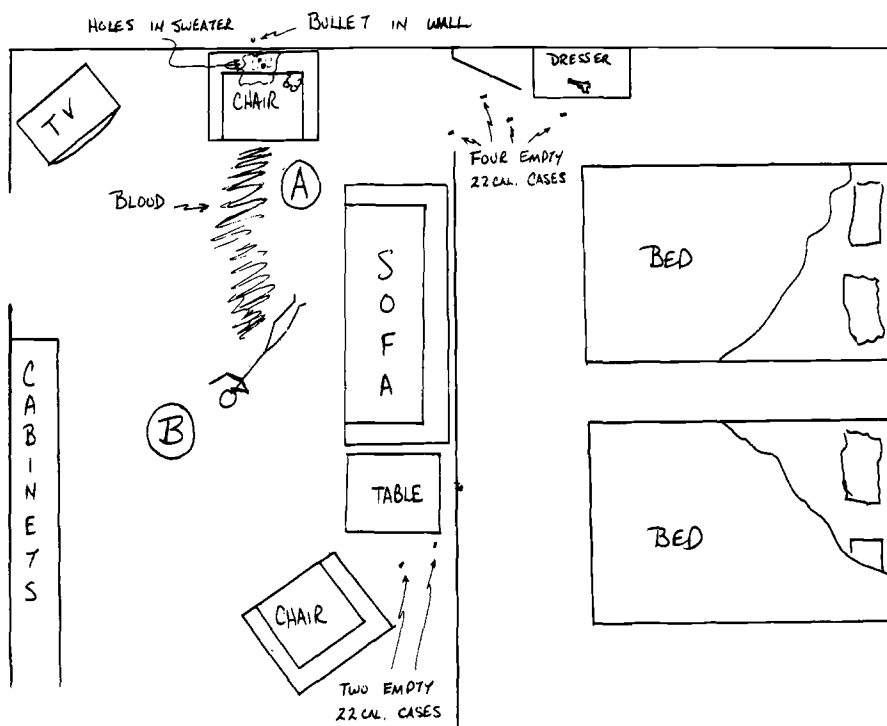


FIG. 3—Drawing of the scene (Case 1).

### Discussion

The facts did not support the statement of the defendant. Instead of a shooting in self-defense, the findings are most consistent with the first four shots being fired at her sleeping husband who was lying sideways in the chair where he had fallen asleep watching the television to his right (Fig. 3). This is substantiated by the four empty cases found to the decedent's left (to the shooter's right) in the doorway to the bedroom, the path of the bullets downward and to the right, and the bullet that passed through his neck and through the sweater on top of the chair and came to rest in the wall just above the chair.

Most importantly, the collision between one of the two bullets that followed a parallel path down the right side of the back and one of the four bullets that entered the right shoulder area indicated that the shot in the hand came after the previous four shots in the left shoulder.

The location of the two empty cases in the living room to the left and in front of the decedent and the pool of blood on the floor where the decedent was found are most consistent with the last two shots being fired downward from in front of the decedent's inclined, almost prone, body.

It is of interest to note that one of the first four shots (Shot 3) entering the left shoulder area embedded itself in the spinal column at T4 and may have caused lower-extremity paralysis. The fatal shot was the one through the neck causing hemorrhage into the trachea. Therefore, the decedent was probably lying in a pool of blood on the floor gurgling pleas of help when the wife fired the last two shots from above the inclined right shoulder down through the outstretched "defending" hand.

The defendant was tried and convicted of murder.

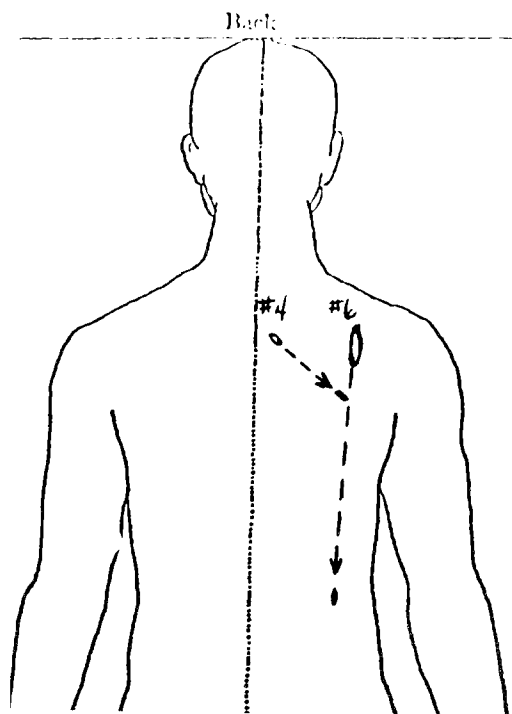


FIG. 4—Two missile paths that form a Y (Case 1).

## Case 2

### History

A man was allegedly shot by "a friend" during an argument. The two 12-gauge shotgun blasts were allegedly fired in self-defense. The victim was dead on arrival at a nearby hospital.

### General Autopsy Findings

Autopsy revealed two distant shotgun wounds. The skin wound and clothing showed that the wound in the left back was more distant, with pellet holes scattered in a 7- by 12-cm oval around a 3.5- by 6.0-cm hole in the lateral left back. The shot in the body and the skin wound showed an upward path to the right. There was no soot or powder burns (tattooing, stippling) visible around either shotgun wound. The shotgun wound of the abdomen entered 2 cm below the umbilicus. The wound was slightly oval, measuring 4 by 4.5 cm and having an irregular margin with three individual pellet holes. The path was slightly upward, to the left, and to the rear with many of the pellets being found just under the skin near the entrance wound of the back. They produced a relatively dense pattern medial and superior to the entrance wound of the back.

The plastic wadding from the blast to the abdomen was also found just under the skin of the back. There was abundant, intact, firm tissue between the location of the wadding and the shot from the abdominal wound and the location of the entrance wound in the back. The plastic wadding from the shotgun wound of the back was found in the anterior

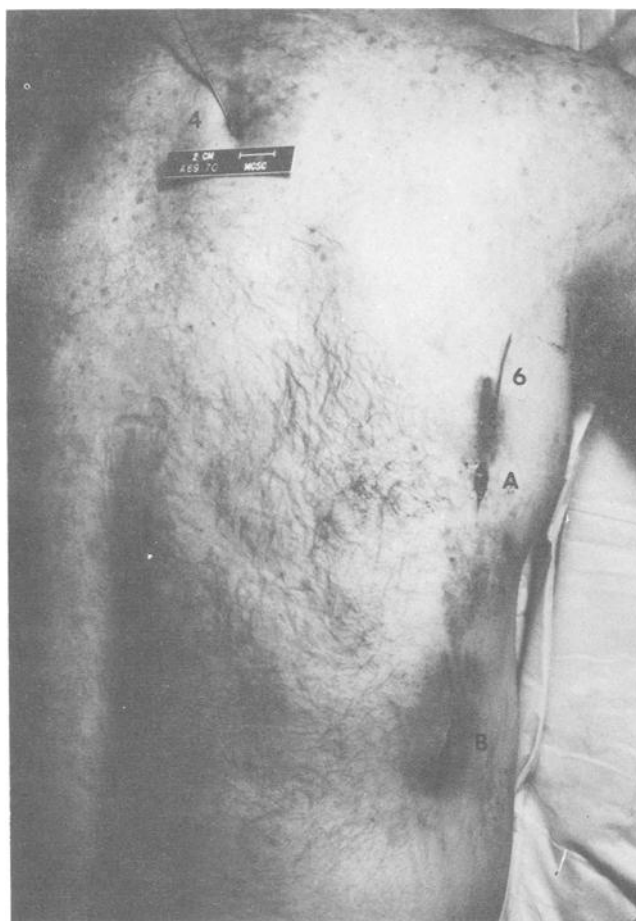


FIG. 5—Note the Y-shaped missile paths. Skin incisions were made at A and B to examine the bullets (Case 1).



FIG. 6—Bullet 4 showing scoop-shaped deformity of its nose (Case 1).

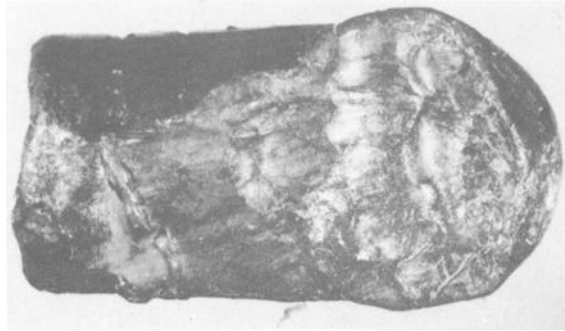


FIG. 7—Bullet 6 showing "ripple" deformity of its nose and side (Case 1).



FIG. 8—Wad containing embedded shot (Case 2).

abdomen with the shot from that blast. Its position was adjacent to the start of the missile tract caused by the abdominal blast.

There was marked destruction of tissue in the left lower abdomen, including large and small intestine and psoas muscle. There were perforating wounds of the aorta and left kidney.

#### *Unique Finding at Autopsy*

When the plastic wadding was removed from the anterior abdomen (from the blast in the back), it was noted that a single pellet had penetrated its base and was lodged in the wadding (Fig. 8).

#### *Discussion*

The autopsy findings clearly, in the opinion of the authors, indicated which plastic wadding came from each blast (front and back). Therefore, it was concluded that the

shotgun blast of the back preceded the shotgun blast to the abdomen since a pellet from the abdominal blast struck and became embedded in the base of the wadding from the blast to the back.

It is our opinion that a plastic wadding entering the body is traveling too slowly, especially relative to the shot, to impale itself on a shot from its own load after first tumbling to allow the pellet to enter the wad's base. Therefore, the only logical conclusion is that listed above.

The defendant was tried and convicted of murder.

### **Summary**

This article presents two cases where the sequence of gunshot fire was determined because sequential missiles collided in the body.

### **Acknowledgment**

Special credit is due Mr. James Nicholson for assistance with the photographic materials and to Mrs. Paula Hardwick and Ms. Gwendolyn Bobo for preparation of the manuscript.

### **Reference**

[1] Spitz, W. U. and Fisher, R. S., *Medicolegal Investigation of Death*, Charles C Thomas, Springfield, Ill., 1973.

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