A rare case of death showing multiple gunshot wounds inflicted by a single slug-type bullet

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Abstract: We experienced a rare case with multiple gunshot entrance wounds due to a single bullet. A 60-year-old male hunter was accidentally shot by another hunter with a hunting shotgun from a long distance (about 70 m). The external examination showed two entrance wounds on his left knee and left lower fore chest, in spite of a single gunshot. By the autopsy, the extensive injuries to his organs such as the stomach, liver and lung were observed. The responsible bullet was found just inside the right dorsal skin. By detailed consideration, we could estimate the pathway of the bullet involved; when the left knee and left hip joints were strongly flexed, the injuries together with the location of the slug bullet could be almost in a single line. The present multiple gunshot wounds by a single heavy slug-type bullet from a long distance seems to be very unique and of forensic interest.

Key Words: gunshot wound, single bullet-two entrances, long distant gunshot, shotgun using, slug-type bullet, accidental death.

T he injuries inflicted by firearms show various findings, depending on the muzzle velocity, the distance between a firearm, a target victim, the part of the body involved [1, 2] and the kind of a bullet.

In this communication, we report a rare case of accidental death due to gunshot wounds by hunting shotgun, in which multiple entrance wounds on the victim’s body inflicted by a single slug-type bullet were observed. Although somewhat similar cases with handguns and rifles have been reported in the literature [1-4], the number of the reports is very limited. In addition, the locations of the multiple wounds on the skin inflicted by a single bullet, and the types of weapons were at great variance. In this care report, we present a rare case, in which a single slug-type bullet discharged from a hunting shotgun inflicted multiple skin wounds.

CASE HISTORY

A 60-year-old male participated in group hunting of deer in a mountain in Shizuoka Prefecture; more than 20 hunters joined the hunting and chased deer together, each carrying the hunting shotgun. One hunter noticed something moving in a bush; the distance between him and the bush was about 70 m. It was inside hunting area where humans seemed not to exist. Suddenly, he fired his hunting shotgun into it. Then, the victim collapsed immediately, screaming that he was shot by gun with a wireless transceiver. The responsible hunter realized that he had shot another hunter by mistake, and ran to the victim still alive lying on the ground with bleeding. He immediately call an ambulance by a cellular phone. Because the accident took place in a deep area of a
Hasegawa K. et al. A rare case of death showing multiple gunshot wounds inflicted by a single slug-type bullet

When the emergency team contacted the victim, he already showed no responses to the stimuli. The emergency team quickly picked him up to get on the helicopter, and took him to a general hospital, where he received intensive medical care including operative open-chest cardiac massages, blood transfusion and intravenous drip infusion of large volume of solution. Despite of the efforts of the medical team, he could not be revived and was announced dead about 1.5 h after admission. A judicial autopsy was performed at Hamamatsu University School of Medicine about 36 h after his death, under suspicion of professional negligence resulting in death against the hunter who shot the victim.

**Autopsy findings**

The male victim was 169 cm high and weighed 65 kg. Postmortem rigidity was relatively strong at all joints. Relatively weak lividity was found on his back because of exsanguination. There were a lacerated entrance wound (about 7.0 × 7.0 cm area) on the lateral side of the left knee, and a lacerated exit wound on the medial side of the left knee (Fig. 1.) accompanied by hemorrhage, but neither powder tattooing nor burns was observed around these wounds. There was the second entrance wound (about 5.0 × 5.0 cm diameter, hole-shaped) without powder tattooing or burns on the left lower chest area (Fig. 1.); no corresponding exit wound was observed. On his back, at the right dorsal area, thumb head-sized something hard object was palpable, accompanied by marked swelling and discoloration of skin. The conjunctivae of both eyelids were ischemic. As an other prominent finding on his body, character T shaped operational scar across the right lower part of the chest and abdomen due to an open-chest cardiac massages was present (Fig. 1).

In addition to the above injuries, there were many small abrasions and scars on the various parts of the skin, which did not influence the cause of his death. As internal findings, according to the above left lower chest entrance wound, there were complicated and extensive injuries at many visceral organs including the liver, stomach, diaphragm, and lung, accompanied by remarkable hemorrhages. The anterior and posterior walls of the stomach were ruptured, each showing hole shaped perforations. There were extensive and severe lacerations across the left and right lobes of the liver, which were consistent with injuries by a projectile. A soybean-sized hole shaped laceration was observed at the right diaphragm, which seemed to be connected to the liver injuries. Lacerated perforation (about 2.0 × 2.0 cm) was found at the lower lobe of the right lung, connecting to the diaphragm injury. There was laceration (about 2.0 × 2.0 cm) at the posterior wall of the right thorax, which

**Figure 1.** Outlook of whole body of the male victim. Entrance and exit wounds on the lateral and medial sides of the left knee (B), respectively, and a re-entry wound on the left lower chest area (A).
was situated at an intercostal area (the 5th to 6th ribs). According to the above external finding on his back with swelling and discoloration, we could find a metal slug-type bullet (about 2.0 cm diameter, Fig. 3.) together with haematoma at surrounding soft tissues under the right back skin.

Many ribs had been amputated extensively across the both thoraces for an operative open-chest cardiac massages. About 130 and 70 mL of clotted and liquid blood were found in right and left thoracic cavities, respectively. Only a small amount of blood was present inside the heart, and almost all organs were ischemic. Except the above injuries, neither injuries nor pathological findings were observed for this victim.

**DISCUSSION**

In this communication, we presented a rare case of accidental death due to gunshot wounds by hunting shotgun, in which multiple injuries inside and wounds outside of the victim body inflicted by a single slug-type bullet were observed. Basically, the number of bullet targeted on the victim's body can be estimated by the number of entrance wounds. However, although not frequently, a single bullet may result in multiple entrance wounds on various part of the body [1-4]. The previous reports dealt with multiple entrance wounds at the upper extremity and the chest [2], the chest only [1], the lower extremity, upper extremity and the abdomen [3], and the upper extremity and the face [4] inflicted by a single bullet respectively.

Initially, in this case, it appeared that multiple injuries at the victim were due to at least two shots that hit at different sites on the body, because the two entrance wounds in this case seemed quite independently each other. However, according to the investigation of police and witness involved, only a single shot was fired by the responsible hunter exactly. The multiple entrance wounds by a single bullet can be explained by two possibilities; one is due to the posture of the victim [3, 4], and the other is due to the fragmentation of a bullet into a jacket and a core [1, 2]. In the present case, the slug-type bullet was not coated by a jacket; the jacket and core possibility could be excluded. Therefore, we had to consider the posture possibility. The victim, most probably had hidden crouching down among a bush just before being shot. In fact, by careful examination of the direction of the wounds, and by keeping the body in a posture with left knee strongly flexed in front of the trunk, we could place all entrance and exit wounds of the victim in a single line as the pathway for the projectile of shotgun (Fig. 2). Thus, we could explain the mechanism of the single bullet resulting in multiple entrance and exit wounds in this case. It was estimated that bullet first hit the left knee and come out from its medial part, then finally hit the left lower chest. Such cases with a single shot and multiple entrance wounds typically happen with a close distance shot [4] by handgun. Therefore, the incidence of such a case with long distance shot by shotgun seems to be very low.

**CONCLUSION**

We experienced a rare case of multiple gunshot entrance wounds due to a single bullet. By detailed investigation and correlating the wounds at autopsy, we could determine the pathway of the bullet involved and conclude that the single bullet resulted in multiple wounds in this case.

In addition to the investigation of law enforcement, careful examination, and detailed findings at autopsy are very important to solve the exact sequence of the event, especially for such a complicated and confusing case as presented here. Although somewhat similar cases have been published, our report on multiple gunshot wounds by a single heavy slug-type bullet from a long distance seems to be very unique and of interest for forensic pathologists.
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References