

Death Due to Accidentally Self-inflicted Gunshot Wound

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A 37-year-old man, with the entrance gunshot wound on the front of the right leg several cm above the knee, was found dead at home in his bed. No other lesions were observed except a contusion ring around the wound that spread downward and to the right. On autopsy, the wound path was followed upward from the entrance wound (0.7 cm in diameter). The bullet went through the medial aspect of the quadriceps and adductor muscles and continued upward, adjacently to the internal iliac artery, perforating the pelvic floor and the median lobe of the prostate. It passed by the left kidney, injuring its fatty capsule, then went through the mesentery near the left segment of the transverse and descending colon, and entered the thoracic cavity through the diaphragm, injuring the posterior wall of the pericardium and the posterior wall of the left ventricle at the level of the first left rib. The bullet was found in the apex of the left lung. Death was caused by cardiac tamponade.

Key words: *autopsy; cardiac tamponade; forensic medicine; wounds, gunshot; wounds, penetrating*

Event Description

A 37-year-old man was found dead lying on the bed, with his feet on the floor. His partner said she had found him suffocating in his own vomitus. She had noticed traces of blood and a 0.5-cm hole on the right leg of his trousers, several centimeters above the bloodstain. A few minutes later, he lost consciousness and stopped breathing.

Resuscitation attempt by an ambulance physician failed. Before the ambulance arrived, the woman had hid the gun she had found on the floor near the man's right leg.

Autopsy Finding

Physical examination of the body revealed marks of defibrillation on the anterior aspect of the thorax. The right iris was slightly wider than the left one, whereas the conjunctivae were intensely injected. On the anterior medial part of the right thigh, several cm above the knee and 48 cm from the right heel, a round entrance wound of 0.7 cm in diameter was found, surrounded by a 0.5 cm contusion ring that spread down and to the right (Fig. 1). There was no other lesion or exit wound.

The aim of the autopsy was to locate the bullet in the body. We began the *post mortem* examination at the entrance wound and followed the wound canal. The hemorrhage in the muscular tissue indicated that the bullet had went upward through the medial aspect of the quadriceps and adductor muscles and continued to travel adjacent to the internal iliac artery, causing damage to the pelvis floor and penetrating

the median lobe of the prostate. The bullet then passed close to the left kidney, injuring its perirenal fatty capsule (Fig. 2) but causing no lesion to the renal parenchyma; and then through the mesentery, near the left segment of the transverse and descending colon (Fig. 3). It went through the diaphragm into thoracic cavity, causing a 0.7 cm lesion to the posterior wall of the pericardium and of the left ventricle. The initial segment of the ascending aorta was also involved. The last lesion was found behind the first left rib, and the bullet was found in the apex of the left lung. The cause of death was cardiac tamponade, as almost 300 mL of liquid blood was found in the pericardium (Fig. 4). Autopsy finding also included agonal tracheal aspiration of the stomach content. Blood analysis showed 1.5 g/L of alcohol.

Event Reconstruction

During the police inquiry, the woman admitted that her partner had possessed a gun without license for the last two years, which was the reason why she hid the gun and two rifles (he had license for the latter since he was a licensed hunter). At the moment of shooting, she and her two daughters were the only persons in the house. There were no witnesses to confirm her story. Therefore, the police investigators suspected her to be involved in the shooting. Silicone imprints were obtained of her and her elder daughter's hands (the younger daughter was sleeping throughout the night). Also, microtraces were collected from the floor around the spot indicated by the woman as the site where she had found the gun. Bal-

Ballistics experts examined the gun and the bullet found on autopsy in the body.

Ballistics Expertise

Ballistics expertise was performed at the Center for Criminalistic Expertise of the Ministry of Interior in Zagreb, where the incriminated gun, 9-mm Luger M-80 D, was sent for examination together with the clip, ammunition, a shell from the gun barrel, silicone casts of the hands of the dead man’s common-law wife and her elderly daughter, and jeans taken off from the dead man.

Visual inspection of the gun before and after disassembling revealed it to be in firing condition, as verified by test shooting of appropriate ammunition. Ballistic analysis of the shell found at the scene and a test shell under comparative microscope at x35 magnification indicated that, according to all its characteristics, the shell from the scene must have been fired from the gun of the dead man. Inspection of the deformed bullet from the body and test bullets under comparative microscope at the same magnification showed that, based on the general and individual characteristics of the gun barrel tracking, the deformed bullet must have been fired through the barrel of that gun. The presence of unburned and partially burned gunpowder particles was confirmed on the dead man’s jeans. The distribution and concentration

of these particles indicated the bullet must have been fired from a distance of 30-40 cm, corresponding to the distance between the gun muzzle and entry wound. The detection of powder particles on the floor around the spot indicated by the woman, and negative silicone hand imprints taken from the woman, her elder daughter, and the deceased, confirmed the dead man wife’s story.

The police investigation concluded that it was an accident death due to the 9-mm Luger Parabellum gun semiautomatic firing. The Luger is one of the most popular firearms of the 20th century (<http://www.lugerforum.com/history.html>). The German, Swiss, and other armies used it as a standard sidearm for nearly half a century. It can be easily recognized by its distinctive toggle lock and sleek lines. The Luger is a fairly complicated pistol, requiring quite a bit of precision hand-fitting to manufacture and tight tolerances between parts. Even a little dirt on the exposed parts of the firing mechanism on the left side can cause failure to function. This pistol was designed to feed only round-nosed bullets, and hollow-points almost certainly cause problems (1).

The reconstruction of the accident suggested that the man had probably dropped the gun, which hit the floor from some 50 cm height and fired accidentally. The bullet entered the body at the right leg above the knee and passed through the abdominal cavity to the heart, causing death. The man was drunk and incapable of handling the gun safely. Automatic firing was



Figure 1. Entrance wound on the right leg, partially surrounded with contact ring.



Figure 3. Mesenteric hemorrhage.



Figure 2. Destroyed fatty capsule of the left kidney.

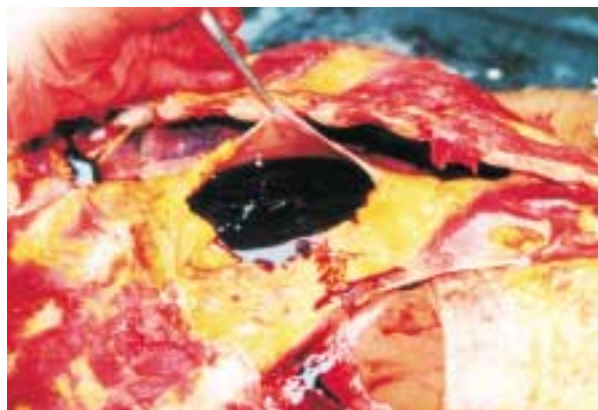


Figure 4. Cardiac tamponade.

verified by finding of the shell that stuck in the gun barrel.

Discussion

This case proved to be highly complicated from the very beginning because of a suspected murder. There were no witnesses to the event itself; the wife found the dead body of her husband and also hid the gun. Interdisciplinary analysis of all elements revealed by the investigation, including the powder particles on the floor where the gun fell down, suggested that the gun must have fired when it hit the floor. The man had probably dropped it. The firing condition of the gun supported the fact that the gun safety must have been set off.

The dead man was a veteran of 1991-1995 war in Croatia. His medical records revealed that he had suffered from post-traumatic stress disorder, which had not been treated, and that he started to drink after the war. He did not exhibit any other mental disorder or suicidal behavior. When sober, he lived a harmonious life with his partner and her two daughters. However, ever since he returned from the war, he has slept with the gun under his pillow.

This accident is just one among many caused by illegal possession of firearms, which is quite common in Croatia after the war.

The widespread violence all over the world results in steady increase in the incidence of gunshot injuries, especially in peacetime (2). According to Milroy et al (3) one person in the United Kingdom dies from accidental gunshot injury each year. Home gun keeping is always associated with potential hazards, and fatal or nonfatal accidental firing is more likely to occur (4).

In Croatia, unfortunately, the rate of the incidents associated with violence has been increasing, especially after the war (5-7). Most firearms have been brought from the battlefield. Although the Croatian government has passed a number of acts on the return of weapons, the problem is far from being settled.

In conclusion, the national program for prevention and control of the small arms accidents should take into consideration both collective issues (in-

crease in criminal activity, expansion of drug trafficking, social problems, increase of organized crime) and personal issues (evaluation of national programs for Croatian war veterans, relationship and interaction of young people with their families, schools, and social environment) (8).

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Received: January 9, 2001

Accepted: May 24, 2001

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