A CASE OF HOMICIDE WITH A BLANK PISTOL

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Abstract

Blank handguns are specially designed guns that, like true firearms, can produce a bright flash and a loud explosive sound, but they do not propel any projectiles. Although they are considered harmless by the general public, there are reports of serious injuries and even lethal outcomes. We present a homicide case with an unmodified blank pistol as an assault weapon. Two wounds were located on the upper left thigh, one of which involved the femoral artery and vein, resulting in death by blood loss. While the wounds did not resemble typical firearm entry morphology, in-depth gunpowder particles were present. Even without modification, blank handguns possess the potential to inflict fatal injuries and serve as an effective assault weapon. The wide variety of injuries they produce can cause inaccurate identification of the weapon used by an unprepared medical specialist, thereby hindering the investigation.

Key words: *atypical gunshot wound, blank pistol, blank cartridge, homicide*

Introduction

Blank handguns are specifically designed firearms that are capable of discharging blank cartridges. These cartridges generate a bright flash and a loud explosive sound similar to live ammunition, but they do not propel any projectile. These firearms are frequently utilised in training, film and theatre productions, as well as by law enforcement agencies for simulation exercises. Due to being considered relatively harmless, blank handguns are quite easy to acquire. According to Bulgarian law, blank guns are not classified as actual firearms. As a result, any individual over the age of 18 in the country is permitted to purchase a blank handgun. Despite that, literature data shows, that if activated at a close or contact range blank guns can be harmful, causing a variety of injuries and even lethal [1-8] . The flash from the muzzle can cause burns, while the gases released under pressure against the soft tissues can act similar to blunt objects causing for abrasions, bruising, lacerations and even fractures to appear [1, 9, 10].

Case presentation

A 50-year-old man was shot by his partner. At the crime scene, a blank pistol Ekol Special-99, 9mm calibre was found along with a pack of blank ammunition designed for the same type of handgun. After examination of the pistol, ballistic experts concluded that it was unmodified. During the autopsy, several injuries were found. Two of the injuries were located on the upper third of the left thigh, measured around 3.5cm each and closely resembled wounds caused by a sharp object (Fig.1). The shapes of the two wounds were slit-like with relatively smooth, non-abraded margins. There was no tissue missing.

Figure 1 Two wounds on the left thigh

Both wounds were investigated layer-by-layer in depth. The wound located in the medial surface of the upper left thigh had a depth of 7.5cm. The skin was separated from the underlying muscle fascia in a diameter of 5cm around the entry wound with a deposition of unburnt gunpowder particles present (Fig.2). The wound located on the anterior surface of the upper left thigh had a depth of 5cm and involved major blood vessels. A laceration was present on the left femoral artery with a diameter of 0.8cm (Fig.3). The femoral vein was lacerated on the same level as well. Similar to the first wound, gunpowder particles could be observed in depth as well. No exit wounds were present. The cause of death was determined to be severe bloodloss. The two wounds on the left thigh were produced through two layers of clothing. Upon closer examination textile defects were found. The textile defects had no material missing and the margins appeared to be slightly burned.

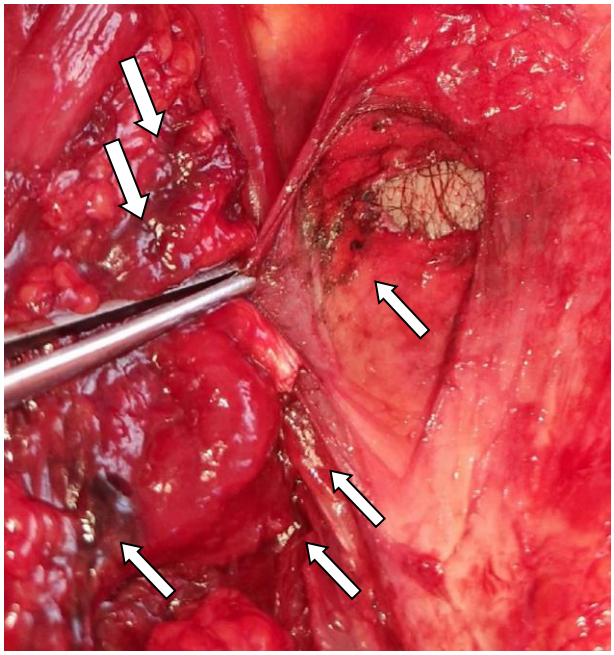

Figure 2 Gunpowder particles deposition in depth

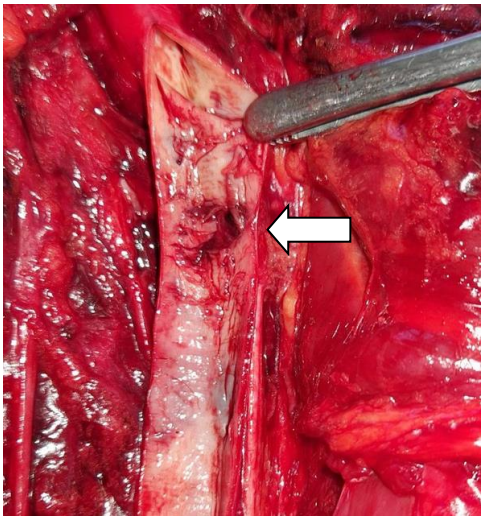

Figure 3 Laceration of the left femoral artery

Aside from the previously discussed wounds on the left thigh, two more injuries were found. In the area of the lower half of the sternum a dark, almost black burnt area was present, with the hairs being completely singed off (Fig.4). Around the burn a bruised area could be seen. Upon internal investigation, there bruising was found in the underlying tissues, with no fractures to the bone structures in the area. A similar burn was found on the back of the victim but with no underlying bruising. The two burns were produced through three layers of relatively thin clothing with defects similar to the ones found on the left thigh area.

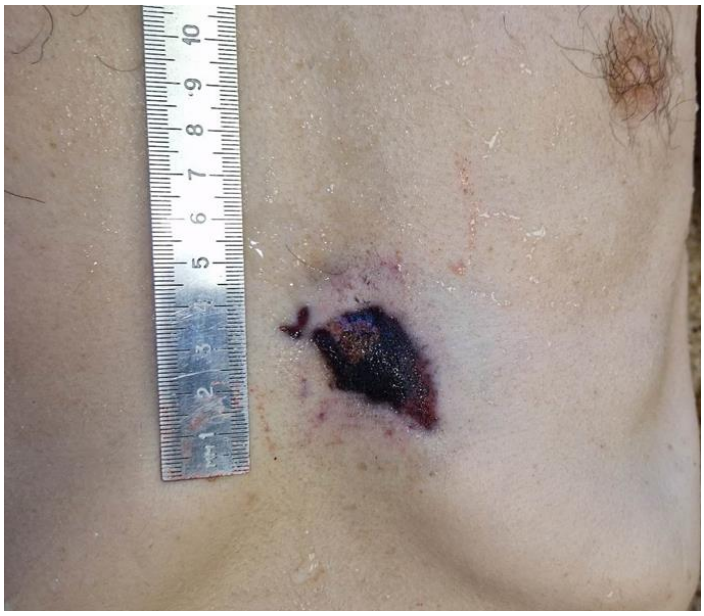

Figure 4 Chest injury

Discussion

Despite public opinion, it is important to recognize that a blank handgun is a dangerous weapon that has the potential to cause life-threatening and even lethal injuries when discharged at a close or contact range. Blank cartridge firearms demonstrate the characteristics of a missile when fired at close range. It can cause destruction of the skin and underlying structures including bones. This ammunition is available in several loads and calibre sizes. Ignition of a 9-mm load for revolver, for example, will lead to expansion of a pressure wave at 1200 to 1500 m/s, creating a gas volume of 950 mL/g for nitrocellulose and 280 mL/g for black powder. The explosion leads to a pressure of 100 to 200 bars at the muzzle of the handgun. For a barrel length of 105 mm, a 9-mm load can create a pressure of approximately 5, 3, and 1 bar at a distance of 3, 5, and 10 cm, respectively. The power density in such a case may be equivalent to 0.75, 0.27, and 0.1 J/mm^2 at 0, 5, and 10 mm. A projectile has a theoretical capacity to penetrate human skin at minimum value of 0.1 J/mm^2 [5]. Studies using composite models to fire 9-mm blank cartridges at contact range show that on average the gas penetrates about 4 cm in depth, which correlates with our findings [11] . In contact range the gasses expanding underneath the skin are likely to leave a muzzle imprint, a star-like wound and even a central defect of missing tissue, similar to shots produced by a true firearm at the same range. Most of the case reports in literature about wounds produced by blank guns report such injuries [1, 3, 8, 10], while in the case presented the wounds examined closely resembled sharp force trauma more than typical firearm injury. A common occurrence seems to be the lack of exit wounds in cases of blank gun injury which correlates with our findings. The variability of the appearance of the injuries poses a challenge to clinical and forensic experts in distinguishing them from other types of injuries, which could lead to hindering the investigation.

Conclusion

Blank handguns have the capacity to cause fatal injuries and be used as an assault weapon even without modification. The wide variety of the appearance of injuries produced by them can cause for an inaccurate identification of the weapon used by an unprepared medical specialist and thus hinder the investigation.

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