SUICIDE BYAK - 47. CASE REPORT AND REVIEW OF THE LITERATURE

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Abstract

Suicide is a very frequent cause of death, accounting for about 1% of all deaths worldwide ranking in top ten causes in OECD countries. Most gunshot suicides are done using a pistol, although in some particular circumstances shotgun-related suicides are more frequent. Suicide associated with multiple gunshot wounds are very rare in forensic practice; their identification raises significant suspicion regarding the participation of another person and not rarely these instances are latter on confirmed to be homicides. When the victim uses an automatic weapon - pulling the trigger causes more than one bullet to emerge. The purpose of this article is to present four cases of such suicides, determined by gunshot wounds caused by a Kalashnikov rifle, which occurred in Yemen between 2001 and 2007.

Keywords: atypical suicide; suicide, suicide using AK-47, multiple gunshot wounds

Introduction

Suicide is a very frequent cause of death, accounting for about 1% of all deaths worldwide,[1], and ranking in top ten causes in OECD countries[2]. About one million people die worldwide due to suicide and ten million suicides attempts are recorded yearly[3]. Causes of death in suicides are highly variable[4-21]; for example in Romania the most frequent cause of death in suicides is hanging, followed by drug poisoning[22-24]; in US and Canada the most frequent cause are gunshot wounds[1], whilst in Sweden, a recent study analyzing the causes of death in suicide has identified the following frequencies: hanging in 38% of cases, injury by firearms in 18%, poisoning by licit drugs other than alcohol in 13%, ethanol and other licit drugs in 6%, exhausts into the car cabin by a hose in 6%, been seen jumping into water in 4%, submerged using a weight tied to the body in three, injury by explosives in 2%, jumping/fall from a height in 2%, and other (including exhausts in a closed garage, hypothermia, combustion) in 8%[25].

In suicides caused by gunshot wounds the crime weapon is usually found near the cadaver, at the scene and sometimes in the hand of the victim (due to the cadaveric spasm phenomenon). Most gunshot suicides are done using a pistol[26], although in some particular circumstances shotgun-related suicides are more frequent[1]. The position of the entrance wound is dependent upon the type of gun. For example Balci et al, comparing the location of entrance wound in short-barreled versus long-barreled weapons has proven that short-barreled gun-related suicides are more often
Suicide associated with head entrance wounds (30 cases, most likely location being right temporal; all other location only accounted for five cases), whilst long-barreled gun-related suicides have a more variable location of the entrance wound (from 37 cases in 13 the entrance wound was located in the head area, with only two cases with a location in the right temporal area, five in right eye, one on the right back of the year, two in the forehead and three in the face; eleven were located in the neck area, nine in the chest and six in the abdomen)[26].

Suicide associated with multiple gunshot wounds are very rare in forensic practice; their identification raises significant suspicion regarding the participation of another person and not rarely these instances are latter on confirmed to be homicides. The presence of multiple gunshot wounds associated with a suicide can happen in three main instances:

1. Trial attempts – the victim tries to kill him/herself but is either inexperienced with the gun or due to the stress misses to shoot into a vital area
2. When the victim is not rendered unconscious by the shoot and therefore is able to shoot again. In order for this instance to be admissible in court the forensic pathologist must prove that the initial shoot reached an area known to be associated with delayed incapacitation. According to Hejna et al, areas associated with delayed incapacitation are major blood vessels, major organs (lung, liver, spleen, and kidney)[27]; a gunshot in these areas may allow the victim to remain conscious enough time to try another discharge. If the first gunshot reaches areas like certain CNS centres (upper cervical spinal cord, brainstem, cerebellum, diencephalon, midbrain, motor cortex), heart, thoracic aorta and pulmonary artery[27]. Proving the first gunshot wound hit one of these areas removes the possibility for the victim to further discharge other shots.
3. When the victim uses an automatic weapon - pulling the trigger causes more than one bullet to emerge. The purpose of this article is to present four cases of such suicides, determined by gunshot wounds caused by a Kalashnikov rifle. AK-47 (also known as AK, Avtomat Kalashnikova, Kalashnikov, Kalash) is a selective fire, gas operated 7.62mm assault rifle, designed by Mikhail Kalashnikov in the 1940s in the Soviet Union. The AK-47 fires a 7.62x39mm cartridge which leads to significant wounding (including remote wounding effects known as hydrostatic shock) and is one of the most widely used assault weapons in the world, especially in the East-European and Arab countries. The cases presented in this article were obtained from Yemen, between 2001 and 2007. In Yemen there are about five million firearms owned by ordinary people and firearm injuries are the second most common cause of violent death (after traffic accidents)[28].
Cases Report

Case No. 1

A 19 years old male, while visiting one of his friends took the firearm and shot himself. Forensic examination has identified an entrance wound in the left inguinal area, signs of close contact shot (gunpowder residue and textile fragments on wound’s edges) (Figure 1), two exit wounds in the right gluteal region (Figure 2), and a small abrasion centering an oval shaped bruise on the fourth finger of the right hand, on the inner side of the proximal and intermediate phalanges. Death was due to massive external hemorrhage.

![Figure 1. Entrance wound on the left inguinal area.](image1)

![Figure 2. Two exit wounds on the right gluteal area.](image2)

Case No. 2

A 22 year old female shot herself with her father’s Kalshnikov, and died less than an hour later in the ambulance. Forensic examination has identified a single entrance wound in the right axillary region (Figure 3), of 4/3/1 centimeters, an exit wound in the right shoulder, in the suprascapular area (Figure 4), and a superficial abrasion on the fourth finger of the right hand, on the inner side of the proximal and intermediate phalanges.

![Figure 3. Entrance wound in the right axillary region.](image3)

![Figure 4. Exit wound in the right shoulder.](image4)
Death was caused by massive external hemorrhage.

![Figure 3. Entrance wound in the right axillary region.](image)

![Figure 4. Exit wound, in the right shoulder, in the suprascapular area.](image)

Case No.3

A 21 year old male was found dead at home, with a Kalashnikov and three empty cases less than half a meter from him. Forensic examination has revealed an entrance wound in the right hypochondrium six centimeters from the middle anterior line, left hypochondrium, on the spleen projection area, and on the left supraclavicular area (Figure 5). Exit wounds were identified in the lateral right abdominal area, left subscapular (Figure 6), and left axillary regions.

Death was caused by massive external and internal hemorrhage.
Figure 5. Entrance wounds in the right hypochondrium six centimeters from the middle anterior line, left hypochondrium, on the spleen projection area, and on the left supraclavicular area.

Figure 6. Exit wounds in the lateral right abdominal area, and left subscapular region.

Case No.4

A 17 year old, recently married female was found dead in her new husband’s home. Forensic examination has identified an entrance wound right superior hypochondrium (Figure 7), 3 cm from the midline, backspotter on her left hand, and exit wound on the left lumbar area, 4.5 cm from the midline (Figure 8).

Death was caused by massive external and internal hemorrhage.
Discussions

Yemen is a country from the Arabian Peninsula with a population of over 18 million, 76% of which are living in rural areas and many still have a tribal organization. Weapons are considered an essential accessory for any Yemeni person but it is said to be more linked to heritage, tradition and norm than to killing[29]. A study conducted in Yemen in 2001 has identified a total number of 7,291,597 weapons in Yemen, of which 5,577,597 belonged to tribesmen, 184,000 to sheikhs, 30000 were in markets, 1,500,000 to the state.[30]. AK-47 are extremely popular, especially due to a combination between power and a reduced price – a vintage Russian AK-47 costs about 55000 Riyals (roughly 325 $), an AK-47 with folding stock costs about 30000 Riyals (177$), and a Chinese AK about 18000 Riyals (about 106$).

The type of gunshot suicide is highly dependent upon the availability of a certain type of firearm in a specific place.
For example in the most countries pistol-related suicides are the most prevalent, as they are the most frequent firearms; if the firearms control is very strict one can notice an increase in the use of rifles as suicide tools, as was the case with the study conducted by Avis in Canada[1]. In Yemen, due to a high availability of AK-47s the prevalence of both homicide and suicides associated with this firearm are increased.

First particularity of our cases is the location of the entry and exit wounds – they are usually not characteristic for firearm related suicide (entry wounds in the left inguinal area in case 1, right axillary region in case 2, abdomen in case 3 and 4). The main reason for this is the long barrel of the AK-47 (the barrel is 41.5 cm, the total length of the weapon in 87 cm, see Table 1). Therefore normal site for suicide-related gunshot wounds (especially head area) are less accessible. This hypothesis is confirmed by the study conducted by Balci, presented in the Introduction section[26].

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Detail</th>
</tr>
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<tbody>
<tr>
<td>Original design</td>
<td>1944 - 1946</td>
</tr>
<tr>
<td>Weight</td>
<td>4.3 kg (fixed wooded stock)</td>
</tr>
<tr>
<td>Length</td>
<td>870 mm with fixed wooded stock</td>
</tr>
<tr>
<td></td>
<td>875 mm with folding stock extended</td>
</tr>
<tr>
<td></td>
<td>645 mm with the stock folded</td>
</tr>
<tr>
<td>Barrel length</td>
<td>415 mm</td>
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<tr>
<td>Cartridge</td>
<td>7.63 mm</td>
</tr>
<tr>
<td>Cartridge cost (in Yemen)</td>
<td>Good quality 30 Riyals</td>
</tr>
<tr>
<td></td>
<td>Poor quality 20 Riyals</td>
</tr>
<tr>
<td>Action</td>
<td>Gas operated, rotating bolt</td>
</tr>
<tr>
<td>Rate of fire</td>
<td>600/min</td>
</tr>
<tr>
<td>Muzzle velocity</td>
<td>715 mm/sec</td>
</tr>
<tr>
<td>Effective range</td>
<td>300 mm</td>
</tr>
<tr>
<td>Feed system</td>
<td>20 or 30 detachable boxes</td>
</tr>
</tbody>
</table>

Table 1. Main characteristics of the AK-47[31, 32]

Firearms injuries are usually classified as either entrance (entry, in-shot wounds), and exit wounds. An entry wound is identified by the presence of inverted edges, the presence of a dirty ring, abrasion collar and discharge residue (secondary and tertiary shooting factors). The entry wound is further classifiable according to the distance from which the shooting took place in: contact wound (associated with cavitation of the subcutaneous tissue, and charred, cleaved edges), near-contact wound (the shooting took place a few cm from the skin, in which the wound is surrounded by smoke fouling and tattooing), intermediate range wounds (when the distance between skin and muzzle is about 30-90 cm) and distant wounds, when the distance between the muzzle and the skin is above 90 cm). The exit wound is optional (the bullet can remain inside the body), and is characterized by wide, everted wounds, with irregular edges and often larger than
the entry wound (in its pathway the bullet may determine the dislocation of bony fragments which, if exteriorized throughout the exit wound have a tendency to enlarge it)[33]. When the shooting is done using military weapons (including automatic rifles) the exit wound is more often found than in cases in which a small caliber weapon is used.

An internal autopsy has not been performed in these cases (it is not mandatory in these circumstance in Yemen). Therefore a detailed characterization of the wound canal was not conducted. However the canal is often very long (e.g. in case 1 it went from the left inguinal area to the right gluteal area); the increased length of the canal is caused by the high velocity of the bullet and has as a main consequence an increased risk for intersecting either vital organs or blood vessels. In all our cases the cause of death was massive internal or external hemorrhage, suggesting the intersection of the bullet with one or more medium or large blood vessels.

Another particularity of this case is the lack of backspatter [34-38] in three out of four cases. Backspatter are found, as a rule on the hand with which the trigger was pulled in suicides. The absence of backspatter is highly suggestive for excluding a certain gunshot wounds as being self-made. However, the blood droplets are known to be travel with an increased frequency up until a distance of 50 from the wound. Because the AK-47 is above this limit, the presence of backspatter is therefore not a mandatory condition.

References

9 Druid, H., Site of entrance wound and direction of bullet path in firearm fatalities as indicators of homicide versus suicide. Forensic Science