

Medico-legal Study of Fatal Incised Wounds in Baghdad

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Abstract

- Background** Sharp force injuries and fatalities have been reported to be the most common crimes of violence in several countries, predominantly in those where access to firearms is restricted. Death due to sharp force violence is the most common cause of homicidal deaths in Sweden and in many other countries in Europe, Africa and Asia. However incised wounds are less common in homicide.
- Objective**
- Method** A medico-legal descriptive study conducted on 18 autopsies during 6 months period. Cases were studied according to their age, sex, scene of incident, number of injuries, presence of other types, suggestive manner of injury and anatomical regions affected. Blood sample was taken for alcohol detection then complete classical autopsy was done.
- Results** Incised wound cases were about a third of total sharp wound cases. Males were 5 times more frequently involved than females with an age range 36.4±29.1. Indoor and outdoor scene of incidents was almost equal. Most of them were multiple with mixed types of sharp wounds. Suggestive homicidal manner of death was seen. The neck was the most common anatomical region affected. There was no role of alcohol in causation of such injuries.
- Conclusion** Incised wounds are infrequently encountered in medico-legal autopsy practice. Males seem to be more prone to such injuries with multiple and mixed types in the majority of cases. Homicidal manner was suggested in all cases and neck was the preferable site for the perpetrator.
- Keywords** Incised wound, sharp wound, autopsy, Homicide.

Introduction

A wound or injury can best be defined as damage to any part of the body due the application of mechanical force⁽¹⁾. Sharp force injuries span the spectrum of incised and stab wounds⁽²⁾. These injuries are generally limited to the path of the object with no significant component of transmitted force⁽³⁾.

Wounds caused by pointed and sharp-edged weapons can be divided into four categories:

1. Stab wounds.
2. Incised wounds (cuts).
3. Chop wounds.

4. Therapeutic/diagnostic wounds⁽⁴⁾.

Incised wounds are clean cut wounds through the tissues, caused by a sharp-edged instrument. Their length is longer than their depth⁽⁵⁾. They are frequently caused through slashing movements by bladed weapons such as knives and razors⁽⁶⁾. Direction of the wound is established by the phenomena of tailing of the wound. According to this, all incised wounds are deeper at point of commencement and shallower at termination. The deeper end is called *head of the wound* and the shallower end called *tail of the wound*⁽⁷⁾. Fatal incised wounds are usually suicidal, then homicidal; only occasionally they are accidental⁽⁸⁾.

Incised wounds are less dangerous than stabs, as the relative shallowness of the wounds is less likely to affect vital organs, in as much as the arms and the face are the common targets⁽¹⁾. Bleeding is the most serious complication of any incised wound, though it will be external and more amenable to immediate treatment than the hidden internal bleeding of a stab wound⁽¹⁾. Cutting injuries are generally located at the neck and upper extremities (flexor side of the wrist and antecubital fossa) with varying depths⁽⁹⁾. They are superficial in tentative marks of suicide and deep in fatal homicidal injuries (sometimes reaching vertebral bodies for the throat cuts)⁽¹⁰⁾. Fatal incised wounds are usually suicidal, then homicidal and only occasionally accidental. In suicide, fatal wounds are usually present in front of neck, wrists, groin and chest or back of legs, and the clothes are spared, in addition to the presence of hesitation or tentative cuts⁽⁵⁾.

While in homicide, the wounds may be on any part of the body, usually more multiple, severe and at more than one site. The clothes are not spared. They are associated with defensive wounds on the body⁽⁸⁾.

The major cause of death in victims with incised wound injury is massive sudden external hemorrhage leading to hypovolemic shock and finally death (loss of about 1/3 of total blood). Infection of the wound may cause toxemia or septicemia and death by shock (tetanus may also cause death)⁽⁸⁾. Death from incised wounds of the neck may be due not only to exsanguinations, but also massive air embolus⁽⁴⁾.

Death due to sharp force violence is the most common cause of homicidal deaths in Sweden and in many other countries in Europe, Africa and Asia⁽¹¹⁾. A retrospective study was carried out on 125 homicide victims autopsied from 2006 to 2010 at the Forensic Medicine Center in Dammam, Saudi Arabia. Of these cases 83.2% were males and 16.8% were females, and in 77.6% the victims were between the ages of 21 and 50 years. Most of the homicides occurred during daytime (80.1%), and summer was the most common season for the occurrence of such

incidents. Among this sample the second most common type of injury was caused by sharp force (34.4%)⁽¹²⁾.

Another retrospective study was carried out on 152 deaths due to sharp force injuries from 1993 to 2004 at the department of forensic medicine, Regional Institute of Medical Sciences, Imphal (India), revealing that sharp force injuries represent the second major class of injuries with an overall incidence of 3.07%. Stab wounds accounted for 40.79%, chop wounds 34.21% and cut throat injuries 25%. The most vulnerable age groups were between 16-30 years (46%) followed by 31-45 years (32.9%). Brain was the most commonly involved vital organ followed by the great blood vessels (especially neck vessels). These injuries were found to be more common among males than females⁽¹³⁾.

Methods

A descriptive prospective study was carried out on 18 medico-legal cases referred to the Medico-legal Institute in Baghdad from the first of January 2011 till the end of June 2011. Of those cases, 15 were males and only 3 cases were females. Their age ranged from 14-70 years.

The cases were examined with respect to their sex, age, the weapons used, number and type of wounds found on the body and anatomical location of injuries. Furthermore, alcohol analyses were conducted during the autopsies of the cases studied.

Information regarding each case was obtained from investigation authority, police reports, and close relatives of the victim, eye witnesses and past medical history. This information include the age, sex, time and date of injury, time and date of death, history of chronic diseases and psychiatric history.

External examination for each case was performed, which include examination of the clothes for any marks of damage, stain, and other legal evidences, and correlation with the site of injury on the body⁽¹⁴⁾.

Digital photograph was taken prior to the removal of the clothes, then gross examination

of the naked body which includes any sign of bruises or abrasions and other wounds and their location in addition to incised wounds number, site, and presence of other wound types. Search was also done for the presence of any hesitation or tentative wounds, as well as examination for wounds viability by looking for evidence of reactive inflammation at wound edges grossly⁽¹⁵⁾. Any associated injuries (like bullet, burn, blunt force injury, etc.) were also reported, and then another digital photograph was taken to the naked body. X-ray survey was also done to detect any piece of weapon which might be present inside the body and to detect other bone injuries. It is also helpful in detection of air embolism in cases with incised wound injury to the neck in addition to the presence of haemothorax and pneumothorax due to other types of injuries.

Blood samples from the femoral vessels (5 ml) were collected in tubes by disposable syringes and preserved with 1% of sodium or potassium fluoride for detection of alcohol in the blood, then stored in a refrigerator for future analysis⁽¹⁶⁾ using GC for alcohol.

Results

Fifteen of 18 cases were males and only 3 were females, a ratio of 5: 1. Their age range was between 14-70 years with a mean of 36.4±29.1 years.

Incised wound as a cause of death was representing 0.7% only from total autopsy cases during the period of the study (2409) and 1.2% from total violent causes of death (1557) as shown in figures 1 and 2 respectively.

They were representing 35% from the total sharp wound cases (51) during that period while the remaining 65% were other types like stab puncture and chop wounds as it is shown in figure 3.

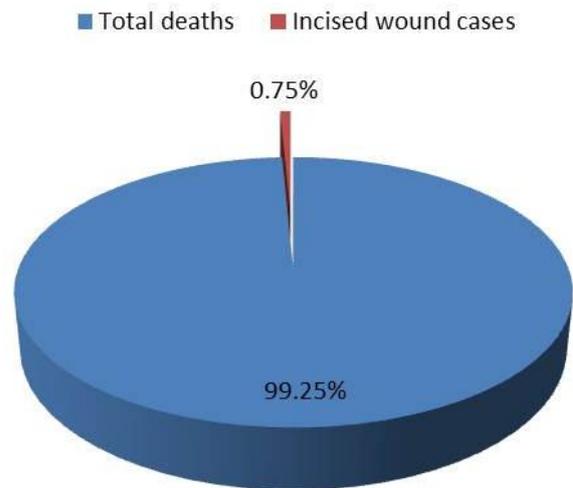


Figure 1: A pie-chart showing relative frequency of incised wound cases to the total deaths no.

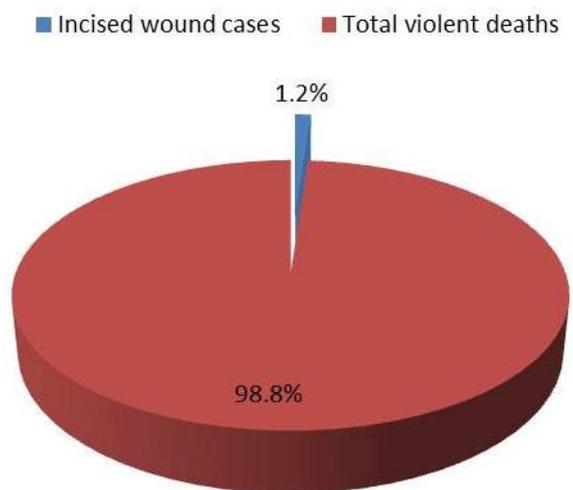


Figure 2: A pie-chart showing relative frequency of incised wound cases to the total violent deaths number

Figure 4 shows that 8 of incidents occurred indoors and 7 were outdoors while 3 were with unknown scene of incident.

Five cases sustained single incised wound (cut throat type) and the remaining 13 were with multiple sharp force injuries as shown in figure 5. The number of wounds in each case ranged between 1 to 31 sharp wound as most of the cases were with mixed types of incised and stab wounds.

■ Incised wound cases ■ Other sharp wound cases

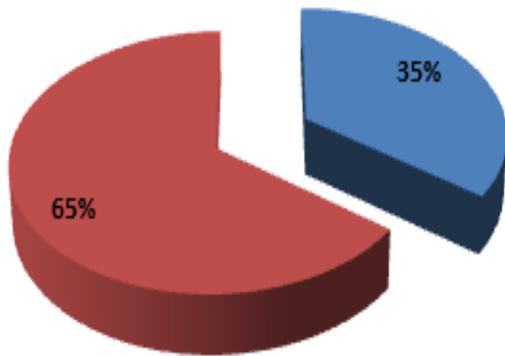


Figure 3: A pie-chart showing relative frequency of incised wound cases to the total sharp wound cases

■ Single wound ■ Multiple wounds

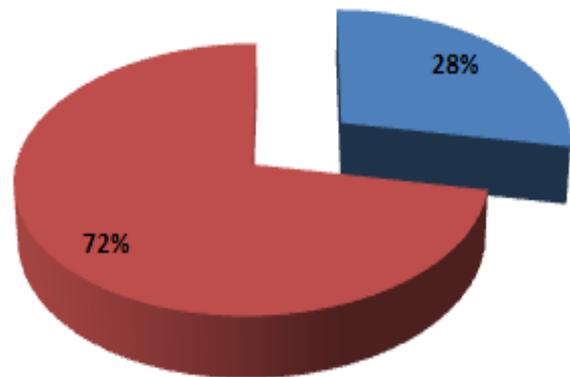


Figure 5: Frequency distribution of incised wound cases according to the multiplicity of wounds.

■ Indoor ■ Outdoor ■ Unknown

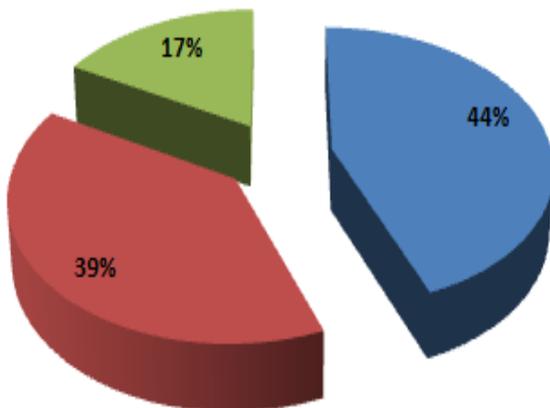


Figure 4: Frequency distribution of incised wound cases according to the scene of injuries

■ Head ■ Neck ■ Chest ■ Abdomen ■ Back ■ Upper limbs ■ Lower limbs

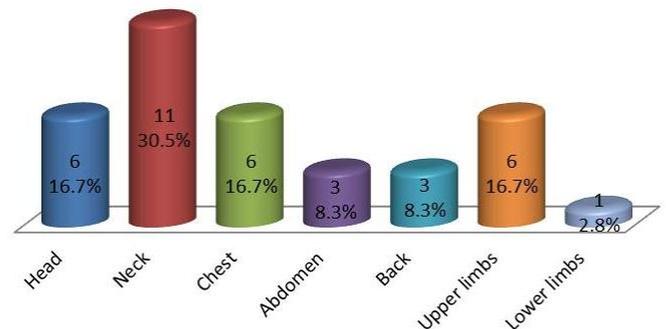


Figure 6: A bar chart showing the distribution of incised wounds among anatomical regions

Homicidal manner of death was suggested in all cases examined in spite of the absence of any signs of struggle and resistance.

Almost all the wounds were viable and signs of bleeding with inflammatory reactions were seen at wound edges; only 2 nonviable wounds were noticed in 2 different cases with multiple and mixed types of sharp wounds.

The Neck was the most common anatomical site of injuries followed by the head and chest equally as shown in figure 6.

Alcohol detection was negative in all blood samples examined in the study.

Discussion

Sharp force injuries in general represent the 8th class of major injuries as shown in this study preceded by firearm injuries, road traffic accidents (RTA), burns, electrical shock, blunt force injuries, asphyxias and explosions respectively (many victims of explosions are not referred to the Medico-Legal Institute). This frequency disagrees with 2 similar retrospective studies carried out in India and USA^(13,17). These low figures in this study compared to the higher figures in the previous studies may be due to the easiness to get firearms and the unstable security situation in Baghdad has resulted in

wide use of firearms in committing crimes instead of sharp weapons.



Figure 7: Incised wound of the chest

As a result, fatal incised wounds constituted only a smaller percent of total sharp wound types as the perpetrator prefer to inflict fatal injuries by stabbing his victims as much as he can to kill him (Figure 3). Similar results regarding gender where males were more frequently affected than females and this is in agreement with a study on homicide by sharp force performed in Scandinavia with same percentages and almost similar sex ratio⁽¹⁸⁾.

Regarding the scene of injuries, almost there was equality between indoor and outdoor site of injuries (Figure 4). This result is in disagreement with the result of another study done in India, in which most of victims were killed outdoors⁽¹⁹⁾. This disagreement may be due to different cultural, environmental and socio-economic backgrounds.

Most of the cases (13) were with multiple incised types of injuries mixed with other types (Figure 5). This result differs from that of another study which was carried out in France in which the total number of all types of sharp wounds was much higher with a range of 1 to 65 injuries per case⁽¹⁸⁾, which is slightly higher than our result. This could be due to larger sample size in their study, as well as the differences in the motives in committing crimes between the two studies.

The Neck was the most common anatomical region affected by incised injuries while the

chest comes next (Figure 6). These results disagreed with that of a study carried out in India, in which the chest was the region most often involved followed by the abdomen⁽¹⁹⁾.

The difference between the results of these two studies could be because of the different manner of death as it was 100% homicide in this study and different motives of the crimes, as the main motive of crime in the present study was armed robbery for the victim's car (most of the male victims were taxi drivers) according to the information. So the exposed areas of the victim's body (the driver) to the offenders (sitting usually in the front and back seats while driving) were the neck, chest and head (the main targets).

No role of alcohol was found in the study, unlike its significant role in a study done in UK; this could be explained by differences in the religious and cultural backgrounds between the two countries⁽²⁰⁾.



Figure 8: Defense wound of the hand

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