

ORIGINAL ARTICLE

Forensic Evaluation of Sharp Weapons Fatalities: An Autopsy Based Study

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ABSTRACT

Sharp weapon is defined as any instrument designed or adapted for use to cause injury through a cutting edge. Fatalities due sharp weapons injuries are mostly seen in homicides followed by suicides and rarely in accidents. The injuries by sharp weapon suggest a high degree of intention and overkill, which is often associated with strong emotional triggers such as anger, jealousy, or revenge. In India where sharp instruments are commonly used in daily life, their involvement in violent crime warrants focused research attention. The study was conducted with the basic aim to analyze the deaths due to injuries by sharp weapons. Deaths involving sharp weapon injuries, the vast majority were as homicidal, accounting for 86.2% deaths. More than one-quarter of homicides were attributed to injuries sustained from sharp-edge weapons. Impulse or Momentary rage was the commonest motive behind homicide, suicides were linked to drug addiction and accidental deaths were attributed to machinery accidents. Multiple stab wounds were the most frequent wounds, and chest injuries constituted the most common cause of death. Prevention of fatalities from sharp weapons injuries requires a multi-dimensional strategy, integrating the rigorous enforcement of sale and possession regulation and implementing youth-focused counseling programs.

KEYWORDS:

• Sharp Weapon Injuries • Homicidal Deaths • Impulsive Act.

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INTRODUCTION

A sharp weapon is defined as any instrument designed or adapted for use to cause injury through a cutting edge.¹ In legal context sharp weapons are categorized as dangerous weapon. The dangerous weapon defined as any instrument for shooting, stabbing, or cutting, or any instrument which, when used for offense, is likely to cause death in under section of 118 of BNS, 2023.² From mass warfare since ancient times to personal feud of modern times has witnessed the use of sharp weapons leading to serious injuries and sometimes loss of human lives.³ Fatalities due sharp weapons injuries are mostly seen in homicides followed by suicides and rarely in accidents.^{1,4,5} Injuries caused by sharp weapons constitute a significant proportion of all homicidal deaths. In India studies have reported that sharp weapons are the second most mean of homicidal deaths.^{6,7} The sharp weapons can be classified as; light cutting, moderately heavy sharp and heavy sharp weapons.⁸ The injuries caused by these weapons are incised wound, stab wound and chop wound.⁹ The injuries by sharp weapon suggest a high degree of intention and overkill, which is often associated with strong emotional triggers such as anger, jealousy, or revenge.^{1,3,4} In India where sharp instruments are commonly used in daily life, their involvement in violent crime warrants focused research attention. Detail examination of wound characteristics plays a pivotal role in reconstructing the event and can provide useful information regarding the type of weapon, and such analysis assist medico-legal experts in establishing cause and manner of death, which is essential for the administration of justice.^{3,10,11} The punishments for hurt causing by dangerous weapon and mean, are described as "Voluntary causing hurt by dangerous weapon and means, shall be punished with imprisonment of either description for a term which may extend to three years and shall also be liable to fine as section 118 (1) BNS, and Voluntary causing grievous hurt by any dangerous weapon or means, shall be punished with imprisonment for life, or with imprisonment of either description for a term which shall not be less than one year but which may extend to ten years, and shall also liable to fine, section 118 (2) BNS.² Pattern of sharp weapon injuries may differ based on cultural practices, occupational tools, and local conflicts.^{6,7} Without region specific data,

a generalized conclusion may be misleading. Therefore these regional specific research ensures that medico-legal interpretation remain relevant and context-specific and necessary for advancing both medico-legal practice and public health policies. This study was conducted with the basic aim to analyze the deaths due to injuries by sharp weapons.

MATERIALS AND METHODS

This two year study (one year prospective and one year retrospective) was conducted at Department of Forensic Medicine & Toxicology government medical college and associated group of hospitals, Kota (Rajasthan) from March 2024 to February 2026. The institutional ethics committee (letter No. F.30)Acad/Ethical Clearance/Batch 2023/2025/05 dated 24.02.2025) approved the study protocols. The all deaths caused by sharp weapons were included in this study. The detail examination of wound during autopsy was done to collect data for this study. The information was also taken from police during investigation and at the time of custodial examination of alleged accused. The data regarding characteristics of wounds and weapons were collected using a pre-designed performa prepared for this purpose after taking consent with deceased relative and investigating officer of police. The autopsy finding regarding weapon were correlate with information taken from police and accused. The collected details were tabulated in MS office 2017 and statistically analyzed using appropriate software.

RESULTS

In this two years study, a total 2610 medico-legal autopsies were conducted at mortuary of department of Forensic Medicine, Government Medical College, Kota. Out of these medico-legal autopsies 29 deaths were due to injuries by sharp weapons, constituting 1.1% of total medico-legal autopsies.

Table 1: Distribution of Manner of Deaths due to Injuries by Sharp Weapons

Manner of Death	No. of Cases	Percentage
Homicidal	25	86.2%
Suicidal	02	6.9%
Accidental	02	6.9%
Total	29	100%
Homicidal	25	86.2%
Suicidal	02	6.9%
Accidental	02	6.9%
Total	29	100%

Out of 29 deaths involving sharp weapon injuries, the vast majority were as homicidal, accounting for 25 deaths (86.2%). In contrast, suicidal and accidental manners of death were significantly less frequent, each presenting only 02 cases (6.9%) of total deaths due to injuries by sharp weapons.

Table 2: Distribution of Total Homicidal Deaths V/S Homicidal Death by Sharp weapons

Total Homicidal Deaths	95	100%
Homicidal Deaths – Sharp Weapons	25	26.3%

In this study period, a total 95 homicidal deaths were recorded. Among these 25 deaths (26.3%) were attributed to injuries caused by sharp weapons. This indicates that more than one-fourth of the homicidal fatalities resulted from sharp weapons.

Table 3: Distribution of Sharp Weapon fatalities and Motive

Motive	Homicidal	Suicidal	Accidental
Revenge	06 (24%)	00	00
Financial Dispute	02 (8%)	00	00
Impulse	08 (32%)	00	00
Sexual Jealousy	02 (8%)	00	00
Extra- Marital affairs	07 (28%)	00	00
Drug Addiction	00	02	00
Machinery accident	00	00	02
Total	25 (100%)	02	02

The study analyzed that suicidal deaths were linked to drug addiction and accidental deaths were attributed to machinery accidents. Impulse or Momentary rage was the commonest motive behind homicidal deaths in which sharp weapons were used constituting, 32% (N=25), followed by extra-marital affairs in, 28% deaths, and revenge in 24% deaths. In this study we analyzed that the main motives behind homicidal deaths caused by sharp weapon, were impulsive behavior,

extra-marital affairs, and revenge constituting 84% homicidal deaths. There is a myth or deep perception in Haroti region that carrying a knife or blade makes an individual safer.

Table 4: Distribution of Number of Wounds on body with Type of Wound

No. of Wounds	Incised Wound	Stab Wound	Chop Wound	Total
Single	02	02	02	06
Two	04	04	00	08
Multiple	01	11	03	15
Total	07	17	05	29

Among 29 cases, there were 06 cases with single wound, comprising each 02 wounds incised, stab, and chop wounds. A total 08 cases were observed with two wounds, including 04 incised and 04 stab wounds. The majority of cases having the multiple wound in 15 cases, in which stab wound were predominant with 11 cases, followed by 03 cases with chop and one case with incised wounds.

Table 5: Distribution of Manner of Death with Type of Wounds

Manner	Incised wound	Stab Wound	Chop Wound	Total
Homicidal	06	16	03	25
Suicidal	01	01	00	02
Accidental	00	00	02	02
Total	07	17	05	29

Stab wounds were the most prevalent type of wound overall, observed in 17 cases (58.6%). These were predominantly associated with homicidal intent, 16 cases and one death with suicidal in manner. Incised wounds were observed in 07 cases with strong majority being homicide deaths, 06 cases and only one being suicide. Chop wounds occurred in 05 deaths, 03 were homicidal. It was notable that all accidental deaths in this study caused by chop wound by heavy blade of machineries. This observation indicates a high predilection for stab wounds in homicidal fatalities.

Table 6: Distribution of Manner of Deaths due to Sharp Weapons with Cause of Death

Cause of Death	Homicide	Suicide	Accident	No. of Cases	Percentage
Head Injury	01	00	00	01	03.4%
Neck Injury	06	01	00	07	24.1%
Chest Injuries	11	00	00	11	38.0%
Abdominal Injuries	05	01	00	06	20.7%
Limbs Injury	02	00	02	04	13.8%
Total	25	02	02	29	100%

Chest injuries constituted the most common cause of death, accounting for 11 cases (38%) primarily occurring in homicidal cases, followed by neck injuries with 07 cases (24.1%). Abdominal injuries were responsible for 06 deaths (20.7%) and injuries on limbs regions contributed 13.8% deaths. Head injury was the least common cause, observed in only 01 death (3.4%) by using of sharp weapons. The accidental fatalities due to sharp force were infrequent and specifically localized to limb injuries. Suicidal deaths involving sharp weapons were observed on accessible part of body, neck abdominal region.

Table 7: Distribution of Wounds caused by Sharp Weapons with Involved Body Parts

Body part	Incised Wound	Stab Wound	Chop Wound	Total
Head	00	00	01	01
Neck	06	01	00	07
Thorax	00	09	02	11
Abdomen	00	06	00	06
Limbs	01	01	02	04
Total	07	17	05	29

In this study the major wound which cause deaths were as, 07 cases with incised wounds, 17 cases with stab wounds and 05 cases chop wound caused by sharp and heavy sharp weapons. Out of 17 deaths due to stab wounds, 16 deaths were as a result of thoraco-abdominal region injuries. The neck was predominantly affected by incised wound, 06 out of 07. Thorax was almost exclusively targeted with stab wounds, 09 out of 11. Deaths due to Chop wounds were commonly seen on limbs and head. Out of 29 overall deaths due to sharp weapons injuries, 17 deaths were as a result of thoraco-abdominal injuries.

DISCUSSION

A total 29 (1.1%) fatalities were occurred by sharp weapons injuries, and total 95 (3.63%) homicidal deaths, out of total 2610 medico-legal autopsies in the study period. This finding is slightly higher than the studied done by, Shah JP *et al.* (2.70%)¹², Zanzrukiya K *et al.* (2.79%)¹³ and slightly lower than some other urban studies, Kumari J *et al.* (4.72%)⁶, and Rathod VV *et al.* (5.24%)¹⁴, of total medico-legal deaths were homicidal in manner. The findings of this study show that majority of sharp weapons fatalities were homicidal (86.2%). The similar

findings were also reported by Jat VK *et al.* (100%)¹, Ambade VN. *et al.* (85.3%)¹⁵, and Kumari J *et al.* (75.8%)⁶. The high prevalence of homicide suggests that sharp weapons are the choice for offence, likely due to easy availability in domestic and work environment. Homicidal deaths due to sharp weapons injuries were observed in 26.3% deaths of total homicidal deaths. These findings are almost similar to other studies, conducted by Bashir MZ *et al.* (25.5%)¹⁶, and Qadir G *et al.* (17%)¹⁷ and the incidents were higher than the study done by Mirza FH (4.35%)¹⁸ and kaheri GQ *et al.* (3.05%)¹⁹.

The findings revealed that in homicidal deaths the impulsive acts constituted the most common motive, 32%, followed by extramarital affairs, and contributed 28%. Our findings are consisting with Sukhdev RB *et al.*²⁰, who identified sudden dispute or arguments were the leading motive of homicide in nearly 45% cases. The results observed by Sumangala CN *et al.*²¹, and Jat VK *et al.*¹ were dissimilar to our study, where the main motive was premeditated revenge and personal feud accounting in about 85% and 34% cases respectively. The data suggest that sudden emotional reaction and personal relationship conflicts are the predominant drivers of homicidal deaths by sharp weapons in study population, whereas economic and jealousy related motive play a relative smaller role. Extra-marital affairs and sexual jealousy combined account in 36% deaths as motive. This high incidence highlights the interpersonal relation and sharp weapon violence, often involving victims and offenders known to each other.

In this study, stab wounds in multiple numbers were the most frequent wounds, these findings are aligns with other studies done by, Amade VN *et al.*¹⁵, and Mohanty S *et al.*²², which noted that multiple stab wounds were most common wounds in homicidal deaths. The presence of multiple stabbing suggests a deliberate intention to inflict penetrating, deep, fatal internal organs damage with high degree of aggression and a firm determination by the offender to ensure the death of the victim. The chop wounds require heavy sharp edge weapons, were the least common wound in our study, appearing in only 05 cases, reflects the easy availability and easily concealed pocket or kitchen knives used for stabbing. The high frequency of stabbing in homicidal deaths

is consisting with studies done by Kemal *et al.*²³, and Vij A *et al.*²⁴, who observed that stab wounds were preferred method in homicide.

The chest was the most frequent site of fatal injuries by sharp weapons (38%) followed by neck (24.1%) and abdomen (20.7%). Our findings are similar to the studies of, Manso *et al.*²⁵, and Dudhe JY *et al.*¹¹, who reported that the lungs and neck were the most affected organ or part of body insulted by use of sharp force. These finding were contrary to the study done by Mittal S *et al.*⁸, who reported that head and face (32.8%) was most affected part followed by neck (21.9%) and upper limb (21.9%). The findings were also contrary to the study of Disania NL *et al.*³, who reported that the most affected part was limbs (50%) followed by thorax (22%) and abdomen (17%). These variations are due to that in our study the study population was only death cases by sharp weapons and in those study the study population was all cases of sharp injuries, either simple or fatal cases. The high frequency of stab wounds on thorax and abdomen is a classical indicator of intention to kill, as the chest and abdomen contains major vital organs, the heart, lungs, liver, spleen, kidney, intestine and major vessels. The incised wounds on neck (06 out of 07) suggest cut-throat method in homicidal deaths by sharp weapons.

Recommendations:

1. Implementing or enforcing laws regarding the sale, carrying and branding of sharp edge weapons.
2. Education in myth of protection, public health campaigns can help dismantle the perception that carrying a knife makes an individual safer. Carrying a weapon increases likelihood of being injured by one.
3. Provide accessible counseling and trainings in school and community centers to help individual manage sudden impulse and momentary rage.
4. Promote marital and family counseling services to address infidelity and domestic disputes through dialogue rather than violence.
5. Create safe pathways for person involved in high-conflict relationship to seek protection or legal separation before the situation turns homicidal.

CONCLUSION

Injuries cause by sharp edge weapons may be homicidal, suicidal, accidental and self-inflicted in manner. Deaths by sharp weapon injuries need proper attention as regards to their pattern and manner of infliction to help the investigating authorities and court of law to deliver proper justice. A forensic medicine expert should be able to diagnose the medico-legal injuries in their right perspective, so that he guide to legal authorities for their legal conclusion. This study found that impulsive act and easy availability of sharp cutting instruments were the main cause of sharp weapon fatalities. Prevention of fatalities from sharp weapons injuries requires a multi-layered approach, focusing on implementing or enforcing laws regarding the sale and carrying of sharp edge weapons and counseling of youth and individual, who involved in interpersonal and family disputes.

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