Pattern and Profile of Injuries Sustained During Assault by Sharp Weapon: A Prosective Study During Year 2015-16 at Sms Medical College-Jaipur

N.L. Disania [1], Rajesh Kumar Verma[2], R.K. Punia[3], Vinod Kumari Jat[4]

[1]Associate Professor, [2]Associate Professor, [3]Senior Professor, Forensic Medicine S.M.S Medical College, Jaipur Rajasthan, [4]Medial Officer, Forensic Medicine Mahatma Gandhi Medical College, Jaipur Rajasthan

Abstract

Introduction: Death and injuries by sharp weapons needs proper attention as regards to their pattern and manner of infliction. This study was thus undertaken to obtain statistical data of the injuries caused by sharp force in fatal and non-fatal medico-legal cases at SMS Hospital, Jaipur to evaluate their pattern and medico-legal profile for of intentional injuries inflicted by others.

Material and method: This study consisted of all the Medico-legal cases of sharp force trauma inflicted by others during assault, including fatal and non-fatal cases comes in department of Forensic Medicine of S.M.S. Medical college Jaipur during the period extending from April, 2015 to March, 2016. A total no. of 93 cases of sharp weapon injuries were studied.

Observations: Males predominated in the present study with 86.02% of cases. Injury inflicted by others was more common in urban population (90.32%). In this study majority of cases of injuries inflicted by others were incised with 62 cases (60.78%) In 24 cases single edged weapon was used to inflict stab wound. Out of all the cases only 5 succumbed to death and was most commonly resulted from by hemorrhagic shock (4 cases).

***Key words**: Assault, Sharp, Incised, Stab, Shock.*

Introduction

Injuries by sharp weapon have been a universal issue since antiquity to human kind. From mass warfare since ancient times to personal feuds of modern times has witnessed the use of sharp weapons leading to serious injuries and sometimes even loss of precious human lives. In modern times the medico-legal diagnosis of the injuries is considered an important aspect in serving the justice to the needful which cannot be overlooked. The medico-legal diagnosis of sharp injuries at post-mortem is handled by autopsy surgeons who are experts in the concerned field. But an individual in casualty suffering the sharp weapon injury requires multi-dimensional treatment ranging from primary treatment and medico-legal diagnosis of the said injury. These doctors might have a significant experience of treatment of the injured but the medico-legal diagnosis of the injuries is also expected from them as this is also of utmost importance in serving the justice.

The most common manner of injuries associated with sharp force trauma is homicide, followed by suicide. Fatalities by accidental sharp injuries do occur but are relatively rare[1]. Fatal sharp injuries are usually indicative of extreme violence; and leads our attention towards the developing sense of frustration and lack of tolerance, indicative of mental disturbances in individuals. [2] Death and injuries by sharp weapons is an underrated issue which needs proper attention as regards to their pattern and manner of infliction, which remains controversial at some times. Study of the profile and pattern of any type of Medico-legal cases is a fundamental aspect for

Corresponding Author:
Dr. Rajesh Kumar Verma
rkverma.fm@gmail.com
Associate Professor, Forensic Medicine S.M.S Medical College, Jaipur Rajasthan

the prevention of causalities in forthcoming times. This study was thus undertaken to assess the injuries caused by sharp force in fatal and non-fatal medico-legal cases at SMS Hospital, Jaipur to evaluate their pattern and medico-legal profile for accurate medico-legal diagnosis of intentional injuries inflicted by others and help the Autopsy surgeons and the causality medical officers to anticipate the types of injuries and their probable outcomes and help in aiding justice.

Material and Method

This study consist of all the Medico-legal cases of sharp force trauma inflicted by others, including fatal and non-fatal cases except those cases of alleged history of injury by sharp weapons but found to be resulting from blunt trauma which were brought for medico-legal examination or for autopsy in department of Forensic Medicine of S.M.S. Medical college, Jaipur during the period extending from April, 2015 to March, 2016. A total no. of 93 cases of sharp weapon injury inflicted by others were studied to find medico-legal profile of sharp weapon injuries in both Fatal and non-fatal cases.

Observation

A total of 22,740 medico-legal cases were catered to in the out-patient and in-patient department of SMS Hospital, Jaipur. Amongst them 179 cases were of sharp force trauma (0.78%) out of which 86 cases were excluded from the study. During the study period 4838 medico-legal autopsies were performed among which there were five cases of deaths due to sharp force injuries inflicted by others. Thus, a total of 93 cases comprised the study population in the present study.

Males predominated in the present study with majority of cases. In this study the injuries inflicted by others was most common in age group between 21 to 30 years with 40.86% cases followed by 31 to 40 years group with 27.96% cases. (Table I)

TABLE NO. I: DISTRIBUTION OF CASES ACCORDING TO THE AGE GROUP

Age Group (years)	**TOTAL CASES**	
11 TO 20	14	15.05%
21 TO 30	38	40.86%
31 TO 40	26	27.96%
41 TO 50	10	10.75%
51 TO 60	04	04.30%
Above 60	01	01.08%
Total	93	100.00%

Injury inflicted by others was more common in urban population (90.32%). Sharp injuries sustained during assault were most common during evening and night hours (82.42%). Most of the injuries sustained were outside home (51.61%) followed by incidence at home (25.80%). Alcohol ingestion was associated in 14 cases(15.05%). Only 5 cases were fatal out of 93 cases.Single injuries were noted in 37 cases (39.78%) followed by multiple injuries were noted in 33 cases (35.48%) (TABLE II)

TABLE NO. II: DISTRIBUTION OF CASES ACCORDING TO THE TOTAL NUMBERS OF INJURIES

NO. OF CASES	TOTAL CASES	PERCENTAGE
MULTIPLE	33	35.48%
SINGLE	37	39.78%
TWO	23	24.73%
TOTAL	93	100.00%

In this study majority of cases of injuries inflicted by others were incised with 62 cases (60.78%) followed by stab injury with 16 cases (15.69%).(TABLE III)

TABLE III: DISTRIBUITON OF CASES ACCORDING TO TYPE OF INJURY SUSTAINED.

Type of Injury	TOTAL CASES	PERCENTAGE
Only Incised Wound	62	66.67%
Only Stab Wound	16	17.20%
Stab Incised & Incised Wounds	15	16.13%
Total	93	100%

In 60 cases, light sharp weapon was used and in rest 33 cases, moderately heavy weapon was used. In 24 cases single edged weapon was used to inflict stab wound and in rest of 7 cases stab wounds were inflicted using double edged weapons. Defense wounds were seen in 36 cases (38.70%). In this study it was observed that limbs were the most common part of the body that was injured followed by thorax and abdomen.(Table IV)

TABLE IV: Distribution Of Cases Of Sharp Injuries According To Body Part Involved.

BODY PART	TOTAL CASES
Face	5
Head	3
Neck	4
Thorax	26
Abdomen	20
Limbs	60
Total number of injuries found in 93 cases	118

Out of all the cases only 5 succumbed to death and was most commonly resulted from by hemorrhagic shock (4 cases) while 1 person succumbed to septicemic shock. In 2 cases of those who succumbed to death the preferred area for assault was thorax injuring heart in both the cases. It was followed by assault to neck injuring common carotid and other major blood vessels of neck.

Discussion

This study was undertaken with the aim to study the medico-legal profile of fatal and non-fatal injuries inflicted with sharp force trauma at SMS Hospital, Jaipur during 2015-16 as regards pattern, manner of infliction and sharp weapons used for infliction of sharp injuries.

The load of cases of sharp injuries during this one year period was 0.78% out of which 0.001% cases proved fatal.

In the present study males were predominant (86.02%) and 13.98% females. The results of the present study are slightly variable to those of Bhullar DS and Aggarwal KK3{94% males and 6% females}7 but quite similar to that reported by Lockyer A et al. (2013)4{85%}.Males are the active participants of the society and more commonly engaged in outdoor activities. Moreover, they are more prone to episodes of rage and revenge. This explains the male preponderance in all studies. Also, females are comparatively less likely to be involved in injuries using sharp weapons which occur more commonly in relation to love affairs, sexual jealousy etc and are rarely self-inflicted too.

Mean age of the present study was 28.37 years (Range 16-70 years). In the present study majority of victims were between 21-40 years of age (68.82%) which is slightly higher than that reported by Bhullar DS and Aggarwal KK3 In the present study majority of victims were between 21-40 years of age (68.82%) which is slightly higher than that reported by Bhullar DS and Aggarwal KK (2007) 3. Our results of 15.05% cases of victims less than 20 years is also quite similar to Bhullar DS andAggarwal KK (2007) 3 who reported 12% cases between 0-20 years. There were 84.32% victims of sharp injuries under 40 years of age in the present study which is similar to the study of Lockyer A et al. (2013) 4{86.6%}. The age group of 21-40 years is the most active and productive phase of an individual's life, including out-door activities, increased aggression and impulsiveness which leads to increase in crime rate by this age group.

In this study single injury was noted in 39.78% and multiple injuries was seen in 35.48% contrary to the observation of Memon A et al. (2015)5 (18% single injury and 82% multiple injuries). Number of injures usually indicates the level of hatred of assailant. This variability can be explained as our study incorporate both fatal and non-fatal individuals and the above mentioned study incorporated only fatal cases.

Incised wounds were found to be the most common type of sharp injury in the present study (66.67%) followed by stab wounds (17.20%).Chop wound did not account for a single case in the present study. All stab injuries were inflicted upon the victim by an assailant whether alone or in conjunction with associated incised wounds.

64.51% of sharp injuries were caused by light sharp weapons in this study .Heavy sharp weapons were used in two cases although chop wounds were not caused. The gravity of those wounds could not manifest as accepted from the type weapon used most likely because of the difference of force used in its infliction. Sharp force trauma is proportional to the force used and indirectly proportional to the area of inflicting surface. This accounts for the great variation in resultant injury in comparison to the weapon used. The results of the present study are similar to those of Bhullar DS and Aggarwal KK (2007)[3] who reported use of 92% light and 7% heavy sharp weapons. However, their study did not classify heavy sharp weapons into moderate and heavier categories. Our findings were contrary to those of Kokatanur CM et al. (2015)6(heavy sharp weapon 64.6% and light sharp weapon 28%). It can be explained because our study population was majorly urban where light sharp weapons like kitchen knives, razors are easily available.

In present study most common inflicted part were the limbs (60 cases) followed by thorax with 26 cases, abdomen in 20 cases , face in 05 cases, head in 03 cases, & neck in single case. Similar studies were conducted by Bhullar DS and Aggarwal KK (2007)3who had observed limbs with 55 cases, followed by thorax with 7 cases, abdomen in 20 cases, face & neck in 06 cases, head in 03 cases.

In present study mortality most commonly resulted from by hemorrhagic shock (80%) while 20% cases succumbed to septicaemic shock. The results of this study are higher as compared to Bhullar DS andAggarwal **K**K

(2007)3where maximum victims 31.5% died of shock and hemorrhage followed by 28.5% died due to injury to brain, 17% died due to asphyxia, 15% died due to injury to vital organs. Similarly Dasgupta and Tripathi (1983)08 had observed that 56.72% died due to hemorrhage and shock. Dikshit PC et al (1986)9 had observed that cause of death in 51.28% victims was shock, 41.42% was coma due to brain injury and 4.28% was asphyxia. Though there is difference in number of cases, but the sequence of causes of death is similar to study of Dasgupta and Tripathi (1983)8 i.e. shock and hemorrhage is the main cause of death which outnumbers the other causes.

Present Study is consisted and correlated with simultaneous study Socio-demographic profile of fatal and non-fatal cases of sharp weapon Trauma at SMS medical College & Hospital, Jaipur During the 2015-16, Medico-legal Update:Vol 18:Number 1 January –june 2018;20-249.

Conclusion

1. A forensic medicine specialist being an expert witness should be able to diagnose the medico legal injuries in their right perspective to help the investigating authorities and the courts of law for their logical conclusions.[3] Apart from playing the role of an expert witness, he must also maintain the comprehensive data pertaining to the injured and the injuries for epidemiological records to assist in the surveys pertaining to the crimes on humanity for behavioral treatment of the criminals and the assault victims. Injuries caused by or sustained from sharp edged weapons may be suicidal, homicidal, self-suffered, self-sustained or accidental but certain medico legal parameters definitely help to diagnose the nature or mode of these injuries. It is worth taking a closer look at patterns of sharp injuries to assess their nature and manner for legal assistance

Conflict of Interest: None Declared.

Ethical Clearance: not required

Source of Funding: Self.

Refrences

2. Yousfani GM, Memon MU. Spectrum of Unnatural Deaths in Hyderabad: An Autopsy Based Study. J Dow Uni Health Sciences 2010;4(2):54–7.
3. Prahlow JA, Ross KF, Lene WJ, Kirby DB. Accidental sharp force injury fatalities. *Am J Forensic Med Pathol.* 2001 Dec; 22(4):358-66.
4. Bhullar DS, Aggarwal KK. Medicolegal diagnosis and pattern of injuries with sharp weapons. J Indian Acad Forensic Med. 2007;29(4):112-4.
5. Lockyer A, Oram R, Lopez G, Lutchminarain N, Meck S. Patterns of injury in penetrating sharp trauma in a provincial Kwazulu-Natal Hospital. AfJEM. 2013 Jun;3(2): 67-70.
6. Memon A, Kazi MA, Shaikh W. Incidence of Homicidal Injuries by Sharp Force Trauma at Sukkur. J LiaquatUni Med Health Sci. 2015;14(01):3-5.
7. KokatanurCM,Chidanand PS, HavanurB,Devadass P K. Original Research Paper Study of Weapons Related to Mechanical Injuries In Fatal Assault Cases Autopsied at Victoria Hospital. Indian Acad Forensic Med.2015;37(2):145-7.
8. Dayananda R, Kumar MP et al. Pattern of Defence Injuries in Homicidal Deaths.J Indian Acad Forensic Med. 2015 Jul-Sep;37(3):229-1
9. Dasgupta SM, Tripathi CB. A study of the homicide cases occurring in Varanasi area. Indian Medical Gazette 1983; 285-8.
10. Jat V. K., Punia R. K., Socio-demographic profile of fatal and non-fatal cases of sharp weapon Trauma at SMS medical College & Hospital, Jaipur During the 2015-16, Medico-legal Update:Vol 18:Number 1 January –june 2018;20-24