



JPAFMAT

A Half-Yearly Publication

Volume 7(2), 2007

Ram Nagar, Banur, Distt. Patiala

Editor-in-Chief: Prof. R.K.Gorea

From Editor's Desk

It is my proud privilege to present you the 2nd Number of 7th volume of this journal at the occasion of VI annual conference of Punjab Academy of forensic Medicine and Toxicology which is being held at Gian Sagar Medical College and Hospital Ram Nagar (Banur) District Patiala. I am indebted to all the scientists who provided research papers to make it possible to happen and to bring out two numbers in one year. I have a great hope that these two issues of Journal of PAFMAT will definitely help it in getting it indexed.

I highly appreciate the philanthropic efforts of management of Gian Sagar Medical College and Hospital Ram Nagar (Banur) District Patiala in providing support to bring out second number of this journal. I am very much thankful to Dr. BL Bansal, President, Guru Hargobind Medical Education Society, Raikot, Dr. DS Bhullar President of PAFMAT, Forensic Medicine Department, Government Medical college, Patiala and its head Dr. KK Aggarwal and Dr. PS Brar of Brar eye Hospital, Kotakpura for all their monetary help. I am grateful to Dr. AD Aggarwal for constantly helping me in bringing out this journal to you.

MANUSCRIPT REVIEW PANEL

Dr. Patrick Besant-Matthews, USA
Dr. O.P.Jasuja, Patiala
Dr. V.V.Pillay, Cochin

Ms. Virginia Lynch, USA
Dr. B.R.Sharma, Chandigarh
Dr. Gurjeet Singh, Patiala

ADVISORY BOARD

Dr. E.N. Michalodimitrakis, Greece
Mr. Nirman Arora, Belgium
Prof. F.W. Rösing, Germany
Prof. Calin Scripcaru, Romania
Dr. B.D.Gupta, Jamnagar
Dr. J.Gargi, Amritsar
Dr.A.D.Aggarwal, Mullana

Prof. P. Sema Aka, Turkey
Dr. Ahmet Sadi Cagdir, Turkey
Dr. Z.G. Standing Bear, USA.
Dr. T.D.Dogra, New Delhi
Dr. J.S.Dalal, Chandigarh
Dr. K.Vij, Chandigarh
Dr.A.J.Patowary, Dibrugarh

Editorial

Medico-legal Work In Private Institutes

A lot of controversy and confusion is always present amongst administrators regarding medico-legal work in the private medical set up. With the judgement by the Supreme Court in case of Pt. Parmanand Katara V/s Union of India and others (1989 AIR 2039) lot of dust has been settled about medico-legal examination of the injured person. Life saving is the pious and supreme duty of the doctors and medico-legal examination facilities cannot come in the way of treatment. To achieve this target even the private practitioners and hospitals must treat the case which has medico-legal implications. In this process requirement of medico-legal examination cannot hamper the life saving treatment which has the implication that medico-legal examination of the injured can be done by private practitioners or hospital or private medical colleges. In the judgement in the above said case it has been clearly emphasized in part 5 that no law or state action can intervene to avoid/delay the discharge of the paramount obligation cast upon members of the medical profession. The obligation being total, absolute and paramount, laws of procedure whether in statute or otherwise which would interfere with the discharge of this obligation cannot be sustained and must, therefore, give way [1]. Therefore any registered practitioner can and should start the treatment of the victim and just take care to inform the nearest police official the name, age, sex of the patient and time and place of occurrence of the incident. Report should be sent to the concerned police station or police official as soon as examination and treatment is over.

Keeping in view the above judgement medico-legal examination of injured is now being done in private sector and it has been well accepted by courts and there is nothing in the Cr.P.C. and other laws to prevent the doctors in the private set up not to do treatment and medico-legal examination of the injured.

In case of examination of rape victim a new section 164-A has been introduced in CRPc which clearly tell that it can be examined by a medical expert, such examination shall be conducted by a registered medical practitioner employed in a hospital run by the Government or a local authority and in the absence of such a practitioner, by even any other registered medical practitioner, with the consent of such woman or of a person competent to give such consent on her behalf and such woman shall be sent to such registered medical practitioner within twenty-four hours from the time of receiving the information relating to the commission of such offence [2]. With this new insertion of amendment it has now been well accepted that even in medico-legal cases with serious implications role of private registered practitioner has been well accepted and all the investigations done in this process also stands validated.

It is very clear in the judgement that zonalisation was created to deal with medico legal cases brought by the police. In case of victim reporting directly to the hospital treatment cannot be denied to that victim even in medico-legal cases coming to hospital of their own and such cases should not be unnecessarily referred because of zonalisation. Cases should be referred only if facilities or expertise of treatment in that hospital does not exist.

In this judgement it was ordered to Medical Council of India to forward copies of this judgment to every medical colleges affiliated to it so that treatment is not denied to any victim which has the implication that if treatment cannot be denied and if medico-legal examination is required that will also have to be carried out. Because with the treatment the appearance of injuries will change and later on no useful inferences can be drawn once the wounds present on the body have been stitched which sometimes also require trimming of the edges of the wounds.

From the above mentioned discussion it is very clear that medico-legal examination of the injured can be done by any registered medical practitioner irrespective of being in govt. or private medical set up. The only precaution is that person dealing with medico-legal work must have the knowledge to do the medico-legal work properly. As forensic medicine is taught as a full subject to the medical students during their graduation like any other subject it cannot be an excuse that they do not know how to do the medico-legal work. If the authorities think that this teaching in Forensic Medicine is insufficient then government should pursue with the medical council of India to increase the teaching hours of this specialty and increase the practical exposure of the students to the case works. This can also be done by making internship duty in the forensic medicine mandatory rather than optional.

The second important part in medico-legal work is the post-mortem work. This is the state subject. Some states in India like Haryana and Karnataka are allowing post-mortem work in private medical colleges where as some states like Punjab are not allowing post-mortem work in private medical colleges. Medical students in private colleges are being discriminated versus medical students in government medical colleges. Medical council of India in their inspection sees to it that mortuary and other facilities are present for the conducting the autopsies but does not make it mandatory for the autopsies to be conducted in these mortuaries. Medical council of India must see to it that while giving permission to start the medical colleges that medical colleges get the permission to do the medico-legal autopsies. Otherwise the standard of medical students coming from the government and private medical colleges will become different.

It has been well accepted by governments that post-mortem work is a specialized field and it should be done by forensic medicine experts in medical colleges. That is why in all state medical colleges post-mortem work is being done by forensic medicine experts. Though availability of forensic medicine experts is better in private medical colleges as compared to state medical colleges yet the post-mortem work is not being allotted to private medical colleges. In Punjab the strength of forensic medicine experts in private colleges are 19 experts against the strength of 8 forensic medicine experts in state medical colleges and medical college being run by the university.

The services of forensic medicine experts which can be used by the government remains unutilized in Punjab where as neighbouring state of Haryana is properly utilizing the services of 8 private forensic medicine experts along with 4 in government sector. The fact is that the Government can authorise doctors under Section 174 of Criminal Procedure Code to conduct post-mortem examination in private medical colleges also, as is done in other States. Under this section a police can take the dead body to a civil surgeon or any other qualified medical man appointed by the state government, subject to state rules. A frivolous objection sometimes is raised that such post-mortem reports may be manipulated by

doctors working in private colleges. But most of the doctors in private medical colleges are working after rendering service in the government medical colleges and retiring unblemished from there. They have a great standing and they will maintain their reputation even in private set up. Many eminent retired government doctors have refuted the report that the proposal to allow post-mortem examinations in private medical college hospitals would create room for manipulation [3]. Taking note of this Indian Academy of Forensic Medicine in its annual meeting in 2006 passed a resolution recommending the Medical Council of India and various state governments to take steps so that autopsy work can be started in private medical colleges.

There is great need that post-mortem services be started in the private medical colleges so that students and public get the benefit of forensic medicine experts. The quality of outcome of the investigations will be much better if they are handled by forensic medicine specialist as compared to no specialized medical doctors. Medical students will also be able to grasp the highly technical subject in a better way if they have more practical exposure which is possible only if they are exposed to post-mortem work in their own institutions under the guidance of forensic medicine experts.

References:

1. Pt. Parmanand Katara V/s Union of India and others, Writ Petition (Criminal) No. 270 of 1988. SC 1989 AIR 2039.
2. The Code of Criminal Procedure (Amendment) Act, 2005 [No. 25 of 2005].
3. Proposal on post-mortem defended. The Hindu, Kerala, Kozhikode: 24/10/2005 <http://www.thehindu.com/2005/10/24/stories/2005102409350500.htm> (retrieved on 24/11/2007)

Prof. R.K.Gorea

PATTERN OF INJURIES PRESENT IN ROAD TRAFFIC ACCIDENT IN SHIMLA HILLS

Dr. Sangeet Dhillon, Post PG Registrar
Dr. Piyush Kapila, Post PG Registrar
Dr. H.S. Sekhon, Professor and Head
 Department of Forensic Medicine, IGMC, Shimla (Himachal Pradesh)

Abstract

In this paper, autopsy cases of one year duration in the IGMC, Shimla have been studied. Epidemiology and pattern of injuries of 50 cases have been studied. Results of this are being presented in this paper. Most of the accidents were on the national highway and head was the most common part involved in the accidents. Intracranial haemorrhage was seen in majority of cases involving injuries on the head. Haemorrhagic shock was responsible for most of the deaths

Key words: Injuries, Deaths, Traffic Accidents.

Introduction

Road traffic accidents are a major but neglected global health problem. World wide the number of people killed in road traffic crashes each year is estimated at about 1.2 million, while the number injured world wide are as high as 50 million. In South East Asia road traffic accidents rank 9th in world and total proportion accounts to 2% and Disability Adjusted Life Years by road traffic accident rank 10th and 2.4% of total proportion. On an average 155 persons die per day in road accidents in India in addition to 700 persons getting injured. [1]

Material and Methods

50 cases of fatal road traffic accident were brought to mortuary of Forensic Medicine Department, Indira Gandhi Medical College, Shimla during one year period (1.1.2005 to 31.12.2005). The details of the type of vehicle and type of road were taken from the Police papers and attendants. The injuries on the organs in chest and abdomen were studied

according to organ injury scale besides the injuries on the head and limbs.

Observations

50 fatal road accidents which occurred during one year period constituted 22.9% of total 218 medicolegal deaths autopsied during the same period. Adult age group 21-40 years constituted 29 cases of the mortalities thus making it the most vulnerable group. 46 of the total casualties were males thus making them the more vulnerable sex.

Table 1: Showing age-wise distribution of casualties

Age Group	No.	%
0-10	0	0
11-20	5	10
21-30	17	34
31-40	12	24
41-50	4	8
51-60	7	1
61 and above	5	10
Total	50	100

Table 2: Showing Sex-wise distribution of casualties

Sex	No.	%
-----	-----	---

Male	46	92
Female	4	8
Total	50	100

Table 3: Showing types of vehicles involved

Vehicles	No.	%
Heavy	17	34
Moderate	12	24
Light	13	26
Two Wheeler	3	6
Bicycle	0	0
Pedestrian	5	10
Total	50	100

Table 4: Showing causalities as per road type

Classification of road	No.	%
National Highway	24	48
State Highway	7	14
Link Road	19	38
Total	50	100

Table 5: Showing parts of body affected by injuries

Part of body affected	No.
Head	31
Neck	7
Thorax	16
Upper limbs	25
Abdomen	16
Pelvis	10
Lower limbs	37

Table 6: Showing incidence combination of injuries

Combination	No.
Upper Limbs, Lower Limbs	23
Lower Limbs, Head	23
Limbs, Head	17
Head, Neck	5
Neck, Thorax	2
Thorax, Abdomen	8
Abdomen, Pelvis	6
Limbs, Neck, Thorax, Abdomen	2
Limbs, Neck, Thorax	2
Limbs, Abdomen & Thorax	4
Limbs, Thorax	9
Limbs, Pelvis	5

Out of total 50 cases, head injury was seen in 31 cases; out of these only 24 cases had visible scalp injury. Fractures were seen in 23 cases,

brain laceration in 11 cases and 24 fatalities having intracranial haemorrhage. The laceration and contusion of scalp were equal in number with temporal fractures marginally ahead of other fractures of skull.

Table 7: Showing cases with head injury

Head Injury	Type	No.	Total	
Scalp injury	Laceration	12	24	
	Contusion	12		
Fracture involved	Bone involved	Frontal	5	23
		Parietal	4	
		Temporal	6	
		Occipital	4	
	Cranial Fossa involved	Anterior	6	
		Middle	5	
		Posterior	3	
		Anterior + Middle	3	
		Middle + Posterior	3	
		Anterior + Middle	1	
Anterior + Posterior		1		
Laceration of brain	Forebrain	3	11	
	Midbrain	4		
	Hindbrain	4		
Intracranial Haemorrhage	Extradural	0	24	
	Subdural	6		
	Subarachnoid	16		
	Intracerebral	2		
Oedema of brain	-	-	6	

Table 8: Showing cases with Spinal injury

Spinal Injury	No.	%
Cervical	2	4
Thoracic	0	0
Lumbar	0	0

Table 9: Showing cases with thoracic injuries

Chest Injury	No.	%	
Aspiration	12	24	
Blood in pleural cavity	15	30	
Tracheo Bronchial injury	0	0	
Thorax injury	A	6	30
	B	9	45
	C	5	25
	D	0	0

Table 10: Showing the side of chest injured in cases

Side	Total	A	B	C	D	E
Right Lung	10	2	4	1	1	2
Left Lung	10	0	2	1	5	2

10 cases each of left and right lung injury was present and three cases had both lung injury.

Table 11: Showing cases with abdominal injury

Abdominal Organs involved	No.
Liver	13
Spleen	13
Spleen & Kidney	1
Large Intestine & Liver	1
Liver & Spleen	3

In 13 cases each liver and spleen were injured to various scales. There was no case of combination of abdominal injuries in same scale except 1 case in A scale for spleen and kidney seven cases had combination of liver and spleen injuries in different scales.

Table 12: Showing the cases with pelvic injury

Pelvis Injury	No.
Pelvic Haematoma	6
Fracture Pelvis	6

Six cases each were having pelvic haematoma associated with fracture pelvis

Table 13: Showing cause of death in different cases

Cause of Death	No.
Haemorrhagic shock	38
Thorax	6
Thorax, Pelvis	3
Thorax, Ex. Abdomen	8
Abdomen	2
Thorax, Abdomen	6
Thorax, Abdomen	2
Pelvis	5
Pelvis, Ex. Abdomen	3
Pelvis, Thorax, Ex. Abdomen	1
Pelvis, Abdomen	1
pelvis, Ex.	1
Head Injury	9
Septicaemia	1
Cervical Spinal injury	2
Head Injury + Haemorrhagic Shock	3

Discussion

In the present study 22.9% cases were due to vehicular accidents this is consistent with findings of Dhattarwal et al, Kiran et al [2,3]. Males were predominantly involved in the accident which is consistent with study of Charpure et al [4].

The third decade of life was involved more and findings are consistent with finding of Bhaskaran et al [5]. The heavy vehicles were involved more in the accidents and is consistent with finding of Aggarwal et al [6]. Maximum number of accidents occurred on the national Highway and minimum occurred on state Highway which is consistent with finding of Dhattarwal. Maximum injuries affected the lower limbs which is consistent with finding of Dhattarwal.

The head injury was present in 31 (62%) of cases 70% of them had fracture of the skull. The scalp injuries were the commonest finding in head injury. In the scalp the laceration and contusion were equal in number (24%). The temporal bone fractures were in maximum (12%) number of cases followed by frontal bone (10%) and parietal and occipital bone (81%). The fracture of base of skull was involved in (12%) in the anterior cranial fossae and middle cranial fosse was in 10% of cases. There were 32% cases of subarachnoid and 14% cases which had combination of subdural and subarachnoid haemorrhage. There were 3 cases which had laceration on forebrain, 4 each which had laceration of midbrain and hind brain. There was no case of contusion of brain.

Only 2 cases had cervical injury and both died in hospital and the time between injuring and death was 1-3 days.

30% of cases had blood in pleural cavity and aspiration of blood was seen in 24% of cases.

According to Organ injury scaling thorax had A injury scale in 6 cases, B scale in 9 cases and C scale in 5 cases. The lung had D scales in 6 cases. The steering wheel causes blunt injury to driver leading to compression of chest.

Small intestine had scale D in 2 cases. Large intestine had scale A injury in 2 cases. In liver 2 cases had A, 3 had B, 3 had C, 1 had D and 4 had E scale injury. Splenic injury was seen in 13 cases, 8 died in zero hour and 2 died in less than 3 hours. 1 died in 12-14 hours and 1 died in 3 to 12 hours. Kidney has 20% of cases in scale A, 1 case was seen with bladder injury in scale D. the combination injuries for abdominal organs were less in number and that means that injury to one major organ becomes a cause for death of person.

Pelvic haematoma was reported in 12% of cases and pelvic fracture was reported in 12% of cases.

There were 38 cases of haemorrhagic shock (76.1%) it was due to bleeding in either of the cavity or combination of injuries and bleeding in to more than 1 cavity.

Head injury as cause of death was present in 9 cases, 2 cases had cervical cord injury, and sepsis death was present in 1 case. In

comparison to analysis of San Diego County haemorrhagic death was nearly double. The combination of head injury and haemorrhagic shock was same and also the death due to septicaemia.

References

1. Roptis E, Cropper AL. Traffic fatalities and economic growth. Washington, DC. The World Bank; 2003.
2. Dhatarwal et al Pattern and distribution of injuries in fatal road Traffic Accidents in Rohtak. JIAFM 2004; 26(1): 20-23.
3. Kiran Ravi et al. A comprehensive study on epidemiology of medico-legal cases. JIAFM 2005; 27(4):212-218.
4. Charpure et al. The role of accidents in mortality. Indian Journal of Medical Sci, 1959; 13(3): 232.
5. Bhaskaran C, Siyamala et al. Road traffic accidents: A survey. JIAFM 1984; 6 (2); 6-13.
6. Agarwal S, Agarwal SN. Fatal road accidents. An analysis of sixty four autopsied cases. J Indian Academy of Forensic Science 1967; 6(1):26-32.

A STUDY OF SO CALLED FABRICATED INJURIES

Dr. R.K.Gorea, Professor & Head, Gian Sagar Medical College, Ram Nagar, Banur, Punjab

Dr. J.Gargi, Principal, Govt Medical College, Amritsar, Punjab

Dr. A.D.Aggarwal, Assistant Professor, Forensic Medicine, Medical College, Mullana, Haryana

Abstract

Seven hundred and fifty seven medico-legal injury cases were studied to know the extent of fabricated injuries with reference to their nature. Medico-legal examination of the injury of cases was carried out taking the history of the case before and after the examination. Out of the total number of 159 grievous injuries 62 were fabricated grievous injuries in the form of cut fractures (38.99%). The purpose of the study was as how to decide about a fabricated injury and to avoid any controversy will declaring a cut fracture as grievous injury, and what should be the definition of the fracture.

Keywords: Injury, Fabricated, Grievous, Hurt

Introduction

Fabricated injury is a major problem of forensic experts. Minimal of literature is available pertaining to the study of the fabricated injuries and specifically, no authentic criterion is laid down to label, which injury should be declared as fabricated. In view of this, the detailed study with vast scope to avoid controversies at the time of examination and subsequently in the court of law as mandatory.

Fabricated, fictitious, forged or invented wounds are those which may be

1. produced by a person on his own body (self-inflicted),
2. or occasionally, caused by another person with his consent (self-suffered).

Though these two types of injuries may involve the similar forensic aspects but they may have an entirely different profile. Such injuries may be produced for the following reasons: [1]

1. Simulated offences

- a. To charge an enemy with assault or attempted murder
 - b. To make a simple injuries appear serious
 - c. Fictitious sexual assault by women to bring a rape charge against enemy
 - d. Feigned robbery by policemen, servants and watchmen acting in collusion with robbers to show that they were defending the property
 - e. By the assailant, to pretend self-defence or to change the appearance of wounds which might connect him with the crime
2. By prisoners, to bring a charge of beating or torture against officers
 3. By soldier recruits, to escape military service
 4. For insurance or workmen's compensation claims

5. In psychiatrically ill patients

6. Suicidal acts

Fracture of the bone is known grievous injury according to section 320(7) IPC. [2] And if we consider the medical dictionary meaning of the fracture - any break in continuity of a bone is a fracture [3]. But according to Modi, the dimension in respect of the depth of the cut in the bone must be mentioned [4]. Whereas, the definition given by Mukherji states that fracture will be considered as grievous injury, if the cut in the bone or break in the continuity of the bone extends deep up to the medullary cavity [5]. In view of the controversial definitions, it becomes essential for the forensic expert to decide, which one is to be taken into consideration or followed while declaring cut fractures as grievous.

Material and Method

The study pertaining to fabricated injuries had been carried out in department of forensic medicine of medical college, Amritsar from Medico-Legal injury cases.

Seven hundred and fifty seven medico-legal injury cases with a total number of two thousand nine hundred and forty injuries were studied. Nature wise the number of injuries and percentage of fabricated injuries is given in Table 1.

Table 1: Showing the nature and incidence of injuries

Injury type	Total no. of injuries	No. Of Fabricated Injuries	Percentage
Simple Injury	2752	8	0.29
Grievous Injury	159	62	38.99
Dangerous	29	1	3.44

Injury			
Total	2940	71	2.41

Criteria for opining the injuries as fabricated were as below:

1. Conflicts of time since injury.
2. Conflicts in history
3. Police verification
4. Non- vital areas
5. Suspected anesthetic marks.
6. Confession by injured

When most of the above criteria were present in a particular case, then an opinion of possible fabrication of injury was formed.

Observation

On the basis of the criterion laid down under material and method, it was observed that there were, in all 71 fabricated injuries [2.41%] to the total 2940 injuries as given in table 1.

Nature wise the type of fabricated injuries were as under

1. Simple fabricated injuries

Out of total of 2752 simple injuries [as shown in table 1] simple fabricated injuries were 8 only [0.29%]. The detail of which were as follows

- a. Bruise – one injury caused by Marking Nut which became evident on taking the history regarding profession [washer man] and subsequent confession by the relatives of the patient. Injury was subjected to dermatologist opinion.

b. Lacerated wound converted to incised wound - seven injuries are of that type in which margins were clean cut except near the angles based on the wounds showed that tissue septa's were bridging across the wound and as such in all the 7 cases sharp edged instrument was used (probably the scissors).

2. Fabricated Grievous Injuries

Out of total of 159 Grievous injuries 62 were fabricated (38.99%). All were cut fractures of the bones. The details of which were given in table 2.

Table 2: Showing the incidence of parts involved and radiologist opinion

Body parts involved/affected.	No. of cases	Radiologist opinion
Shin of Tibia	41	1-3 mm deep cut in the bone.
Olecranon process of Ulna on back of forearm/elbow	17	1-3 mm deep cut in the bone.
Parietal and Frontal Skull bones	2	Outer table of skull bone shows a cut.
Proximal Phalanx of thumb	1	Cut in the Proximal Phalanx of thumb
Both Nasal bones at bridge of nose	1	Cut in the nasal bones of skull present

3. Fabricated Dangerous Injury

Only fabricated dangerous injury was the result of fabricated cut on the skull.

Discussion

In view of the observations of fabricated injuries, the main aspect of the paper is to avoid certain complications discussed below, both at the time of examination and subsequently in the court of law

1. When a medico-legal expert comes to know that injury is self inflicted or self suffered whether one should declare such injury as fabricated or not immediately or should wait for query to be put by the police or legal authorities. In case it is declared as fabricated- the various possible consequences
2. Whether the cuts in the bone opined by radiologist as 1-3 mm deep, should be declared as grievous especially in cases of long bones and cuts in short/small bones without any discussion.

Definition of fracture – the medical dictionary meaning of the fracture – is the breaking of the part especially the bone or break or rupture in the bone or in continuity of a bone [3]. If we decide all our cases on the basis of this definition then every case reported in this paper as cut fracture is definitely grievous in nature as per radiologist’s report who has invariably given the cut in the bone measuring 1-3 mm deep. If we have a glance at the reports given by the radiologist [table 2] perhaps it is in fulfillment to Patna High Court decision as reported by Modi [4]. So whether every cut in the bone of these dimensions is grievous hurt? Since one is not aware of the thickness of every bone at various points, it is very difficult to conclude whether it is a grievous hurt or not; in the light of definition of fracture, given by Mukherji [5]. However if we keep in view of definition the definition of fracture as written under section 320 of IPC and further clarified “that to amount a fracture, it is not necessary that the bone

should be cut through and through and that the crack in the bone must extend from the outer to inner surface or there should be a displacement of any fragment of the bone". If there is a break by cutting or splintering of the bone or there is a rupture or fissure in the bone, it would amount to fracture within the section 320(7) IPC.

In view of this, it can be concluded that even if the extent of the cut is not mentioned, it will amount to grievous hurt. As such, even if, as a result of bone deep injury, there is a scratch on the bone, it will amount to grievous hurt contrary to Patna High Court revision [4].

Though the definition written under section 320 (7) of IPC [1] is still taken as a parameter for declaring a fracture as grievous hurt but the supreme court in its judgment, in one case, had clarified that until and unless such a cut in the bone do not extend deep up to the medullary cavity it will not constitute a grievous hurt within the definition of fracture under section 320(7) of Indian Penal Code as given by Mukherji [5].

If we examine the legal and rational aspect of the definition of the fracture given by Supreme Court, there seems to be some justification in declaring such injuries as grievous in nature provided the injury has extended deep up to medullary cavity. Perhaps this has been observed in view of the section 320(8) of Indian Penal code [2] which clearly states that any hurt which endangers life or which causes the sufferer to be during the space of 20 days in severe bodily pain or unable to follow his ordinary pursuits.

Conclusions

For better understanding of fabricated injuries, forensic practitioner should be armed by knowledge of their classification, mechanism of infliction and other characteristics that might affect opinion formation. To successfully differentiate injuries that are fabricated, a forensic practitioner should receive appropriate training, and accumulated experience may be necessary. A thorough history and further detailed physical examination will help in correlating the injuries and formation of final opinion and report. Forensic photography of the injuries and the environment especially clothes is an important aspect. Some definite criteria must be evolved to decide about fabricated injuries. Further, a rational definition of fracture for medico-legal purposes needs to be evolved without any discrepancy.

References

1. Pollak S. Clinical forensic medicine and its main fields of activity from the foundation of the German Society of Legal Medicine until today. *Forensic Science International* 2004; 144(2-3):269-83
2. Tandon NP and Tandon R. (1982) *The Indian Penal code*. 15th Ed. Law Publications, Allahabad. Pp 277-78.
3. Aroy LB, Burross W, Greenhill JP, Hewitt HM. (1957) *Dorlands illustrated Medical Dictionary*, 23rd ed. W.B. Saunders Company, London. P 530.
4. Modi NJ. (1979) *Modi's text book of Medical Jurisprudence and Toxicology*, 20th ed. N.M. Tripathi Private Ltd., Bombay. P 238.
5. Mukherji JB. (1981) *Forensic Medicine and Toxicology*, 1st Ed. Academic Publishers, Calcutta. Vol. I. P 236.

PSYCHOLOGICAL ASPECTS OF SERIAL KILLINGS

Dr Shilekh Mittal, MD, DNB, Assistant Professor, Department of Forensic Medicine,
Dr Sandeep Kumar Goyal, MD, Assistant Professor, Department of Psychiatry,
Dr Samta, MBBS, Demonstrator, Department of Physiology,
MM Institute of Medical Sciences and Research, Mullana (Ambala)
Dr Moneeshindra Singh Mittal, MBBS, Junior Consultant, Mittal Hospital, Faridkot

Abstract

The serial killings that took place in Noida send a wave of shock through out India. Most of the recovered skulls were of young children mainly of females. The child abuse in one or other form has become a major public health problem. According to WHO, 40% of our population comprises of children/adolescents. In this paper we have tried to access the mental makeup of the persons performing such acts.

Key words: Nithari Killings

Not a day passes without the news of killings, rape, child abuse and similar horrible acts of violence like we have heard a case of recovery of skeletons from Nithari village of Noida, UP, India which had shaken the whole civilization. The alleged killer master – servant duo of this case, who had admitted to the charge of rape and murder of several children, majority were females. Investigating agencies while probing the grisly murders had found more than a dozen bundles containing various body parts in the home and drains near it.

The investigations had also stated that the bodies were neatly stored in packets treated with chemicals to prevent accumulation of bacteria and emission of foul odour. Most of the skulls were of young children and 11 of the heads had long hairs, so we are assuming that they must be girls. [1,2]

Around 38 children in the age group of 3 – 11 years had gone missing from Nithari, a semi rural village on the edges of this upscale suburban town, in the past 21 months. [3] After

interrogating the alleged accused, the investigating agencies had come to the prima facia conclusion that he (servant) is a psychopath who used to carry out the killings. [4,5,6]

Investigating agency seized photographs of nude children from D-5, Noida apart from pornographic literature, a laptop computer and web cam. Some photographs were showing dance performed by nude children while others showing him (master) in the company of some foreigners. The children in the photographs were Indians. Investigating agencies were suspecting that alleged accuse provide pornographic videos made of children to clients abroad and could link him to pedophilia. [6,7]

Investigating agencies were left aghast when they learned that one of the accused had even confessed to the consumption of the victim's livers and other body parts (cannibalism) showing the amount of brutality the duo had allegedly committed on the victims. [6]

The Nithari case has put paedophilia, cannibalism, necrophilia and psychopath killer in the national spotlight once again. Some paedophiles may prefer boys over girls, or vice versa, it's not so much about gender as it is about age. Mental health professionals agree that pedophilia should never be considered normal, because it is truly a disease. None of the things that make homosexuality a normal variation of human sexuality apply to pedophilia. [7]

In the long run, sexual abuse during childhood can lead to just about any kind of mental problem, including depression, alcohol or drug abuse, and anxiety disorders. Some, but not all abused children go on to become paedophiles themselves. [7]

Cannibalism, which is the most widely used term to express human's consumption of other human beings. There are many who refuse to believe that cannibalism is practiced in this modern, "civilized" age. However, there is much evidence suggesting that it does occur and with some frequency. There have been many documented cases of cannibalism, especially within the last 100 years. [8]

Sexual cannibalism is considered to be a psychosexual disorder, which involves a person sexualizing the consumption of another person's flesh. This does not necessarily suggest that the cannibal achieves sexual gratification only in the act of consuming human flesh, but also may release sexual frustration or pent up anger. Sexual cannibalism is considered to be a form of sexual sadism and is often associated with the act of necrophilia (sex with corpses). There have been several high profile cases, which have involved sexual cannibalism, including that of Andrei Chikatilo, Edward Gein, Albert Fish, Armin M and Jeffrey Dahmer. [9]

During the 1920's Americans were confronted with the horrors of Albert Fish who was said to have raped, murdered and eaten a number of children. Fish was a sexual cannibal in the truest sense of the term and claimed to have experienced enormous sexual pleasure when he imagined eating a person or when he actually indulged his fantasies. [9]

The Nithari killings have put the spotlight back on the ways and the psychology of serial killers. Chennai's Auto Shanker, Mumbai's Stone-Man, Jalandhar's Darbara Singh and Charles Sobraj were all men who lived dual lives for a long time. Not many would suspect that each of them was a serial killer, until it was too late. [10]

Psychologists estimate that one in every 100 people is unfeeling enough to qualify as a psychopath, with an especially heavy concentration among criminals. The ranks include serial killers such as Ted Bundy, who charmed and killed dozens of young women in the 1970s, and cannibal-murderer Jeffrey Dahmer, who fatally seduced 17 men and boys before he was caught in 1991, as well as a great many other people who never commit a crime punishable by law, but go through life heartlessly using and manipulating others without remorse. [11]

Necrophilia is an erotic attraction to corpses. According to Dr. Jonathan Rosman and Dr. Phillip Resnick, there are three basic types of "true" necrophilia:

- Necrophilic homicide, which is murder to obtain a corpse
- Regular necrophilia, the use of corpses already dead for sexual pleasure

- Necrophilic fantasy, envisioning the acts but not acting on them

Most people fit into the second category than the other two.

Contrary to common belief, say Rosman and Resnick, most necrophiles are heterosexual, although about half of the known necrophiles who have killed were gay. In only about 60% is there a diagnosed personality disorder, with 10% being psychotic. The most common occupations through which necrophiles in their study came across corpses include hospital orderly, morgue attendant, funeral parlour assistant, cleric, cemetery employee, and soldier—although the majority of people thus employed are (not) tempted to violate a corpse. [12]

Conclusion

The study of "ambulatory" psychopaths has, however, hardly begun. Very little is known about sub-criminal psychopathy. However, some researchers have begun to seriously consider the idea that it is important to study psychopathy not as an artificial clinical category but as a general personality trait in the community at large.

References

1. "Butcher-like precision in Noida killings: post-mortem", Rediff News, Jan. 4, 2007.
2. "Most Noida victims were girls; SIT to probe killings", Rediff News, Jan. 4, 2007.
3. "Noida: Parents of missing children anxious", Rediff News, Dec. 29, 2006.

4. "Nithari killings accused a psychopath: CBI", Rediff News, Jan. 17, 2007.
5. "Gory details of Nithari killings revealed", Rediff News, Feb. 6, 2007.
6. "Found in horror house: photos of nude children, foreigners, porn", Indian Express, Jan. 6, 2007.
7. Explaining Pedophilia. (Cited 2007 Sept. 07th); 1(1): (1 screen). Available from URL: <http://www.webmd.com/sex-relationships/features/explaining-pedophilia?>
8. Criminal Cannibalism. (Cited 2007 Sept. 07th); 1(1): (1 screen). Available from URL: http://www.crimelibrary.com/criminal_mind/psychology/cannibalism/4.html
9. Sexual Cannibalism. (Cited 2007 Sept. 07th); 1(1): (1 screen). Available from URL: http://www.crimelibrary.com/criminal_mind/psychology/cannibalism/5.html
10. Serial killers: The mind of a psychopath. (Cited 2007 Sept. 24th); 1(1): (1 screen). Available from URL http://www.crimezzz.net/serialkiller_news/N/NIT_HARI_CHILD_slaughters.php
11. Inside the psychopath: Moving ahead on diagnosis and possible treatment. (Cited 2007 Sept. 07th); 1(1): (1 screen). Available from URL: http://hubel.sfasu.edu/course_info/articles/physio_psychopathology.htm
12. Varieties of Necrophilia. (Cited 2007 Sept. 07th); 1(1): (1 screen). Available from URL: http://www.crimelibrary.com/serial_killers/notorious/necrophiles/necro_4.html

ABORTION – MOTHER VS FOETUS

Dr Prateek Rastogi, MD, PGDMLE, Assistant Professor,
Dept. of Forensic Medicine, Kasturba Medical College, Mangalore

Abstract

No other issue has raised so many questions as medical termination of pregnancy (abortion). This issue is seen as conflict of rights between mother and the unborn child. Supporters of mother's rights can argue that decision regarding continuation or termination of pregnancy should be entirely on mother's discretion, as she has to bear and raise the child. Also she has to go through trauma of delivery.

Key words: Abortion, Foetus, MTP Act.

Pregnancy confers lot of physical, physiological and psychological changes and strain to the mother. Child birth even poses a danger to her health and life. She has to make adjustments with her career and financial resources to bring up the child. Moreover, an alcoholic or addicted mother has to change her habits during pregnancy for the sake of child. Also she has to abstain from sexual intercourse and have to follow dietary and medical guidelines. [1] This is an interference with her right to freedom of life, and right to bodily autonomy. [2]

Furthermore, forcing a woman to bear the child without her will is like doing a service without her consent which is illegal. Even at time of delivery refusing early delivery by caesarean or drugs in order to save the child amounts to cruelty towards mother, as she is the one who will bear the pain. Thus, she should be allowed to abort at her will if she desires so.

On the other hand supporters of rights of the unborn can argue that once the woman has conceived the child, she agree to lend her body to the baby so she cannot take any step to harm the baby. Right to freedom of life and right to bodily autonomy are integral part of person's

life but that cannot override other individual's right to live. It is a fundamental concept that society can restrict an individual's right if it causes harm to others. Everyone has the right to make choices, but rights necessarily entails responsibilities, where choices may do harm to others they should be limited. It might not be ethical to administer treatment to addicted mothers without their will but it is ethical to advise them against addiction.

In short, mother should not be deprived of her rights but once she have agreed to rear the child, due consideration should be given even to his interests. Although law does not consider existence of foetus till age of viability [3, 4] but morally speaking once foetus is conceived due care should be provided to him. Efforts should be made to ensure health of both mother and foetus. In cases where interests of mother like life and health are at risk then foetus's interests can be overridden to give priority to mother's interests.

References

1. Abele vs. Markle. 342 F. Supp.800 (1972).
2. Francis Coralie vs. Union Territory of Delhi. AIR 1981 SC 746.

3. Roe vs. Wade. 410 US 133.

4. Patricia AK. The Juridical status of the foetus: A proposal for legal protection of the unborn. 77 Mich. LR 1569 (1979).

PREVENTING INJURIES BY ADDRESSING HUMAN FACTORS IN CAUSATION OF ROAD TRAFFIC CRASHES

Dr. B. R. Sharma, MD, Professor,
Dept. of Forensic Medicine and Toxicology, Govt. Medical College & Hospital, Chandigarh - 160030 India
E-mail: drbrsharma@yahoo.com

Abstract

Road Traffic Injuries are responsible for a substantial fraction of morbidity and mortality and are responsible for more years of life lost than most of human diseases. The cost in human misery, permanent impairment and lost resources is also considerable. The human behavioural factors are said to collectively represent the principal cause of three out of five Road Traffic Crashes and contribute to the causation of 95% of these accidents. The other factors being - the vehicle having a poor design / capability for impact protection / technical faults and the road with poor design / conditions. We reviewed the literature pertaining to various human factors and classified them into those associated with long-term and short-term reduction in driving capability with an aim to suggest prevention of road traffic injuries based on human behaviour modification.

Key words: Accident proneness; Driving behaviour; Driving capability; Risk factors; Risk taking, Road traffic crashes (RTC); Road traffic injury (RTI)

Introduction

Motor vehicle crashes contribute significantly to the burden of injury and death worldwide and risky driving behaviours, such as drink driving, speeding and non-use of seatbelts, are considered responsible for a significant proportion of this global burden [1]. Several studies have attempted to assign responsibility to major categories of factors that contribute to the occurrence of road traffic crashes. It has been documented that in three out of five crashes, driver-related behavioural factors dominate the causation of a motor vehicle accident while they contribute to the occurrence of 95% of all accidents [2].

It would be expected that better driving skills would be reflected in a lower accident rate.

However, it was shown that highly skilled registered race drivers in the USA had significantly higher number of accidents than ordinary drivers, due to the fact that they are used to taking high risks easily [3]. This result illustrates the important role of driver's behaviour on his driving performance and therefore on the possibility of a road traffic crash.

Other risky driving behaviours such as racing other vehicles for thrills, close following and illegal passing, have also been associated with increased risk in a number of cohort, case control and cross-sectional studies [4-9]. Risky driving behaviours may be studied as 'acute' behaviours (a single incidence of a behaviour that is temporally related to the immediate risk of an injury crash) and/or 'habitual' (usual or

ongoing) risky driving behaviours. Many studies have shown that acute risky driving behaviours increase the risk of an injury crash, but several studies have also suggested that people who report 'habitual' risky driving and have a history of convictions are also at increased risk [10].

Drowsy driving is a key factor in an estimated 76,000 – 100,000 crashes occurring each year in the United States, resulting in 1500 deaths and thousands of injuries [11, 12]. The actual toll may be considerably higher, since drowsiness also contributes to crashes by making drivers less attentive and by slowing their reactions and impairing their judgment [13, 14]. As many as 1 million crashes are attributed to driver inattention, and drowsiness may be a hidden factor in many of these crashes [15].

For anyone who is already drowsy, consumption of alcohol can pose a special risk. Research has shown that alcohol and sleep loss interact synergistically to increase levels of sleepiness [16, 17]. Studies conducted using driving simulators show significant decrements in performance when low doses of alcohol are given to sleep-deprived subjects [18].

Surveys of the general driving population provide evidence of the prevalence of drowsy driving and drowsy driving crashes. In a 1994 survey of licensed drivers in New York State, 55% said that they had driven drowsy in the past year, and 28% said that they had fallen asleep at the wheel at least once during their driving careers; 3% had fallen asleep at the wheel and crashed, and an additional 2% had crashed when driving drowsy [19]. In UK, 29% of respondents to a mail survey reported that they "had felt close to falling asleep while driving" in the past year [20], and in Norway, 1 in 12 drivers reported that they had fallen asleep

while driving during the past year, with 4% of these episodes resulting in a crash [21].

However, different studies have reported individual factors responsible for road traffic crashes. The present review is an attempt to report in a single study, various human behavioural factors that can play a key role in the causation of road traffic crashes.

Human factors associated with long-term reduction of driving capability

Reduced capability can be long-term and long lasting or short-term and transient. A relatively extended state of reduced capability may be inexperience, since it is well established that young inexperienced drivers are at a substantially higher than average risk. Persistent efforts to improve driving education among teenagers by adopting a graduated licensing system in several states of the USA have resulted in reduction of teen crashes by 5-16% [22]. Conversely, the attempts to combine driving education from both parents and trainers have not been particularly effective and the disappointing results have been explained in terms of cognitive overload [23]. Accordingly it may be concluded that there is no easy remedy for inexperience, except through highlighting to new drivers the existence of their heightened vulnerability and the encouragement of the graduated or provisional driving for a substantial period around the licensing time.

Older drivers are more likely than younger ones to have cognitive, motor and sensoro-perceptual deficits that could affect their driving performance even in the absence of overt disease. The elderly driver, however, is usually able to compensate for minor functional declines and it is important to ascertain fitness to drive in light of a multi-dimensional

evaluation [24]. Another important consideration in the context of aging and driving is that many aspects of roadway geometrics and traffic control instruments are based on driver perception-reaction times [25, 26]. Because older drivers require more time to process information and make decisions there is a need for increased specificity in the ascertainment of the age-dependent decline of cognitive and motor functions essential for driving fitness [27].

Accident proneness is a controversial issue because of a lack of understanding. There is no question that accident proneness exists, to the extent that an alcoholic or a drug abuser is at higher risk for being repeatedly involved in a car crash compared to an individual, who uses neither drugs nor alcohol [28]. Debated is whether accident proneness may also be a trait [29]. Empirical evidence suggests that inherent accident proneness may exist, although identification of such individuals through demonstration of an injury repetition pattern should only be used for identification of those who may require more attention and guidance.

There is evidence that alcoholics and chronic abusers of illicit drugs demonstrate reduced capability to confront the challenges of driving, although both factors can also create acute episodes of sharply reduced capability [30, 31]. The ability of both alcohol and drugs, depending on the pattern of use, to increase accident risk transiently as well as on a more permanent basis through both curtailments of capabilities and overconfident driving, complicate corrective approaches as well as process-based evaluation. It has been shown that drivers arrested for drinking and driving have a significantly increased risk of being eventually involved in a fatal alcohol-associated crash [20].

Human factors associated with short-term reduction of driving capability

Several factors reduce the capability for adjustment to suddenly changing conditions that may culminate in an accident. These factors can be distinguished into six categories.

Drowsiness and fatigue are likely to be the important contributors to RTC but it has been difficult to quantitatively assess their impact [32]. Data generated by the National Sleep Foundation's Gallup survey show that in the USA 31% of drivers reported having fallen asleep at the wheel and 4% reported having a crash due to falling asleep [33]. It has been suggested that a disrupted night sleep, due occasionally to snoring, could make drivers sleepier and more accident-prone [34]. The recognized contributing factors to fatigue are the length of continuous work spells, time available for uninterrupted sleep and work patterns including shift work within 24-hour cycles [35].

It is generally recognized that alcohol intoxication increases the short-term risk of accidents either by reducing inhibitions and clouding judgment or, at higher blood ethanol, by increasing reaction time and dampening reflexes. There is, however, a substantial inter-individual variability on both threshold levels and exposure-response patterns. Young people, women of any age, as well as inexperienced drinkers have little alcohol tolerance [31, 36] and they are therefore more vulnerable to an alcohol related crash. Blood alcohol concentrations even less than 0.03% have been reported to have an adverse effect on motor skills. However, a remarkable deterioration of driving performance at the level of 0.05% is generally considered as established and because of this evidence, several countries

adopted the level of 0.05% as the legal blood alcohol concentration limit for all drivers [36].

Several drugs either recreational or taken for medical reasons can affect driving behaviour either by disturbing the information processing mental function or by increasing response time. Amphetamines and anabolic steroids belong to the first category and may encourage risk-taking behaviour, whereas benzodiazepines and tetrahydrocannabinol can reduce capability [37 – 39]. Cocaine and marijuana metabolites were traced in about 50% of drivers in the USA, who were arrested for reckless driving and were not apparently impaired by alcohol [40]. Combination of alcohol drinking and drug taking introduces an additional element of complexity [41, 42].

Commonly administered drugs for therapeutic usage may influence driver's capability because of their side effects. Antibiotics, antidiabetic agents, antihistamines, antihypertensives, cardiac glycosides, diuretics, etc. may cause fainting, weakness or other potential side effects on driver's behaviour [43]. Drug interaction, often unpredictable, and commonly involving widely used drugs like antihistamines and anti-inflammatory agents represents a major and inadequately characterized problem.

Other factors may contribute to short-term capability reduction and increase the risk of an accident; binge eating may create physical discomfort as well as drowsiness [44], whereas acute stress may create attention deficit and distortion of reality [45]. A study conducted on drivers who filed for divorce showed an increased rate of accidents and violations during the year of the divorce [46].

Transient distraction of a driver brought about by acts such as lighting a cigarette, using a

cellular phone, turning on the radio, attending the needs of a child or arguing with a passenger is likely to contribute to accidents [47]. Reports have indicated that those who use mobile phones while driving have a 4-fold increase in risk for a RTC [48].

Long-term modulators of risk taking behaviour

Occasional risky behaviour while driving reflects cultural attitudes. Risky driving behaviour is particularly important among teenage drivers [49], and in many instances risk taking implies an overestimation of own skills. However, young drivers' skill and training complemented by 'insight' seems to increase their awareness of their own practical limitations, leading to a reasonable adjustment of driving behaviour to the actual risk level [50].

It is obvious that the consequences of an accident, in terms of injury severity, are a direct function of speed and energy release at the moment of crash. A study reported an extraordinary strong association between speed and RTC risk, the odds ratio for speed in excess of 84 km/hour being almost 40 times higher than that for speeds below 60 km/hour [51].

Studies have shown that traffic offenders and those driving in a way that is incompatible with decency and respect of social norms (road rage) are at high risk for RTC [52]. Driving behaviour is related not only to risk of RTC but also to injury severity following a RTC. No behaviour affects the severity of injuries in a RTC more than non-use of car restraint systems, particularly when structural vehicle safety is limited. The protective effectiveness of seat belts, conditional on RTC, has been estimated between 30 and 46% from USA data [53]. Non-use of seat belts is frequently a component of

risk taking behaviour. Accordingly, advocacy for seat belt use should be an integral part of a broader safety and prevention-oriented education [54]. In most countries, seat belt use by front seat occupants has reached satisfactory levels, but utilization rates by rear seat passengers are considerably lower.

It has also been estimated that the appropriate use of headrests, would have caused more than 25% reduction in whiplash injury risk [55]. However, data from the USA suggest that headrests are not put, as a rule, in the best position, as 83% of the adjustable headrests should have been raised for optimal driver's protection. How drivers sit in cars also influences the risk of injury following a RTC, but has different behavioural roots. Thus, positioning of drivers close to the steering wheel increases risk of an injury, even though these drivers are not risk takers but rather overcautious personalities or individuals physically disproportional to cabin size [56]. Special car restraints should be always used for children. A reduction of 60% in RTI was reported for 0 to 4-years-old children who used a special restraining seat whereas the lap-shoulder harness for 5 to 14-years-old was only 38% effective in preventing RTI [57].

Short-term modulators of risk taking behaviour

All drivers occasionally can take a risk higher than would be dictated by reason, because of tiredness, impatience, absent-mindedness or in a manifestation of compulsive driving. Careless drivers may be unable to accommodate an unexpected obstacle, for instance a construction work zone or the consequences of another accident [58]. It is difficult to predict what is defined as unpredictable, but realization that driving should involve a considerable safety margin, should be an axiom.

Conclusion

Road traffic crashes (RTCs) are responsible for a substantial fraction of morbidity and mortality and are responsible for more years of life lost than most of human diseases. It has been documented that the human behavioural factors collectively represent the principal cause of three out of five RTCs and contribute to the causation of most of the remaining. Identification of human factors responsible for the causation of road traffic crashes, and their remedial measures well in time can go a long way in prevention of road traffic injuries. Although sharp distinctions may not be always possible, a classification of these behavioural factors is both necessary and feasible as:

Those that reduce capability on a long-term basis (inexperience, aging, disease and disability, alcoholism, drug abuse).

Those that reduce capability on a short-term basis (drowsiness, fatigue, acute alcohol intoxication, short term drug effects, binge eating, acute psychological stress, temporary distraction).

Those that promote risk taking behaviour with long-term impact (overestimation of capabilities, macho attitude, habitual speeding, habitual disregard of traffic regulations, indecent driving behaviour, non-use of seat belt or helmet, inappropriate sitting while driving, accident proneness).

Those that promote risk taking behaviour with short-term impact (moderate ethanol intake, psychotropic drugs, suicidal behaviour, compulsive acts).

References

1. World Health Organisation, Facts about Injuries: Road Traffic Injuries. 2003, World Health Organisation, Geneva.
2. Evans L. The dominant role of driver behaviour in traffic safety. *Am J Public Health* 1996; 86: 784-786.
3. Williams A.S., O'Neill B. On the road driving records of licensed race drivers *Acc Anal Prev* 1974; 72: 260-272
4. Evans L, Wasielewski P. Do accident-involved drivers exhibit riskier everyday driving behaviour? *Accid. Anal. Prev* 1982; 14 (1): 57–64
5. Evans, L, Wasielewski P. Risky driving related to driver and vehicle characteristics. *Accid. Anal. Prev.* 1983; 15 (2): 121–136
6. Centres for Disease Control and Prevention: Risky driving behaviors among teenagers—Gwinnett County, Georgia. *JAMA* 1993; 272 (11): 844–845.
7. Rajalin S. The connection between risky driving and involvement in fatal accidents. *Accid. Anal. Prev* 1994; 26 (5): 555–562.
8. Harrison W.A. An exploratory investigation of the crash involvement of disqualified drivers and motorcyclists. *J. Saf. Res.* 1997; 28 (3): 213–219.
9. Lam LT. Factors associated with fatal and injurious car crash among learner drivers in New South Wales, Australia. *Accid. Anal. Prev.* 2003; 35 (3): 333–340.
10. Peck R.C. The identification of multiple accident correlates in high risk drivers with specific emphasis on the role of age, experience and prior traffic violation frequency. *Alcohol, Drugs, Driving* 1993; 9: 145–166.
11. Knipling R.R., Wang J.S. Revised estimates of the US drowsy driver crash problem size based on general estimates system case reviews. In: *Proceedings of the 39th Annual Association for the Advancement of Automotive Medicine*, 1995; Chicago IL, pp. 451–466
12. Wang J.S., Knipling R.R., Goodman M.J. The role of driver inattention in crashes: new statistics from the 1995 Crashworthiness Data System. In: *Proceedings of the 40th Annual Association for the Advancement of Automotive Medicine*, 1996; Vancouver, BC, pp. 377–392
13. Lyznicki J. M., Doege T.C., Davis R.M., Williams W.A. Sleepiness, driving, and motor vehicle crashes. *J. Am. Med. Assoc* 1998; 279: 1908–1913
14. Leger D. The cost of sleepiness: a response to comments. *Sleep* 1995; 18: 281–284
15. Stutts J.C, Wilkins J.W, Osberg J.S, Vaughn B.V. Driver risk factors for sleep-related crashes. *Acc Anal Prev* 2003; 35: 321–331
16. Zwyghuizen-Doorenbos A, Roehrs T, Lamphere J, Zorick F, Roth T. 1988. Increased daytime sleepiness enhances ethanol's sedative effects. *Neuropsychopharmacology* 1988; 1: 279–286.
17. Lumley M, Roehrs T, Asker D, Zorick F, Roth T. Ethanol and caffeine effects on daytime sleepiness/alertness. *Sleep* 1987; 10: 306–312

18. Roehrs T, Beare D, Zorick F, Roth T. Clinical sleepiness and ethanol effects on simulated driving. *Alcohol Exp. Res* 1994; 18: 154–158
19. McCartt AT, Ribner SA, Pack AI, Hammer MC. The scope and nature of the drowsy driving problem in NY state. *Accident Anal Prevention* 1996; 28: 511–517
20. Maycock G. Sleepiness and driving: the experience of UK car drivers. *Acc Anal Prevention* 1997; 29: 453–462
21. Sagberg F. Road accidents caused by drivers falling asleep, *Acci Anal Prevention* 1999; 31: 639–649.
22. Rosenberg M.L, Martinez R. Graduated Licensure: A win-win proposition for teen drivers and parents. *Pediatrics* 1996; 98: 959.
23. Gregersen N.P. Systematic cooperation between driving schools and parents in driver education, an experiment. *Acc Anal Prev* 1994; 26: 453-461.
24. Morgan R, King D. The older driver: a review. *Postgraduate Med* 1995; 71: 525-528.
25. Lerner N. Giving the older driver enough perception and reaction time, *Exper Aging Res* 1994; 20: 25-33
26. Kline D.W. Optimizing the visibility of displays for older observers, *Exper Aging Res* 1994; 20: 11-23
27. Lambert L.D, Fleury M. Age, cognitive style, and traffic signs. *Percep & Motor Skills* 1994; 78: 611-624.
28. McLellan BA, Vingilis E, Larkin E, Stoduto G, Macartney-Filgate M, Sharkey PW. Psychosocial characteristics and follow-up of drinking and non-drinking drivers in motor vehicle crashes, *J Trauma* 1993; 35: 245-250
29. Petridou E, Kouri N, Trichopoulos D, Revinthi K, Skalkidis Y, Tong J. Socioeconomic and family factors for school injuries. *Epidemiol Commun Health* 1994; 48: 490-491
30. Alvarez FJ, Del Rio MC. Drugs and driving *Lancet* 1994; 344: 282
31. Hingson R, Heeren T, Winter M. Lowering state legal blood alcohol limits to 0.08%: The effect on fatal motor vehicle crashes. *Am J Public Health* 1996; 86: 1297-1299
32. Brewer RD, Morris PD, Cole T, Watkins S, Patetta MJ, Popkin C. The risk of dying in alcohol related automobile crashes among habitual drunk drivers. *N Engl J Med* 1994; 331: 513-517.
33. Horne JA, Reyner LA. Sleep related vehicle accidents, *Br Med J* 1995; 310: 565-567.
34. Hanning CD, Welsh M. Sleepiness, snoring and driving habits, *J Sleep Res* 1996; 5: 51-54.
35. Lamberg L. Wake-up call aimed at drowsy drivers: Message is "drive alert, arrive alive" *JAMA* 1996; 276: 1209-1210.
36. Howat P, Sleet D, Smith I. Alcohol and driving; is the 0.05% blood alcohol concentration limit justified? *Drug Alcohol Rev* 1991; 10: 151-166
37. Skurtveit S, Christophersen AS, Morland J. Female drivers suspected for drunken or drugged driving. *Forensic Sci Int* 1995; 75: 139-148

38. Middleman AB, Faulkner AH, Woods ER, Emans SJ, DuRant RH. High-risk behaviors among risk school students in Massachusetts who use anabolic steroids. *Pediatrics* 1995; 96: 268-272
39. Logan B.K. Methamphetamine and driving impairment. *J Forensic Sci.* 1996; 41: 457-464.
40. Brookoff D, Cook CS, Williams C, Mann CS. Testing reckless drivers for cocaine and marijuana. *N Engl J Med* 1994; 331: 518-522.
41. Escobedo LG, Chorba TL, Waxweiler R. Patterns of alcohol use and the risk of drinking and driving among US high school students. *Am J Public Health* 1995; 85: 976-978.
42. Ranney P.M. Testing reckless drivers for substance abuse, *N Engl J Med* 1995; 332: 892-893
43. Sharma BR, Gautam CS, Singh R. Road Traffic Accidents Vis-à-vis Problems Related to Ageing. *Hospital Today.* 2002; 7 (10): 523 - 528.
44. Stacy AW, Bentler PM, Flay BR. Attitudes and health behaviour in diverse populations: Drunk driving, Alcohol use, binge eating, marijuana use, and cigarette use, *Health Psychol* 1994; 13: 73-85
45. Simon F, Corbett C. Road traffic offending, stress, age, and accident history among male and female drivers. *Ergonomics* 1996; 39: 757-780
46. McMurray L. Emotional stress and driving performance: The effects of divorce. *Behav Res Highway Safety* 1970; 1: 100-114
47. Maclure M, Mittleman MA. Cautions about car telephones and collisions, *N Engl J Med* 1997; 336: 501-502.
48. Redelmeier DA, Tibshirani RJ. Association between cellular-telephone calls and motor vehicle collisions, *N Engl J Med* 1997; 336: 453-458
49. Assum T. Attitudes and road accident risk Institute of Transport Economics, Oslo, Norway. *Acc Anal Prev* 1997; 29: 153-159
50. Gregersen NP, Young drivers' overestimation of their own skill - an experiment on the relation between training strategy and skill, *Acc Anal Prev* 1996; 28: 243-250.
51. Moore VM, Dolinis J, Woodward AJ. Vehicle speed and risk of a severe crash *Epidemiology* 1995; 6: 258-262
52. Hemenway D, Solnick SJ. Fuzzy dice, dream cars, and indecent gestures: Correlates of driver behaviour? *Acc Anal Prev* 1993; 25: 161-170
53. Viano DC. Restraint effectiveness, availability and use in fatal crashes: Implications to injury control. *J Trauma* 1995; 38: 538-546
54. Martinez R, Levine DW, Martin R, Altman DG. Effect of integration of injury control information into a high school physics course, *Ann Emerg Med* 1996; 27: 216-224
55. Viano DC, Gargan MF. Headrest position during normal driving: Implication to neck injury risk in rear crashes, *Acc Anal Prev* 1996; 28: 665-674

56. Parkin S, MacKay GM, Cooper A. How drivers sit in cars *Acc Anal Prev* 1995; 27: 777-783
57. Johnston C, Rivara FP, Soderberg R. Children in car crashes: Analysis of data for injury and use of restraints. *Pediatrics* 1994; 93: 960-965
58. Marshall C, Boyd KT, Moran CG. Injuries related to car crime: The joy-riding epidemic, *Injury* 1996; 27: 79-8

UNREPORTED KILLERS OF UNBORN – A CASE REPORT

Dr. D.S.Bhullar, MD

Lecturer, Govt Medical College, Patiala, Punjab

Abstract:

The Medical Termination of Pregnancy Act, 1971 and the Pre-conception and Pre-natal Diagnostic Techniques (Prohibition of Sex Selection) Act, 1994 are the two legal deterrents made under constitution to curtail illegal abortions and the heinous crime of female foeticide. From the unofficial observations, the said legal provisions have started showing the desired results due to sensitization of the qualified medical professionals but there is still a class of undeclared, illegal or unqualified medical professionals actively engaged in misusing different methods to procure illegal abortions in pregnant mothers and a setback to the very purpose for which these acts came in force.

Key Words: Septicemic shock, Spontaneous abortion, Calatropis gigantic, MTP Act 1971, PNDT Act 1994, Female Foeticide, Mifepriston

On 18-9-2007, post mortem examination of dead body of a female aged 28 years was conducted in the department of Forensic Medicine in GGS Medical College, Faridkot (Punjab). The clinical history & post mortem findings were as below:-

Clinical History: As per admission record, it was a case of peritonitis following MTP by an untrained Dai one month back / septicaemia admitted in a semiconscious condition & distended abdomen in GGS Medical Hospital on 19-9-07. On 15-9-07, laparotomy of the patient was done in a private hospital and about five litres of pus was removed.

Ultrasonography report revealed 9.1 X 5.3 C.M. hypo echoic area anterior to uterus, ovaries not well visualized, significant amount of free fluid noted in peritoneal cavity, uterus anteverted, no discrete SOL in myometrium, endometrial echo complex prominent and cervix & vagina were normal. (Opinion: Pelvic mass? Blood clots with free peritoneal fluid)

Post Mortem Findings: Dead body of a weakly built / emaciated female with general pallor, whitish nails, dull conjunctivae & sunken eyes. Rigor mortis present on all body parts. Post mortem staining fixed and faintly visible on the back except pressure areas. Surgical stitched wound 11.5 C.M. in length present on abdomen starting 5 C.M. below umbilicus and going down along mid line. Vagina was grossly swollen with pus like foul smelling dirty liquid present inside. On dissection of abdomen, peritoneum showing matting and adhesions at multiple sites with foul smelling pus, about one litre present in the abdominal cavity, uterus showing healing with scar type appearance, organs dull and pale. The cause of death was septicemic shock from peritonitis resulting from rupture of uterus possibly during medical termination of pregnancy by untrained Dai, sufficient to cause death in the ordinary course of nature.

Police Inquest report: As per statement of the mother of deceased, she is survived by two daughters aged 11 & 6 years with H / O

amenorrhoea of 10 days three months back when she started bleeding per vaginum and spontaneous abortion and subsequently was treated post abortion for pain abdomen.

Opinion: From the police inquest report, clinical history, post mortem findings and inquiry of the relatives separately during post mortem examination & circumstantial evidence, it can be concluded that it is a case of female feticide with the relatives unwilling to divulge the name of untrained Dai who aborted the female foetus and the ultrasonologist who divulged sex of the unborn.

Discussion

The incidence of natural or spontaneous abortion is 10-15% of all pregnancies. Severe haemorrhage following vaginal or uterine laceration / perforation from instrumentation and sepsis leading to death of the pregnant mother are the known complications of criminal abortion [1]. Determining the prevalence of miscarriage is difficult. Many miscarriages happen very early in the pregnancy, before a woman may know she is pregnant. Treatment of women with miscarriage at home means medical statistics on miscarriage miss many cases [2]. Since no reliable data on abortions performed outside recognized places is available for obvious reasons, we are compelled to go by estimates and the results of surveys. The Report of the Committee to Study the Question of Legalization of Abortion (GOI, 1966), also referred to as the Shantilal Shah Committee Report, calculated a figure of 3.9 million induced abortions all of which were illegal since they preceded legalization [3] Another estimate puts the figure as 4 to 6 million [4]. A multi-centre study conducted between 1983 and 1985 in five States- UP, Rajasthan, Orissa, Haryana and Tamil Nadu -

concluded that there were 2.2 illegal abortions per every legal abortion [5]. The latest estimate contends a rate of 3 illegal abortions to one legal abortion in rural areas and a corresponding ratio of 4-5:1 in urban areas [6]. We feel that these rates are underestimations. In order to arrive at a conservative estimate for the year 1991, we shall use the ratios mentioned in the Shantilal Shah Committee Report. The Report states: "If it is assumed that for every 73 live births, 25 abortions (i.e. 34.3 per cent) take place annually and of these 15 are induced (i.e.60 per cent), then in a population of 1000 there may be approximately 13.5 abortions (corresponding to the prevailing birth rate of 39) and of these, 8 will be induced". Thus, at the 1991 population of 846.3 million and a birth rate of 30.2 per 1000, in India we had 8.8 million abortions of which 5.3 million were induced. This gives an Abortion Rate of 10.4 per 1000 and an Induced Abortion Rate of 6.2. Of the 5.3 million induced abortions in the country in 1991, only 0.58 million were legal and the rest i.e. 4.72 million were illegal. This gives us a ratio of 8 illegal abortions for one legal abortion.

The main reasons for seeking illegal abortions are found to be due to financial strain, poverty and social factors like an unmarried, widowed or separated marital status [7]. There are two other important studies on the medical consequences of induced (legal and illegal) abortions by the ICMR. The first was conducted in 1981, "Short term Sequel of Induced Abortion", and the second, in 1982, was titled, "Septic Abortion". Phillips and Ghose (1976) found that twigs of *Calatropis gigantea* was most commonly used by unauthorized providers of abortion services. In their study "Criminal Abortion in Western India" [8] found that the introduction of a vegetable stick was

the most common practice. Most of the studies conducted before 1980 have found that, at the village level, induced abortion services are predominantly provided by traditional birth attendants, most of whom are illiterate women. A community based survey of 10,000 women and 1200 providers (ICMR, 1989) found that although a majority of the women were aware of induced abortions, more than one third (i.e. 38 per cent) were unaware that induced abortions could be labelled as 'legal' or 'illegal'. A dismaying finding for members of the Task Force was that women in PHC villages were almost totally unaware about the availability of MTP services at the PHC (except in UP and Tamil Nadu where they had some knowledge). Women from sub centre villages, where MTP services were not provided, were more aware about this facility. The Task Force discovered that ANMs and Lady Health Visitors, who are not authorized to do MTPs, used government and PHC facilities for conducting abortions in connivance with doctors and thus making illegal abortions more rampant. Interestingly, the study revealed that women were aware of different types of unauthorized induced abortion even beyond a four month gestation period. Even when women went to government and PHC doctors they were made to pay fees for services rendered. Above all, the study found that a majority of abortions are still conducted using indigenous methods. Further, it found that amongst literate and unauthorized providers, the proportion of males was significantly high. Thus, in the post liberalization period, the providers of illegal abortions are not only indigenous practitioners but also qualified practitioners who may not have registered themselves for providing MTP services. Similarly, the places where illegal abortions are carried out are not only the homes and clinics of the indigenous and non qualified practitioners,

but also well equipped hospitals and nursing homes which are not registered under the Act. Finally, therefore, all institutions properly registered under the MTP Act are not necessarily hygienic nor are all unregistered centres unhygienic.

The Medical Termination of Pregnancy Act, 1971 (34 of 1971) is an Act to provide for the termination of certain pregnancies by registered medical practitioners and for matters connected therewith or incidental thereto. The proposed measure which seeks to liberalize certain exiting provisions relating to termination of pregnancy has been conceived (1) as a health measure – when there is danger to the life or risk to physical or mental health of woman;(2) on humanitarian grounds – such as when pregnancy arises from a sex crime like rape or intercourse with a lunatic woman, etc.; and (3) eugenic grounds – where there is substantial risk that the child, if born, would suffer from deformities and diseases. [9] When the state whether by default or intent encourages the use of abortion as a method to restrict the number of children in a family, then the law can be misused to have children of the preferred gender. This is exactly what has happened in India. The intention of law makers was quite different. The MTP Act 1971 applies to only to certain pregnancies as stated in the preamble which require to be medically terminated. [10] Medical advancement in the field of foetal diagnosis, foetal therapy and foetal surgery has greatly enhanced the chances of survival of foetus enabling it to lead a fairly normal existence. At the same time due to tremendous upsurge in the awareness of individual s well as corporate rights, the law has accorded the status of “person” to the foetus for the protection of the interests at a certain point of time during conception i.e. at viability and the

foetus acquires certain medico-legal rights in the light of landmark court decisions. [11]

Life commences at the very moment of conception. The product of conception irrespective of its stages of development thereafter, enjoys right for its maintenance and protection as it would, at any later stages like a foetus-infant-child-adult etc. Any one, including the mother, even with her consent, failing to allow its growth either by an act of commission or omission is legally liable. The MTP Act 1971 did not legalise but merely liberalized abortion.

Unfortunately, with the commercial human mind constantly in search of seeking advantage, this liberalizations being employed with vengeance in a sense of its literal meaning, thereby aborting any unwanted pregnancy. [12]

The Pre-conception and Pre-natal Diagnostic Techniques (Prohibition of Sex Selection) Act , 1994 is an Act to provide for the prohibition of sex selection, before or after conception, and for regulation of pre-natal diagnostic techniques for the purpose of detecting genetic abnormalities or metabolic disorders or chromosomal abnormalities or certain congenital malformations or sex – linked disorders and for the prevention of their misuse for sex determination leading to female foeticide and for matters connected therewith or incidental thereto.

Thus sex selection on a woman or a man or on both or on any tissue, embryo, concepts, fluid or gametes destined from either or both of them is prohibited under the Act and every offence under it shall be cognizable, non-bailable and non-compoundable.[13]

Due to active participation of Indian Medical Association in curbing the menace of female

foeticide and sex selective abortions amongst its members, the medical professionals seem to be fully sensitized to the short term and long term consequences of this social menace but on the contrary the cases of septic abortions as observed by gynaecologists are on the rise especially from rural areas due to unchecked termination of pregnancies by unqualified or traditional birth attendants who otherwise are not being brought in the ambit of PNDT Act as from the criminal cases being only registered against qualified professionals by authorities concerned.

One of the medical methods used for inducing abortion is the use of prostaglandins and antiprogesterone, individually or in combination. For induction of abortion, mifepristone, also known as RU-486 followed after 36-48 hours by PGs has been found to be the most effective medical method (WHO, 1994). It has been disclosed by senior gynaecologists that abortion drugs like carboprost, dinoprostine, and especially mifepristone these days which act on the female uterus directly and are freely available in the open market under trade names Misoprostol, Mafegest, Primiprost, Mifegest & MTPILL, can be easily procured from chemists who are earning hefty amounts from sale of these drugs. A single tablet can kill the foetus up to eight weeks of pregnancy. In advanced pregnancy, the pregnant mother can take more than one pill and goes to the gynaecologist with killed foetus and there is no option for the doctor but to abort the killed foetus. The pills are bought by the needy on the pretext of treatment for menstrual regulation but there is strong possibility of these pills being used to terminate illegal pregnancies and termination of female foetuses. Due to their very easy availability, these pills can be misused for abortion of female foetuses in violation of the

provisions of PNDT & MTP Acts as the sale of these abortion pills is going unnoticed by health department authorities. It will not be needless to emphasise that the doctor should see that he / she does not get involved in any unprofessional, unethical or unlawful activities as per stipulation of Medical Council of India. Ethics teaches morality, inculcates sense of good conduct, manners, and integrity, apropos the social, moral, ethical values of the society and law of the land, making the doctor befitting member of the respected medical profession.

Setting up of sex determination clinics towards determination of sex of an unborn foetus, thereby helping in selective abortion or causing female foeticide – all tantamount to misuse of science and technology, social oppression of women and abuse of human rights, much against the stipulation of medical ethics. [14]

Conclusion

Criminally induced abortions by ANMs, Lady Health Visitors or traditional birth attendants against the provisions of MTP & PNDT Acts, are responsible for complications or death of pregnant mothers and a big obstacle going unnoticed in the fight against female foeticide. Although the law enforcing agencies are acting against the medical professionals indulging in any activity leading to disturbance of sex ratio of the country or violating the Acts made in the defence of the unborn daughters, it seems the unqualified class of medical professionals involved in the heinous crimes like female foeticide is still to be dealt with.

To streamline sale of abortion pills and to stop their misuse, the government should issue directions under Drugs & Cosmetics Act and these drugs should be sold under license on prescription by gynaecologists who otherwise

are also apprehensive that these pills are being used by the pregnant ladies on advice by quacks acting as dais.

References

1. Vij K. Textbook of Forensic Medicine. 1st ed. 2001: p. 750, 760.
2. Everett C. Incidence and outcome of bleeding before the 20th week of pregnancy: prospective study from general practice. *BMJ* 1997; 315(7099):32-4.
3. Government of India. Report of the Committee to Study the Question of Legalization of Abortion (Shantilal Shah Committee Report), Ministry of Health and Family Planning, Government of India, New Delhi. 1966.
4. Goyal RS. Legalisation of Abortion: A Social Perception. *Health and Population: Perspectives and issues.* 1978; 4:302-08.
5. ICMR. Illegal Abortions in Rural Areas, Indian Council for Medical Research, New Delhi. 1989.
6. Karkal Malini (1991), 'Abortion Laws and the Abortion Situation in India' in *Issues in Reproductive and Genetic Engineering*, Vol.4 No.3, pp.223-30.
7. Phillips FS, Ghose N. (1976), 'Septic Abortion - Three Year Study, 1971-73. Hazards of Septic Abortion as compared to Medical Termination of Pregnancy at Government Earkine Hospital, Madurai' in *Journal of Obstetrics and Gynecology of India*, 26 (5).
8. Bhatt R.V. and Soni J.M. (1973), 'Criminal Abortion in Western India' in *Journal of Obstetrics and Gynecology of India*, 23 (3).

9. The Medical Termination of Pregnancy Act, 1971
10. Mohi M.K.; Umeed: A Fight against Female Foeticide; Are Liberal Abortion Laws Responsible For Female Foeticide? A Thought.....
11. Oberoi SS, et al. Pimacon 2001; Medico-Legal status of an unborn child – a review; p. 33.
12. Yadwad BS. Cruelties against woman. JKMLS 2002; 11(1):8.
13. The Pre-conception and Pre-natal Diagnostic Techniques (Prohibition of Sex Selection) Act, 1994.
14. Mukherjee GG, et al. Medico-Legal aspects in Obstetrics and Gynecology; Federation of Obstetrics and Gynecology Societies of India; p. 13-14.

AN UNUSUAL CASE OF VITRIOLAGE

Dr. Aman Deep Kaur, Resident
Dr. Harjesus S Sandhu, Resident
Dr. K.K. Aggarwal, Additional Professor & Head
Dr. S.S. Oberoi, Associate Professor
 Department of Forensic Medicine, Govt. Medical College, Patiala, Punjab

Abstract

Vitriolage has now becoming a common means of taking out jealousy or malice or revenge. Vitriolage means throwing of any corrosive, not necessarily sulphuric acid, with the object of injuring or disfiguring a person out of jealousy or revenge. In this paper an unusual case of throwing of acid on the female genitalia has been reported

Keywords: Vitriolage, Acid.

Introduction

Vitriolage has now becoming a common means of taking out jealousy or malice or revenge. Vitriolage means throwing of any corrosive, not necessarily sulphuric acid, with the object of injuring or disfiguring a person out of jealousy or revenge. The chemicals often used are corrosive acids or alkalis. Sulphuric acid (oil of vitriol) is the one most commonly employed acid for this purpose and hence it is called Vitriolage. Nitric and Carbolic acids are sometimes used. The use of caustic soda, caustic potash, iodine and marking nut juice has also been recorded. These fluids are usually thrown on the face with object of destroying vision or causing facial disfigurement and these results in Grievous hurt. [1,2]

Case Report

A female aged 28 years with rural background came to emergency, Rajindra Hospital, Patiala with alleged history of acid burns, not over her face where commonly expected but on her vulval region. She gave history that since her

marriage 6 years back, she has been a common victim of domestic violence of her in-laws who beat her for their various demands. Her husband being a truck driver is mostly out of town. On the alleged day, her brother in law, his wife and his mother all of a sudden, forcibly made her to take off her salwar & acid was thrown on her vulval region. Then she was kept under house arrest for 9 days & was let out only when her nephew came to meet her & was finally hospitalized by her nephew.

Findings

She was admitted with the findings of brownish black discolouration with ulcers over the vulva with trickle marks over the medial aspect of left thigh. She also had similar discoloured areas over the back of right hand, front of right wrist and lower left leg. There was no vesicle formation or red line of demarcation seen. From the emergency room, she was sent to gynaecology ward. The gynaecological examination showed superficial burns involving the labia majora and minora with no significant per vaginal findings. From the gynaecology

ward, the patient was further sent to surgery ward for further management where the burns and the ulcers were taken care off till the patient got discharged on request.



Photograph 1: Showing vulval burns



Photograph 2: Showing burns on wrist

Discussion

Vitriolage was commonly practiced by industrial workers in Glasgow before Offences against Person Act, 1861 was passed in England. Old electric bulbs filled with acid are often thrown in civil disturbance in the cities. Vitriolage is generally seen involving face. Sulphuric acid in particular produces severe chemical burns. They are characterized by discoloration and staining of skin & clothing (brown or black in H_2SO_4 & yellow in HNO_3), trickle marks, absence of

vesication & presence of chemical substances in the stains. There is ulceration and resultant scar formation of the involved area of the body. Due to the damage of nerve endings, these are comparatively painless lesions. [3,4]

Wide area of the body may be involved with evidence of spilling or splashing or pouring of acids. If eyes are involved, they may cause conjunctival oedema, corneal destruction. These injuries heal with scar formation & thus cause permanent disfigurement, loss of eyesight or contracture, which if near the joint may restrict the function of joint grossly. The penetrating burns & the acids devitalize the tissues & predispose to infection. Immediate treatment consists in washing away the corrosive acid with large amount of water & soap or dilute solution of sodium or potassium bicarbonate. Later, a thick paste of magnesium oxide is applied. The raw surface may afterwards be covered with Tannic acid or soframycin ointment; when the eyes are involved, they should be washed at once with a large amount of water followed by irrigation with 1% solution of sodium bicarbonate. A few drops of olive oil are instilled into the eyes. Eye drops containing antibiotics and steroids are helpful. Thus, if victim survives with any of such outcomes, act of vitriolage amounts to causation of grievous hurt. If extensive area is involved, death may result from shock or toxemia, and then the offence will amount to murder. [5]

Acid may be thrown into vagina women for infidelity to cause severe vaginal stenosis. [6]

In the present case, the unusual presentation of vitriolage in terms of site may raise various issues. The victim female told that her brother in law does not have his own children and she has a son. Even the concealed site won't raise

suspicion in the society and she would be even hesitant to talk because of the private parts involved. It also rise the issue of adultery or infidelity on the part of female as her husband being a truck driver is mostly out of station.

Adultery means sexual intercourse between one spouse & a person of opposite sex, not his or her spouse, during the subsistence of marriage i.e. whoever has sexual intercourse with a person who is & whom he knows or has reason to believe to be the wife of another man, without the consent or connivance of that man, such sexual intercourse not amounting to the offence of rape, is guilty of offence of adultery & shall be punished with imprisonment of either description for a term which may extend to 5 years or with fine or with both. In such case, the wife shall not be punishable as an abettor. (Sec.497 IPC) [7]

Conclusion

Vitriolage has now become a new means of easy revenge where the face is generally disfigured. Where as in this case, the target of enmity was the private parts where these acid burns in due course heal or leave behind scars and contractures making it difficult for the woman to lead a normal sexual life.

Recommendations

As per National Crime Record Bureau [8] the cruelty by husband & relatives rate have risen from 2.6 (2000) to 3.2 (2004) and among which horrendous attack in form of acid attack , a relatively new form of violence on woman has increased on an alarming scale in recent years, specially in metros.

1. A new law or an amendment to existing criminal laws for the prosecution of accused in acid attacks, contending that the current

provisions in the law are insufficient to deal with the offence.

2. Classify acid attack as a separate offense & make new law in the existing law to deal with the offence. The closet sections of IPC which can be used to prosecute in acid attacks are 320,322, and 325 dealing with grievous hurt, voluntarily causing grievous hurt & punishment for grievous hurt. However, these sections are insufficient to deal with the offence

3. Amendment or the law should be supplemented with guidelines for supporting victims of acid attack & mechanism for granting them compensation as purposed for rape victims

4. There is a need to constitute a committee that should look into measures the treatment, aftercare & rehabilitation of the victims of acid attacks, as the medical treatment & surgery costs in the aftermath of such an attack are extremely high.

5. There is a need to seek a direction ensuring that acid in all forms become a scheduled banned chemical as its availability has led to increased incidents of this extremely vengeful, cruel offence.

References

1. Modi's Medical Jurisprudence & Toxicology. 23rd ed. Lexis Nexis Butterworth. 2005. p49, 975
2. Reddy KSN. The Essentials of Forensic Medicine and Toxicology. 24th Ed. Hyderabad, India: K Saguna Devi. 2004. p462
3. Nandy A. Principles of Forensic Medicine. 2nd ed. 2004; New Central Book Agency. p429

4. Subrahmanyam BV. Forensic Medicine, Toxicology & Medical Jurisprudence. New Delhi, India: Modern Publishers. 2004. p180
5. Parikh CK. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology. 6th Ed. New Delhi, India: C.B.S, Publisher and Distributors. 2004. p 8.32
6. Vij K. Text book of Forensic Medicine and Toxicology Principles & Toxicology. 3rd ed. Elsevier India. 2005 p.631
7. Hanif SA, Husain M, Rizvi SJ. Vitriolage: An Old Abuse in an Unusual Presentation - A Case Report. IJFMT 2003; 1(2). www.icfmt.org/vol1no2/vitriolage.htm
8. Crime against Women. Chapter 5. Crime in India – 2005. National Crime Records Bureau. Ministry Of Home Affairs, Govt of India. 2005. P 241. <http://ncrb.nic.in/crime2005/cii-2005/CHAP5.pdf>