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EDITORIAL

In the recent past, there had been a lot of apprehension in the minds of the entire forensic fraternity, regarding the very existence of 'forensic medicine' as a separate subject in the medical curriculum. This was rightly so, because of various ambiguous, oppressive and unconvincing decisions and discussions by the BOG of MCI regarding reduction in staff requirements as well as the status of the subject in the integrated system of teaching that is under consideration. In view of the discussions amongst the forensic

in a project or in a business venture. I hereby intend to analyze a subject, the subject of Forensic Medicine, Medical Jurisprudence and Toxicology, by this method. This involves specifying the objectives of this subject and identifying the internal and external factors that are favorable and unfavorable to fraternity taken place during this period, apprehending the existence of this subject, I thought of analyzing the subject as regards various factors influencing it.

SWOT analysis is a strategic planning method used to evaluate the strengths, weaknesses, opportunities and threats involved achieve those objectives.

The objectives of this subject are very clear and loud and can be summarized in as simple terms as, to deal with all the legal aspects of medical practice and medical aspects of law. This subject is taught to medical students to make them aware of the rights, duties and responsibilities of doctors and patients and also train them in applying their knowledge of Forensic Medicine in dealing with the wide spectrum of legal cases referred to them by the judicial authorities and investigative agencies.

In achieving these objectives, this subject is influenced by some internal and external factors. Strengths and weaknesses are the factors that are internal to the organization, whereas opportunities and threats are the factors presented by the external environment to the subject.

Strengths:

1. Forensic expert serves as a liaison between law and medical science.
2. They are the integral part of the justice system.
3. They serve extremely important roles that require combination of precise scientific knowledge with a sincere desire to protect the community.
4. Being smaller community (as compared to other clinical subjects), forensic experts have the potential of being a close knit family working in unison.
5. Many good ranking students voluntarily opt for the subject as a career option.
6. Since people have started using the consumer protection act as a tool to get compensation from the negligent doctors, the subject of medical jurisprudence has achieved greater significance.

Weaknesses:

1. Though important, it is considered by many as a relatively unimportant and neglected subject. It does not get due attention either from the bureaucrats or politicians in case any issue is to be represented before them. Thus, it is ignored of any government fund or financial packages for its growth and development and hence poor and inadequate infrastructural facilities at most autopsy centres.
2. No job prospects in organization other than medical colleges. No posts of forensic experts even at district hospitals, thereby resulting in maximum number of sensitive and important postmortems being conducted by untrained medical officers.
3. Unwillingness on the part of senior forensic experts attached to private medical colleges, to start postmortem facilities in their hospital, as in case of neighboring states. [Here many reasons will be voiced including the permissions not being given to private colleges to start medicolegal postmortems etc. However the fact still remains that there are very few who really wish that their mortuary should become functional and that those who have sincerely tried have got the required permissions.]

4. Strict limitation of the availability of forensic services and expertise only to the judiciary and the police (and few others) and total bar for the general public to approach them.
5. Lack of practical oriented original research in all medical colleges as regards various ambiguous concepts originally studied by western authors and copied verbatim by Indian authors, which are hardly applicable to Indian scenario.
6. Last but not the least, the tainted image of the subject because of some black sheep (if any) in this subject.

Threats:

1. Non availability of qualified forensic experts at the periphery and at PM centers other than those attached to medical colleges, which is more due to the apathetic attitude and non-existent policies of the government in this regard, rather than anything else.
2. Reduced staff requirement by the Medical Council of India which has shattered the dreams of many upcoming forensic experts and has posed great threat to the subject as such.
3. Inconsideration on the part of MCI to make the requirement of a functional mortuary as compulsory eligibility criteria for granting permission and recognition to a medical college.
4. Very tight compartmentalization between the 'DHS' and 'DMER' cadres even after post graduation and having to perform similar kind of jobs.
5. Absence of identified, separate courses for the class III and class IV cadre manpower, to specially train them to carry out the medicolegal work, including autopsies, on a footing similar to that of DMLT technicians in other medical subjects.
6. Absence of mandatory additional requirement (after internship) for eligibility to carry out medicolegal postmortems, similar to the one mandated by MTP act to carry out medical terminations of pregnancies by MBBS qualified doctors. [It can be anything from 2-3 months of training or actual performance and reporting of at least 100 postmortems (10 each of every variety) at the FMT department attached to medical college having a functional mortuary. The said certificate of compliance to be mandatory eligibility criteria to join as a medical officer.]

Opportunities:

1. Being an important subject which is almost indispensible on many occasions for disbursement of justice, it has tremendous potential of growth.
2. Though, considered as a relatively unimportant subject by medical fraternity, the legal field recognizes its importance and there are many instances in which they have kept more reliance on the forensic experts than other witnesses.
3. The inclusion of the subject of Medical Jurisprudence as a separate subject in Law schools can be a possibility in near future.
4. A great opportunity lies in tapping the so very precious pool of vast knowledge and experience that is existing in the form of faculties in the department of forensic medicine at private medical colleges not involved in medicolegal work. There should be some mechanism to bring it in the main stream and make it available to those medical officers doing all sorts of medicolegal work at periphery.
5. Because of many TV serials and movies based on the concept of detection of crimes in which the usefulness of forensic medicine as a tool for crime detection is filmed, there is wide awareness amongst the people about this subject.
6. Opportunity also lies in providing private services to varied clients in association with experts from forensic science.

In order to utilize the SWOT, matching and converting is needed. The former is used to find competitive advantages by matching the strengths to opportunities. The later is to apply strategies to convert weaknesses or threats into strengths or opportunities. If the threats or weaknesses cannot be converted, we should try to at least minimize or avoid them. However, care should be taken to ensure that weak opportunities do not balance strong threats.

This is my perspective of looking at the subject. Others may have different thoughts on it. However, whatever may be the perspective, if we all do not strive towards reducing the weaknesses

and threats and increasing our strength, then we ourselves are to be blamed for the loss of opportunities in this subject. **RS Bangal**

Original Communication

MEDICOLEGAL EVALUATION OF SUICIDAL DEATHS IN RURAL AREA

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Abstract:

The study was carried out in Dept. of F.M.T. of Rural Medical College, Loni, Ahmednagar over a period of five years between Jan. 1998 to Dec. 2002. There were 158 suicidal deaths out of 940 unnatural deaths during study period constituting 16.80% of total unnatural deaths. The manner of committing suicidal deaths were burns -43.67%, poisoning – 37.97% drowning – 9.49% hanging – 8.22% etc. Causative factors for suicide were also studied, they were – torture by in laws – 29.74%, debt 23%, exam failure 10.76% chronic illness- 9.49% etc. The maximum incidence of suicidal deaths was noted in age group of 19-32 yrs. The females 58.23% outnumbered the males. This study record revealed that suicidal deaths occurred in Hindus in 87%, 7.6% Muslims and 5% in Christians. Maximum suicidal deaths were occurred in lower economic class. The majority (74.68%) were married. Literate people out numbered (74.68) the illiterates. The maximum suicidal deaths occurred in summer 41.77% followed by rainy season 31.01% and lastly winter season 27.2% respectively. Significantly three (3) suicidal deaths occurred in persons suffering from AIDS.

Keywords : Suicidal deaths, Marriage, Psychology

Introduction:

In Maharashtra, suicide is the most burning topic now days. Maharashtra is not only most forwarded state in India, but also tops in suicidal death cases.

Suicide is defined by beck (1976) as "a willful self inflicted life threatening act which has resulted in death". Suicidal deaths are attracting increasingly more attention from entire world community including medical professionals, public health agencies and media etc.

On one side there are reasons such as trauma of being detected HIV positive, the horror of failing examination, poverty, failed crops and debts which are pushing people to brink and forcing families into suicide acts, students to hang themselves, farmers to consume poison and on the other side unbelievable and unexpected reasons such as religious extremism are increasing incidence of suicidal deaths.

While politician talk politics, economist talk numbers and doctors talk health, the facts is that unemployment and most important debts of farmers, prolonged illness are the giant killers in Indian homes.

According to national crime bureau report, the incidence of suicidal deaths for Indian population is 10.84% and that for Maharashtra is 12.9%. That means incidence of suicidal deaths is greater in Maharashtra than National figures. "The figures tells just one part of the story", say Solomon. "The other part, about the health care, the economics of the whole thing and support system need to be looked at." Every suicide is the story one person who didn't get help that experts say needs to be at hand. "Put mental well being on the agenda" is the advice experts hope everyone will take seriously.

Material and methods:

The study undertaken i.e. "medico legal evaluation of suicidal deaths in rural area" was carried out in department of forensic medicine and toxicology of Rural Medical College of Pravara medical trust, Loni Tal. Rahata Dist. Ahmednagar. The study period for above mentioned study was of five years i.e. from January 1998 to Dec. 2002.

Pravara area though rural country side, in the recent past has come up as a very important educational center in Maharashtra. The place is offering primary, secondary, graduation, and professional courses to thousands of students i.e. mobile population residing here.

The data thus carefully obtained from F.I.R. along with actual findings of medico legal postmortem examination, histopathology and chemical analysis was thoroughly evaluated, analyzed, tabulated and graphically represented after subjecting to statistical scrutiny with the help of statistician and computers.

Observations:

TABLE NO. 1

Years	Total post mortems of unnatural deaths	Total suicidal deaths
1998	208	37 (17.7%)
1999	219	44 (20.09%)
2000	170	30 (17.64%)
2001	138	17 (12.31%)
2002	205	30 (14.63%)
Total	940	158 (16.80%)

Thus the incidence of suicidal deaths is 16.80% in the studied rural area.

TABLE NO. 2: AGE AND YEAR WISE DISTRIBUTION OF TOTAL SUICIDAL DEATHS

Year	14-18	19-25	26-32	33-39	40-46	47-53	54-60	>60	Total
1998	6	16	5	2	4	1	0	3	37
1999	2	16	18	3	3	0	1	1	44
2000	6	14	6	1	1	1	1	0	30
2001	3	7	3	2	1	0	0	1	17
2002	1	12	9	2	3	1	1	1	30
Total	**18**	**65**	**41**	**10**	**12**	**3**	**3**	**6**	**158**

There were 158 suicidal deaths out of 940 unnatural deaths during study period constituting 16.80% of total unnatural deaths.

The manner of committing suicidal deaths were burns -43.67%, poisoning – 37.97% drowning – 9.49% hanging – 8.22% etc. causative factors for suicide were also studied, they

were – torture by in laws – 29.74%, debt 23%, exam failure 10.76% chronic illness- 9.49% etc. The maximum incidences of suicidal deaths were noted in age group of 19-32 yrs. The females 58.23% outnumbered the males. This study record revealed that suicidal deaths occurred in Hindus in 87%, 7.6% Muslims and 5% in Christians.

Maximum suicidal deaths occurred in lower economic class. The majority (74.68%) were married. Literate people out numbered (74.68) the illiterates. The maximum suicidal deaths occurred in summer 41.77% followed by rainy season 31.01% and lastly winter season 27.2% respectively. Significantly three (3) suicidal deaths occurred in persons suffering from aids.

TABLE NO. 3: RELATIONSHIP OF SEX, MARITAL STATUS AND CAUSATIVE FACTORS IN TOTAL SUICIDAL DEATHS

Causative factors	**Married**			**Unmarried**			**Total**
	M	**F**	**T**	**M**	**F**	**T**	
Chronic illness	12	3	15	0	0	0	15
Debt	36	0	36	0	0	0	36
Insanity	6	2	8	4	1	5	13
Unemployment	2	0	2	0	0	0	2
Exam failure	0	0	0	11	6	17	17
Loss of job	4	0	4	0	1	1	5
Disappointment in love	2	0	2	0	3	3	5
Torture by in laws	0	47	47	0	0	0	47
Suspicion about character	1	5	6	0	9	9	15
HIV Positive	2	1	3	0	0	0	3
Total	**49**	**69**		**17**	**23**		**158**
	118			**40**			

Discussion:

In the present study which was spread over 5 years, it was found that out of total 940 cases that were study 158 deaths were suicidal i.e. 16.80% of total cases. This particular finding was near about similar to as noted by L. Fimate et. al. (2001) i.e. 16.66%, Ghangale A.L. et al (2000) i.e. 15.40% and also Gerald et al (1986) i.e 15.1%, Sahoo et al (1999). i.e. 12.7% national figures of suicidal deaths 10.84%.

The female predominance in suicidal deaths revealed from present study is probably because of the fact that the study is carried out in rural area where females are mostly belonging to the farming occupation. And also easy availability of Kerosene, Match Box and Insecticides.

The most important cause of suicidal deaths is torture by in laws. It is known fact that for females after marriage she has to adjust totally in new environment. She has to adjust with in-laws and other relatives not only physically but also mentally. She has to compromise with her wishes and dreams at every stage. In addition to this if there is torture by in laws, she chooses suicide to get rid of all these thorn-pricks.

Married males have to face any responsibilities, financial problems, other domestic problems which leads them to end their life. As mentioned in above table no. 2 higher incidence

of suicidal deaths is seen in age group of 19-25 yrs, 65 cases followed by 26-32 years, 41 cases (25.95%). Our finding coincides with Sahoo P. C. (1999), Chavan K. D. (1999), Shinde Jayant (2000). It occurs due to different Social, Economical & Psychological problems faced by this age group.

Suicidal act is committed frequently as a "Cry for help" rather than with a clear desire to die. It would appear that where this cry for help can be answered, and the help can be continued in an attempt so solve outstanding problems leading to the act, much suffering may be relieved and renewed attempts may be prevented.

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Original Communication

TRENDS OF POISONING CASES AT A MEDICAL COLLEGE AND HOSPITAL IN CENTRAL INDIA DURING THE PERIOD MAY 2007 TO APRIL 2009.

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Abstract:

This study is carried out at Mahatma Gandhi Institute of Medical Sciences, Sewagram during the period May 2007 to April 2009 which is a rural and poverty stricken area characterized by lack of infrastructure and a high rate of unemployment. Majority of the individuals are dependent on subsistence farming at home. Though Prime Minister's package for the farmer's suicides have been declared and implemented in certain areas of central India, still people are committing of suicide and one of the sophisticated, simple way chosen, is none other than poisoning. During this study cases of poisoning were observed more in males than females. Male to female ratio was 1.4:1.Maximum poisoning cases were seen among the young adults in the age group of 20-29 years in both sexes. Poisoning cases were commonly seen among the married people in both sexes. Maximum poisoning cases belong to rural area and low socio-economic group. Insecticides poisoning was the most common of all poisoning cases and among them organophosphorus was the commonest followed by organochlorus. Alcohol poisoning was common in both urban and rural area; all cases were found in males. Incidence of suicidal poisoning cases was more than the accidental poisoning. The seasonal variation and the incidence of poisoning shows that in winter season poisoning cases were more in number followed by rainy season. Reason of maximum number of cases consuming the poison was financial problem both in married and unmarried peoples. Agriculture was the most common occupation of the victims of poisoning. Diurnal variation shows that maximum patients had consumed poison in evening time between to 6pm to 11pm. Time interval of consumption of poison and admission in hospital was minimum in 0-1 hours group followed by 2-4 hours group. Case fatality rate was higher in male poisoning cases.

Key words: Poisoning,Alcohol,Insecticides.

Introduction:

Every medical practitioner, at any time during the practice of his profession, whether in a government set up or a private one will encounter/ would have encountered certain cases, which at that given time or subsequently, would be labeled as "medico-legal".

Though this is the present scenario of medico-legal cases but how did the people used to work at ancient times.

Medico-legal work in ancient India:

Kautilya's Arthashastra states that death can be caused by four ways of stopping the breathing (Strangulation, hanging, asphyxiation or drowning); two ways of physical injury (by beating or by throwing from a height); or poisoning (by poisons, snake or insect bite or narcotic

drugs) and also gives the list of forensic evidences for establishing the cause of death and adding the necessity of autopsy in establishing the cause of death after smearing the body with oil to bring out bruises, swelling and other injuries.

Charaka Samhita lays down an elaborate code regarding the training, duties, privilege and social status of the physician and also mentioned about the various poisons, symptoms, signs and treatment of poisons.

Evolution of medico-legal work in British India:

The early incidence of custodial death and its certification by medical practioner was reported in Madras in 1678. ***John Waldo*** and ***Bezaliel Sherman***, who inspected the body & issued the first death certificate in case of a soldier, ***Thomas Savage*** who abused his superior officer, he was tied to the cot and died.

The ***first recorded medico-legal autopsy*** was performed in India by ***Dr. Edward Bulkey*** on the afternoon of 28 august 1693(Monday). The ***first wound certificate*** was issued by ***Dr. Edward Bulkey*** on 9 August 1695 to Lieutenant Seaton.

According to WHO, about 3 million people in world consume poison every year. Out of them about 2, 20, 000 people die. Most of the cases of poisoning occur in developing countries. The highest rate of poisoning is in Srilanka where death due to poisoning which stands next to total number of death by war due to LTTE. Unfortunately India is not lagging much behind. About 50,000 deaths occur in India due to poisoning every year. The chemicals which were invented by man to increase agricultural products are now commonly used for suicide and homicide. India being an agricultural country poisoning due to insecticide and rodenticide are common. Changing social status and values, poverty, unemployment, family dispute, depression is common reasons for suicide by poisoning. One should not forget atmosphere pollution due to automobile. These are curse for modern civilization.

Aims and Objectives:

1. To find out the ***Incidence*** of medico-legal cases at a medical college and hospital in Central India, during the period from May 2007 to April 2009.
2. To study the ***impact of various factors*** on medico-legal cases in this area.
3. To know the ***trends*** of medico-legal cases admitted in the hospital.
4. To analyze the medico legal cases according to ***manner of event.***
5. To determine the ***case fatality rate*** and the factors affecting it in medico-legal cases.
6. To study the ***salient gross postmortem finding*** and cause of death in different type of medico-legal cases.

Material and Methods:

A) **Study design:**

This study is being carried out at a medical college and hospital in Central India during the period from May 2007 to April 2009.

B) **Source:**

The material for this study comprised of all types of medico-legal cases admitted and brought to the casualty during the period from May 2007 to April 2009.

C) **Sample size:**

Total 2092 MLC cases have been studied, out of which 1970 were admitted and 122 cases were found dead at casualty or directly brought dead from spot for postmortem examination. A total of 370 cases died in the hospital during the treatment.

D) **Inclusion criteria:**

1. All the cases which were labeled as medico-legal cases irrespective of the person who brought them for treatment, police or someone else.
2. If the MLC case has been brought several days after the incidence took place was also included in this study.
3. The brought dead cases which come under medico-legal cases were also included in this study.

E) **Method of collection of data:**

1. Each case was followed from the time of admission till its discharge or death. So the cases were studied in the casualty itself, before being shifted toward or studied in the concerned wards.
2. Various epidemiological factors viz. age sex, occupation, religion, education, socio-economical status etc. and the medico-legal aspects were gathered from various sources (like inquest, history, cases sheet etc.) and the postmortem features of the cases were studied from the autopsy examination.

Observations and Result:

In this study, total 923 cases admitted at a medical college and hospital during the period of from May 2007 to April 2009. Out of the total 923 cases, 91 (9.85%) cases died during the treatment. 832 (90.15%) were survived, cured and discharged from the hospital and 34 cases were found dead or brought dead from the spot for postmortem examination. All tables are self explanatory.

Table A showing total survived and died cases of poisoning

Cases Survived	Cases died	Total
832 (90.15%)	91 (9.85%)	923 (100%)

All the observations were carefully noted and presented in tabular form for better understanding of results

Table No. 1 Showing age and sex-wise distribution of poisoning cases.

Age in years	Male	%	Female	%	Total	%
0-9 years	4	(0.73%)	6	(1.57%)	10	(1.08%)
10-19 years	131	(24.12%)	135	(35.53%)	266	(28.81%)
20-29 years	296	(54.52%)	125	(32.90%)	421	(45.62%)
30-39 years	78	(14.36%)	76	(20.00%)	154	(16.68%)
40-49 years	22	(4.06%)	30	(7.89%)	52	(5.63%)
>50 years	12	(2.20%)	8	(2.10%)	20	(2.16%)
Total	**543**	**(100%)**	**380**	**(100%)**	**923**	**(100%)**

Table No. 2 showing area wise distribution of poisoning cases.

Area Urban/Rural	Male		Female		Total	
	Cases	%	Cases	%	Cases	%
Urban	188	(33.14%)	120	(31.57%)	308	(33.37%)
Rural	355	(65.38%)	260	(68.42%)	615	(66.63%)
Total	**543**	**(100%)**	**380**	**(100%)**	**923**	**(100%)**

Table No. 3 showing socioeconomic status of poisoning cases.

Socioeconomic status	No. of cases	Percentage
Lower Class (<500)	494	(53.52)
Middle Class (500-1500)	248	(26.86)
Upper Class (>1500)	181	(19.60)
Total	**923**	**(100%)**

Table No. 4 showing manner of poisoning cases.

Manner	Male		Female		Total	
	Cases	%	Cases	%	Cases	%
Suicidal	527	(97.06%)	373	(98.16%)	900	(97.50%)
Accidental	16	(2.94%)	7	(91.84%)	23	(2.50%)
Homicidal	00	-	00	-	00	-
Total	**543**	**-**	**380**	**-**	**923**	**-**

Table No. 5 showing marital status of poisoning cases.

Marital status	Male		Female		Total	
	Cases	%	Cases	%	Cases	%
Married	286	(52.67%)	187	(49.21%)	473	(51.24%)
Unmarried (Includes children)	253	(46.59%)	189	(49.73%)	442	(47.38%)
Widow/Widower	4	(0.73%)	4	(1.05%)	8	(0.87%)
Total	**543**	**(100%)**	**380**	**(100%)**	**923**	**100%)**

Table No. 6 showing marital status and reason for consuming poison.

Reasons	Married	Unmarried	Widow/ widower	Total
	Cases %	Cases %	Cases %	Cases %
Financial	360 (76.11%)	310 (70.14%)	4 (50.00%)	674 (73.02%)
Domestic	82 (17.34%)	95 (21.49%)	2 (25%)	179 (19.39%)
Chronic disease	09 (1.90%)	18 (4.07%)	1 (12.50%)	28 (3.03%)
Mental illness	08 (1.69%)	07 (1.58%)	1 (12.50%)	16 (1.73%)
Unknown	14 (2.96%)	12 (2.71%)	0	26 (2.82%)
Total	**473**	**442**	**8**	**923**

Table No. 7 showing occupation of the victim of poisoning.

Occupation	No. of Cases	%
Farmer	490	(53.08%)
Manual Labourer	25	(2.70%)
Housewife	238	(25.78%)
Student	15	(1.62%)
Miscellaneous (Hotel workers, auto-driver etc.)	155	(16.79%)
Total	**923**	**(100%)**

Table No. 8 showing diurnal variation of consumption of poisons

Time of poisoning	No. of cases	%
Morning (6am to 12 pm)	155	(16.79%)
Afternoon (12pm to 6pm)	277	(30.01%)
Evening (6pm to 11pm)	439	(47.56%)
Night (11pm to 6 am)	52	(5.63%)
Total	**923**	**(100%)**

Table No. 9 showing the seasonal variation of poisoning cases

Seasons	No. of cases	%
Winter	291	(31.53%)
Rainy	232	(25.14%)
Spring	180	(19.50%)
Summer	220	(23.84%)
Total	**923**	**(100%)**

Table No. 10 showing time interval between consumption of poison and admission in hospital

Time of consumption and hospital admission	No. of cases (%)	Patients survived (%)	Patients died (%)
0-1 hrs	439 (47.53%)	427 (51.32)	12 (13.18)
2-4 hrs	277 (30.01%)	255 (30.64)	22 (24.17)
5-7 hrs	155 (16.79%)	124 (14.90)	31 (34.06)
7-10 hrs	42 (4.05%)	24 (2.88)	18 (19.78)
>10 hrs	10 (1.82%)	2 (0.24)	8 (8.79)
Total	**923 (100%)**	**832 (90.15%)**	**91 (9.85%)**

Table No. 11 showing the duration of hospitalization in poisoning cases

Duration of hospitalization	No. of cases	%
<1 day	43	(4.66%)
2-3 days	520	(56.34%)
4-6 days	180	(12.54%)
7-9 days	140	(15.17%)
>10 days	40	(4.33%)
Total	**923**	**(100%)**

Table No. 12 showing Case fatality rate in poisoning case

Sex	Total Patients	Deaths	Case fatality rate
Male	543	54 (59.34%)	(9.94%)
Female	380	37 (40.66%)	(9.74%)
Total	**923**	**91**	**(9.86%)**

Table No. 13 showing survival period in fatal cases

Survival period	Fatal cases	%
<24 hrs	53	(58.24%)
2-3 days	22	(24.18%)
4-6 days	09	(9.89%)
>7 days	07	(7.69%)
Total	**91**	**(100%)**

Table No. 14 showing complications observed in fatal (died) cases

Complications	No. of cases	%
Respiratory failure	31	(34.07%)
Cardiac arrest	18	(19.78%)
Pneumonia	19	(20.08%)
Septicemia ARDS	02	(2.20%)
Acute renal failure	11	(12.09%)
Pancreatitis	10	(10.99%)
Total	**91**	**(100%)**

Table No. 15 showing the type and manner of poisoning cases
(All 923 admitted and 34 brought dead patients samples were analyzed in the departmental Toxicology laboratory)

Name of poison	Suicidal	Accidental	Homicidal
Organophosphorus	148 (16.44%)	4 (17.39%)	-
Organochorus	23 (2.56%)	3 (13.04%)	-
Chlorine cont. OPP	105 (11.67%)	-	-
Pyrethroids	4 (0.44%)	-	-
Zinc Phosphide	12 (1.33%)	-	-
Alcohol	113 (12.56%)	5 (21.73%)	-
Kerosene	18 (2.50%)	-	-
Ethanol+ drugs	15 (1.67%)	-	-
Snake Bite	-	4 (17.39%)	-
Diazepam	11 (1.22%)	2 (8.70%)	-
Alprazolam	9 (1.00%)	2 (8.70%)	-
Phenol	17 (1.89%)	1 (4.35%)	-
Ethanol+ Insecticide	140 (15.56%)	2 (8.70%)	-
Corrosive acid	8 (0.89%)	-	-
Unknown poisons	262 (29.11%)	-	-
Total	**900**	**23**	-

DISCUSSION

In the present study, 923 cases of poisoning were admitted at a medical college and hospital in Central India during the period from May 2007 to April 2009. Out of 923 admitted cases, 91 cases died during treatment. Similarly 34 cases were declared dead at casualty or directly brought dead for the postmortem examination.

In the present study, 543 (58.83%) cases were males and 380 (41.17%) cases were females. Male to female ratio was 1.4:1 indicating male predominance in poisoning cases. Almost similar findings were observed by Naik R.S., Tirpude B.H. et al from Sewagram[6] that, 136 (67.6%) cases were males and 65 (32.4%) cases were females. N.K. Aggrawal[10] from Delhi also reported that out of total 268 cases of poisoning, maximum cases (72 %) were males and (27.85%) were females. Kiran et al[12] from Bangalore also reported that poisoning is more common in males 93 (62.86%) and females 55 (37.16%) with male to female ratio was 1.7:1. Similarly Vinay B. Shetty, Gurudatta S.Pawar, P.I. Inamdar from Bijapur[4] also reported that among 229 cases, male (51.15%) predominated females (42.85%) with majority (42.25%) belonged to 21-30 years of age group. Vaswani Vina, Patil VP[3] from Belgaum also reported that out of 136 poisoning cases in Paediatric age group, 78 (57%) cases were males and 58 (43%) cases were females. D.B. Siwach, A.Gupta from Rohatak, Hariyana[2] reported that out of total 559 poisoning cases 380 (68%) cases were males and 119 (31%) cases were females. According to Z.A.Liao, B. Horiherger et al[9] out of total 248 poisoning cases, 176 (71%) cases were males and 72 (29%) cases were females. Similarly Sharma B.R from Jammu[11] also reported that out of total 174 cases of poisoning, males were 125 (71.8%) and females were 49 (28.25). Similarly Gannur DG, Prakash Maka, KS Narayan Reddy from Gulbarga[13] also reported male predominance than females.

From all the studies mention above it was found that poisoning is more common in males than females. It may be due to more hectic life style, stress, strain in daily routine life and occupational hazards and in-ability to fulfill the family responsibilities and frustration due to crop failure in rural based population, examination etc. Similarly poisons mainly insecticides are easily available to the people in rural area among the farmers. Moreover, males have to work in fields, so accidental poisoning due to insecticides while spraying in fields may occur. After spraying or handling the insecticides poisons at field, eating food without proper washing of hands is also common. As males are more energetic they are engaged in field work more often than females.

In the present study, poisoning was maximum among young adults, age group of 20-29 years comprising 421 (45.62%) cases. Almost similar findings were observed by studies done by N.K.Aggrawal from Delhi[10], Naik et al from Sewagram[6] and Tandon et al from Agra[8], Vinay Shetty et al[4] from Karnataka . According to J. Hettiarachchi and G.C.S. Kodithy Wakku[7], from Rahura and Galle from Srilanka reported that maximum 317 (47.38%) cases were from the age group of 15-24 years. Similar findings were observed by D.B. Siwach, A.Gupta from Rohatak, Hariyana[2] who reported that maximum (20%) cases were from third decade of life. Similarly Z.A.Liao, B. Horiherger et al[9] found that maximum 106 (43%) cases were belonged to age group of 20-30 years other authors like N.K. Aggrawal[10] from Delhi also reported that maximum cases were in 3rd decade of life (48.1%), followed by 2nd decade (26.9%) cases. Similarly Sharma B.R from Jammu[11] also reported that maximum 58 (33.3%) poisoning cases were from the age group of 21-25 years. Gannur DG, Prakash Maka, KS Narayan Reddy from Gulbarga[13] also reported that poisoning was common in 21-30 years of age group.

From the comparison of all the above studies it is clear that poisoning is more common in young adults in age group of 20-29 years. It is mainly because as this age group is suffering all types of stress like domicile, economic, unemployment and educational problems. More over this age group is also engaged in agriculture work and this is most active phase of life as they are involved mentally, physically and socially. Dowry, marital conflicts and adultery are common problems faced by married young females.

In this study, most of the patients admitted were from rural area. There were total 615 (66.63%) cases from rural area and 308 (33.37%) cases from urban area. Similar findings were observed by B. Siwach et al from Rohatak[2], Naik et al from Sewagram[6] Gannur DG, Prakash Maka, KS Narayan Reddy from Gulbarga[13] but Tandon et al from U.P.[8] observed different findings, who reported that incidence of poisoning was more in urban area, (63.25%) than rural area are (36.65%). In rural area, poisoning due to insecticide was most common. Accidental inhalation of insecticide while spraying in fields was commonly reported from rural area.

In the present study, out of total 923 cases, 473 (51.24%) cases were married, 442 (47.38%) cases were unmarried and 8 (0.87%) cases were of widower/widows similar findings were observed by Palimar Vikram et al from Manipal, Karnataka[14] that 94 (61.4%) victims were married and 59 (38.6%) were unmarried. No widower or widows were included in their study similar finding were observed by Gannur DG, Prakash Maka, KS Narayan Reddy from Gulbarga[13].

In the present study, the seasonal variation and the time of consumption of poison shows that winter season was the common period where maximum number 291 (31.53%) cases have consumed the poison followed by rainy season, which comprises of 232 (25.14%) cases. As far as time of consumption of poison is concerned 439 (47.56%) cases, had consumed poison in the evening time in between to 6pm to 11pm and in 52 cases (5.63%) poison was consumed at night

time or after midnight. Some of the authors have observed different findings like Palimar Vikram et al from Manipal Karnataka[14] who found that consumption of the poison was more during the day time (6 am -6 pm) in 100 (65.4%) cases. In 48 (31.4%) cases, poison was consumed during summer months followed by winter season which was reported in 39 (25.5%) cases.

In the present study, socioeconomic status of the patients with poisoning has evaluated. The incidence of poisoning was maximum among lower class is 494 (53.52%) cases and least 181 (19.60%) among upper class. Similar findings were observed by Gannur DG, Prakash Maka, KS Narayan Reddy from Gulbarga[13] that (30.76%) cases were from lower class, and (19.61%) from upper class.

In the present study, it has been observed that the reason in maximum number of cases for consumption of poison was financial problem both among married 360 (76.11%) cases and unmarried 310 (70.14%) cases. Similar findings were observed by Gannur DG, Prakash Maka, KS Narayan Reddy from Gulbarga[13] who reported that in maximum number of cases reason for consumption of poison was financial problems both among married (79.24%) and unmarried (73.10%) cases.

In the present study, it has been observed that agriculture was the most common occupation of the victims. Among all cases of poisoning admitted in the hospital, 490 (53.08%) cases were of farmers followed by housewives in 238 (25.78%) cases. In 25 (2.70%) cases manual laborers were involved followed by 15 (1.62%) cases involving students. Similar findings were observed by Gannur DG, Prakash Maka, KS Narayan Reddy from Gulbarga[13] that (34.78%) patients were agricultural workers and labourers, and this could be due to easy availability and accessibility of poisons, particularly insecticides by the agricultural workers.

In the present study, 900 (97.50%) cases were due to suicidal manner of poisoning followed by 23 (2.50%) cases were of accidental poisoning. Almost similar findings were observed by Shetty Vinay et al from Bijapur[4] reported suicide in (77.33%) cases was the commonest manner than accidental. Siwach DB et al from Rohatak[2] reported similar findings. Vaswani et al from Belgaum[3] reported (60%) cases were accidental, (33%) cases were suicidal and in (7%) cases manner of poisoning could not be determined. A Singh et al from Patna[5] reported that (68%) cases were accidental, (31%) cases were suicidal and (0.8%) cases manner of poisoning was not known and this findings were entirely different from present study.

Most common poison involved in this study was organophosphorus insecticide, involved in 148 (16.44%) cases. Other common poisons were organochlorus in 23 (2.56%) cases, chlorine containing organophosphorus in 105 (11.67%) cases, alcohol in 113(12.56%) cases, 12 (1.33%) cases were of Zinc Phosphide. 4 (0.44%) of pyrethroid group of insecticide, Phenol 17 (1.89%) cases, Alprazolam in 9 (1%) cases. There were 11 (1.22%) cases of diazepam, 140 (15.56%) cases were of Ethanol+Insecticide poisoning. In 262 (29.11%) cases of suicidal poisoning, type of poison consumed was not known. Zine et al from Nagpur[1] reported organophosphorus in (21.28%) and organochlorus in (15.44%), incidence of phenol in (10.98%) which is in contrast with present study. Tandon et al from Agra[8] and N.K. Aggrawal[10] from Delhi reported Aluminum Phosphide in (33.33%) cases as well as (38%) cases respectively.

From the above comparative studies it is found that insecticide poisoning is more common in Central region as compared to northern region as the hospital is situated in central India where the study was conducted and insecticides like organophosphorus, organochlorus, chlorine containing organophosphorus and Rodenticide like zinc Phosphide are widely used in this region. As maximum patients comes from the rural area and profession is agriculture or

related to agriculture, so insecticides and rodenticides are easily available and used as suicidal poisons.

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FIGURE SHOWING VARIOUS TYPES OF ADMITTED MEDICO-LEGAL CASES

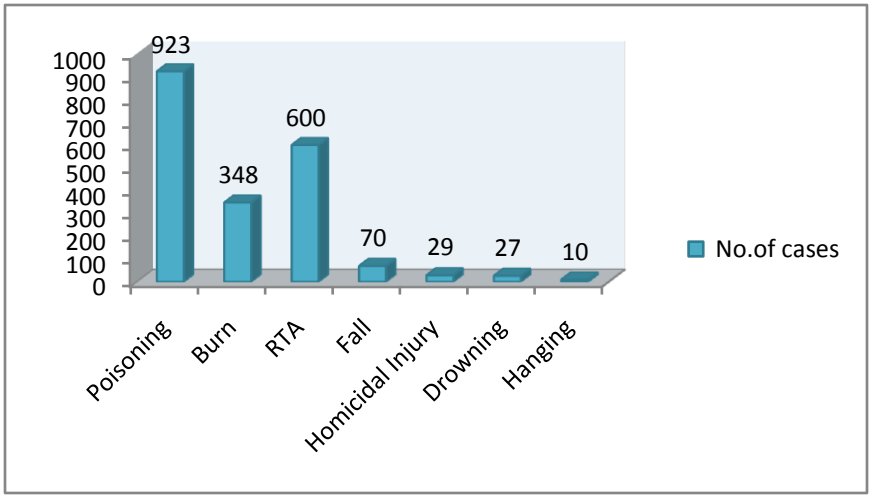


FIGURE SHOWING AGE AND SEX WISE DISTRIBUTION OF POISONING CASES

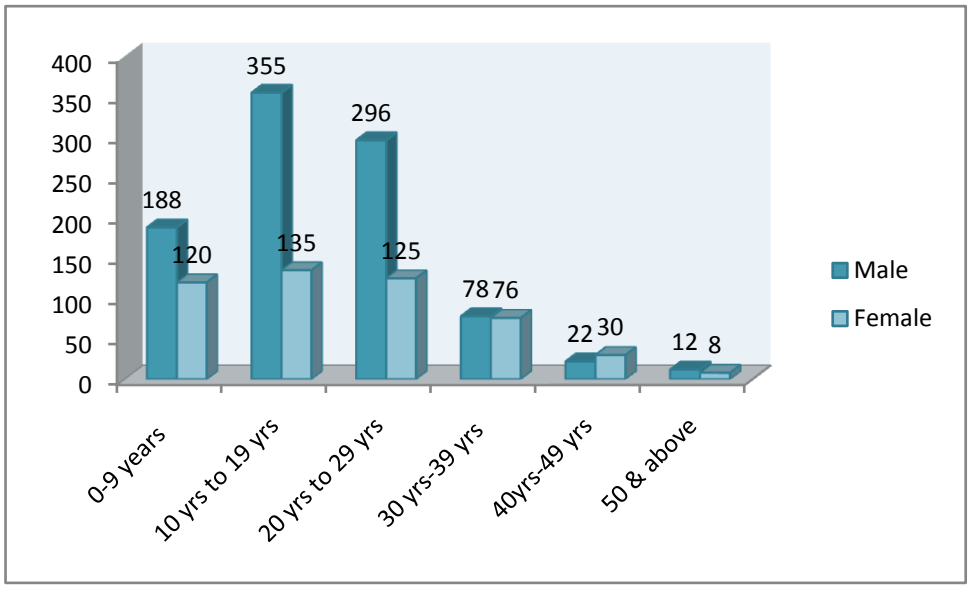


FIGURE SHOWING MANNER OF POISOING CASES

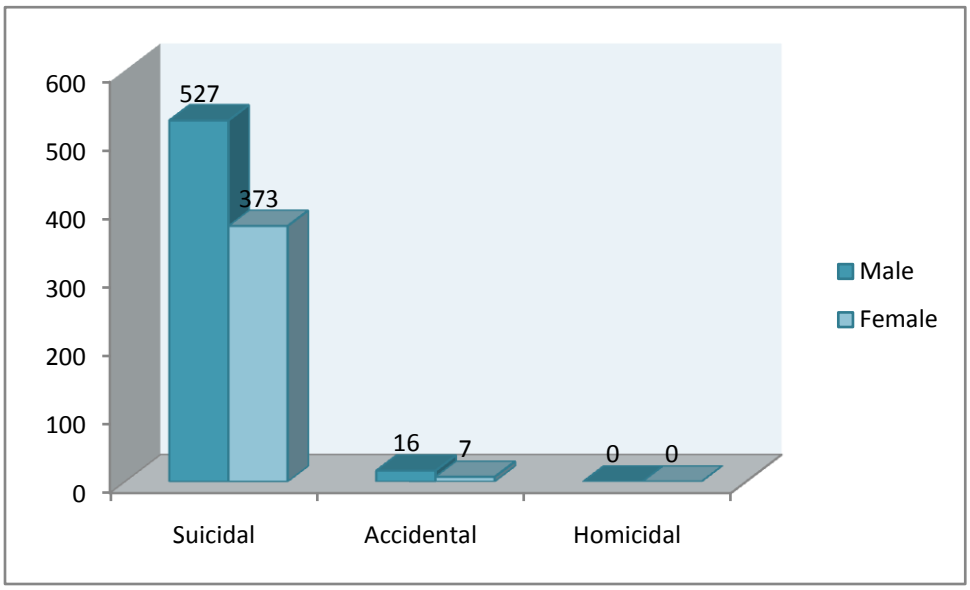
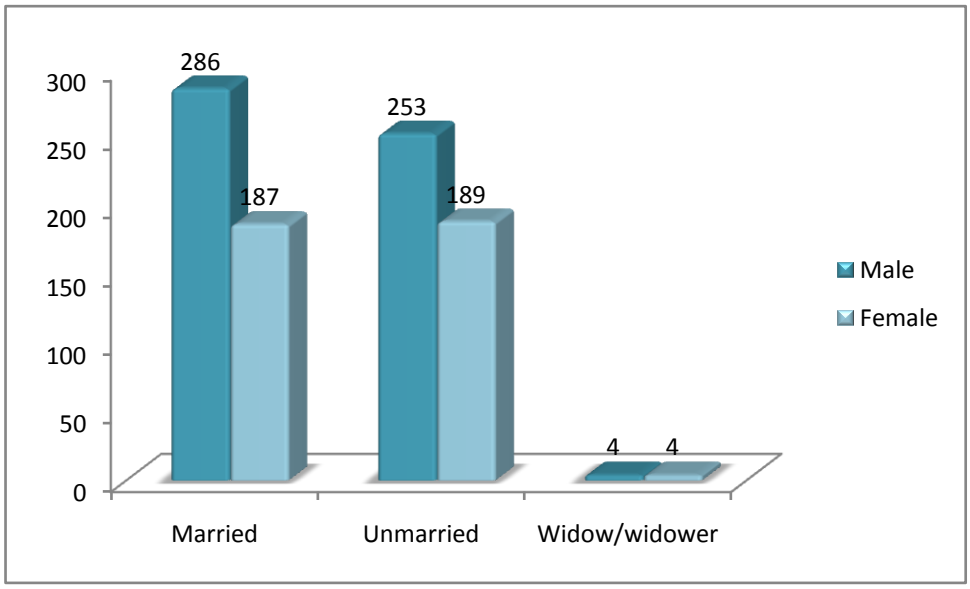


FIGURE SHOWING MARITAL STAUTS OF POISONING CASES



AGE DETERMINATION FROM RADIOLOGICAL STUDY OF EPIPHYSIAL APPEARANCE AND FUSION AROUND ELBOW JOINT

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Abstract:

The bones of human skeletons develop from separate ossification centers. From these centers ossification progresses till the bone is completely formed. These changes can be studied by means of X-rays. It is therefore possible to determine the approximate age of an individual by radiological examination of bones till ossification is complete.

This radiological study was carried out with the objective to assess the general skeletal maturity around elbow joint, of subjects in Mumbai region. 197 males and 79 females between age group of 3-24 years attending the outpatient department of this hospital are selected. Age confirmed from history and noting the birth dates. The cases selected after ruling out the nutritional, developmental, and endocrinal abnormality which affects the skeletal growth. Data analysis was done in P4 computer using HPSS software. At the end conclusions were drawn which are compared with available results of various previous studies

Key words: Age estimation, elbow joint, Radiological

Introduction:

Determination of the age of an individual from the appearance and the fusion of the ossification centers is a well accepted fact in the field of medical and legal professions. Epiphysis of bones unites during age periods which are remarkably constant for a particular epiphysis. The determination of age presents a task of considerable importance from the view-point of the administration of justice. It is not possible to enunciate a hard and fast rule for age determination from this union for the whole India because India is composed of areas which differ in climatic, dietetic and disease factors which affect skeletal growth. Determination of the age of an individual from the appearance and the fusion of the ossification centers is a well accepted fact in the field of medical and legal professions. The present study was carried out to study roentgenographically the epiphysial appearance and union at elbow joint in subjects between age group of 3 to 24 years attending outpatient department of this hospital.

Aims and Objectives:

- To assess the skeletal maturity at elbow joint for a known chronological age in subjects of Mumbai region.
- Comparative study of appearance & fusion of ossification centers at elbow joint with known standards
- To evaluate sex related variation & its correlation with age.
- To know variation if any & exception of appearance & fusion of centers of ossification.
- To evaluate the medico legal aspects of different ages.
- To suggest any additional radiological investigation to aid and to reduce range in determining age.

Material and Methods:

The study was carried out in Sir J. J. Groups of Hospital and Grant Medical College in Mumbai which is a tertiary referral centre attached to Government Medical College with the objective to assess the general skeletal maturity of elbow joint of subjects in Mumbai region. 197 males and 79 females between age group of 3-24 years attending the outpatient department of this hospital are selected. Age confirmed from history and noting the birth dates. The cases selected after ruling out the nutritional, developmental, and endocrinal abnormality which affects the skeletal growth. X-ray of elbow joint was taken at department of radiology. The epiphysis of elbow joint were observed for appearance (A) and not appeared (NA) and different phases of fusion were graded according to Dr. William Sangma et al and Mckern and Stewart 5 stages as fallows

Stage 1 (F1): Non union – when the epiphysial cartilage did not begin to decrease in thickness
Stage 2(F2): Commence of union – when the thickness of epiphysial cartilage was found to be reduced appreciably ($1/4^{th}$ united)
Stage 3(F3): Incomplete union – when the epiphysis has begun to fuse with shaft and complete union was well underway (1/2 united)
Stage 4(F4): Complete union – when the epiphysial cartilage was bony in architecture and its density indistinguishable from the epiphysis and diaphysis in its neighbourhood but an epiphysial line called epiphysial scar could still be distinguished. (3/4 united)
Stage 5(F5): Complete union – with absence of epiphysial scar.

Skeletal maturity was evaluated radiologically studying the various centres of ossification around elbow joint and the results were compared with the previous known standard studies. Only appearance and last two stage of fusion cases were taken in this paper, remaining cases were in early stages of fusion

Results and observations:

Appearance of Trochlea: It is clear from table-1 that in male subject in majority of cases in age group 3-10 and 10-11 does not show appearance of trochlea. The appearance of trochlea is seen in age group 10-11, 11-12 in male

It is clear from table-1 that in female subject in majority of cases in age group 3-9 yr. does not show appearance of trochlea. The appearance trochlea is seen in age group 8-9, 9-10, 10-11 in females

Fusion of trochlea: It is clear from table-2 that in male subjects in majority of cases in age group 13-14 and 14-15 show near fusion (F4), where as in age groups15-16 and onwards majority of cases showed fusion (F5)

It is clear from table-3 that in female subjects in majority of cases in age group 12 - 13 show near fusion (F4), where as in age groups14-15 and onwards majority of cases showed fusion (F5)

Appearance of Lateral epicondyle: It is clear from table-4 that in male subject in majority of cases in age group 3-10 and 10-11 does not show appearance of Lateral epicondyle. The appearance of Lateral epicondyle is seen in age group 10-11, 11-12 & 12 -13 in male

It is clear from table-4 that in female subject in majority of cases in age group 3-9 yr. does not show appearance of Lateral epicondyle. The appearance Lateral epicondyle is seen in age group 8-9, 9-10, 10-11 in females.

Fusion of Lateral epicondyle: It is clear from table-5 that in male subjects in majority of cases in age group 13-15 and 15-16 show near fusion (F4), where as in age groups16-17 and onwards cases showed complete fusion (F5) .

It is clear from table-6 that in female subjects in majority of cases in age group 13 - 14 show near fusion (F4), where as in age groups14-15 and onwards cases complete showed fusion (F5).

Appearance of Medial epicondyle: It is clear from table-7 that in male subject in majority of cases in age group 3-6 and 6-7 does not show appearance of Medial epicondyle. The appearance of Medial epicondyle is seen in age group 6-7 & 7-8 in male

It is clear from table-7 that in female subject in majority of cases in age group 3-6 yr. does not show appearance of Medial epicondyle. The appearance Medial epicondyle is seen in age group 5-6 & 6-7 in females.

Fusion of Medial epicondyle: It is clear from table-8 that in male subjects in majority of cases in age group 14-16 and 16-17 show near fusion (F4), where as in age groups16-17 and onwards cases showed complet fusion (F5) .

It is clear from table-9 that in female subjects in majority of cases in age group 12 - 15 show near fusion (F4), where as in age groups14-15 and onwards cases complete showed fusion (F5).

Appearance of Head of Radius: It is clear from table-10 that in male subject in majority of cases in age group 3-8 does not show appearance of Head of Radius. The appearance of Head of Radius is seen in age group 7-8 & 8-9 in male

It is clear from table-10 that in female subject in majority of cases in age group 3-5 yr. does not show appearance of Head of Radius. The appearance Head of Radius is seen in age group 5-6 & 6-7 in females.

Fusion of Head of Radius: It is clear from table-11 that in male subjects in majority of cases in age group 14-17 show near fusion (F4), where as in age groups16-17 and onwards cases showed complete fusion (F5) .

It is clear from table-12 that in female subjects in majority of cases in age group 12 - 13 show near fusion (F4), where as in age groups14-15 and onwards cases complete showed fusion (F5).

Appearance of Olecranon: It is clear from table-13 that in male subject in majority of cases in age group 3-11 & 11-12 does not show appearance of Olecranon. The appearance of Olecranon is seen in age group 10-11, 11-12 & 12-13 in male

It is clear from table-13 that in female subject in majority of cases in age group 3-10 yr. does not show appearance of Olecranon. The appearance Olecranon is seen in age group 8-10 & 10-11 in females.

Fusion of Olecranon: It is clear from table-14 that in male subjects in majority of cases in age group 15-17 show near fusion (F4), where as in age groups16-17 and onwards cases showed complete fusion (F5) .

It is clear from table-15 that in female subjects in majority of cases in age group 13 - 16 show near fusion (F4), where as in age groups15-16 and onwards cases complete showed fusion (F5).

Discussion:

The only documented study done previously in Mumbai region was by Homi S. Mehta is available for standard comparison in Mumbai region. The observation of present study correlates with the observations of Homi S Mehta for Medial epicondyle, Head of Radius & proximal end of ulna. At elbow the complete union of epiphysis is seen by 16 - 17 years in males and 15 - 16 years in females. As compared to Flecker's study in Australians and Davies and Parsons Study in England ossification center appearance and fusion occurs one to two years earlier in this study.

The present study signifies that all centres in females mature 1-2 years earlier than in Males. This observations correlates with the previous studies. Comparison of observations of present study has been made with other workers in table-16 with reference to age of fusion in both sexes.

Conclusions

Apart from consideration of centers of ossification by Dr. Homi S Mehta for population of Mumbai region additional centers of ossification have been studied in this study which will be helpful to arrive at correct diagnosis with closer range.

As compared to Bengali Hindu female's ossification center fusion occurs one to two year later in Mumbai region females. As compared to Hepworth study in Panjabi region skeletal maturity is delayed by 6 months to 1 year in Mumbai region. As this study is done in Mumbai region the application of standards can be considered ideal for application in Mumbai region. Due to very narrow borderline range of differentiation between various stages of fusion (i.e. Stage 1 to Stage 5), it is difficult to consider stage of fusion as age indicator.

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Table -1: Appearance of trochlea

Age in yrs / Stages Of appearance	sex	3-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	Total
Not appeared	M	10 17%	13 22%	5 8.5%	8 13.6%	10 16.8%	5 8.5%	7 11.9%	1 1.7%	0 0%	59 100%
	F	8 32%	3 12%	7 28%	5 20%	2 8%	0 0%	0 0%	0 0%	0 0%	25 100%
appeared	M	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	2 28.6%	5 71.4%	0 0%	7 100%
	F	0 0%	0 0%	0 0%	0 0%	1 14.3%	2 28.6%	4 57.1%	0 0%	0 0%	7 100%

Table-2: Fusion of trochlea in males

Age in yrs / Stages of fusion	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-24	Total
F4	0 0%	4 50%	3 37.5%	1 12.5%	0 0%	0 0%	0 0%	0 0%	0 0%	8 100%
F5	0 0%	0 0%	1 1.1%	7 7.5%	12 12.9%	13 14%	18 19.4%	14 15.1%	28 30%	93 100%

Table-3: Fusion of trochlea in females

Age in yrs / Stages of fusion	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-23	Total
F4	0 0%	3 100%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	3 100%
F5	0 0%	0 0%	0 0%	4 11.8%	6 17.6%	6 17.6%	3 8.8%	3 8.8%	12 35.4%	34 100%

Table -4: Appearance of lateral epicondyle

Age in yrs / Stages Of appearence	sex	3-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	Total
Not appeared	M	28 47.5%	8 13.6%	10 16.9 %	5 8.5%	7 11.8%	1 1.7%	0 0%	0 0%	0 0%	59 100%
	F	18 69.8%	5 19.2%	2 7.7%	1 3.8%	0 0%	0 0%	0 0%	0 0%	0 0%	26 100%
appeared	M	0 0%	0 0%	0 0%	0 0%	1 6.7%	8 53.3%	6 40%	0 0%	0 0%	15 100%
	F	0 0%	0 0%	1 25%	1 25%	2 50%	0 0%	0 0%	0 0%	0 0%	4 100%

Table-5: Fusion of Lateral epicondyle in males

Age in yrs / Stages of fusion	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-25	Total
F4	1 5.9%	6 35.3%	3 17.6%	7 41.2%	0 0%	0 0%	0 0%	0 0%	0 0%	17 100%
F5	0 0%	0 0%	1 1.1%	1 1.1%	12 13.8%	13 14.9%	18 20.7%	14 16.2%	28 32.2%	87 100%

Table-6: Fusion of Lateral epicondyle in females

Age in yrs / Stages of fusion	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-24	Total
F4	0 0%	3 100%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	3 100%
F5	0 0%	0 0%	4 11.8%	6 17.6%	6 17.6%	3 8.8%	3 8.8%	3 8.8%	9 26.6%	34 100%

Table -7: Appearance of medial epicondyle

Age in yrs / Stages Of appearence	sex	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	Total
Not appeared	M	4 15.4%	6 23.1%	13 50%	3 11.5%	0 0%	0 0%	0 0%	0 0%	0 0%	26 100%
	F	4 44.4%	4 44.4%	1 11.1%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	9 100%
appeared	M	0 0%	0 0%	0 0%	2 28.6%	5 71.4%	0 0%	0 0%	0 0%	0 0%	7 100%
	F	0 0%	0 0%	2 25%	6 75%	0 0%	0 0%	0 0%	0 0%	0 0%	9 100%

Table-8: Fusion of medial epicondyle in males

Age in yrs / Stages of fusion	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-25	Total
F4	0 0%	0 0%	1 7.7%	8 61.5%	4 30.8%	0 0%	0 0%	0 0%	0 0%	13 100%
F5	0 0%	0 0%	0 0%	0 0%	8 9.9%	13 16%	18 22.3%	14 17.3%	28 34.5%	81 100%

Table-9: Fusion of medial epicondyle in females

Age in yrs / Stages of fusion	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-25	Total
F4	1 25%	2 50%	1 25%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	4 100%
F5	0 0%	0 0%	4 12.1%	5 15.2%	6 18.2%	3 9.1%	3 9.1%	3 9.1%	9 27.2%	33 100%

Table -10: Appearance of Head of Radius

Age in yrs / Stages Of appearance	sex	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	Total
Not appeared	M	4 13.3%	6 20%	13 43.3%	5 16.7%	2 6.7%	0 0%	0 0%	0 0%	0 0%	30 100%
	F	4 50%	4 50%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	8 100%
appeared	M	0 0%	0 0%	0 0%	0 0%	5 62.5%	3 37.5%	0 0%	0 0%	0 0%	8 100%
	F	0 0%	0 0%	3 37.5%	5 62.5%	0 0%	0 0%	0 0%	0 0%	0 0%	8 100%

Table-11: Fusion of head of radius in males

Age in yrs / Stages of fusion	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-25	Total
F4	0 0%	0 0%	4 30.8%	7 53.8%	2 15.4%	0 0%	0 0%	0 0%	0 0%	13 100%
F5	0 0%	0 0%	0 0%	1 1.2%	10 11.9%	13 15.5%	18 21.4%	14 16.6%	28 33.4%	81 100%

Table-12: Fusion of head of radius in females

Age in yrs / Stages of fusion	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-25	Total
F4	2 40%	2 40%	1 20%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	5 100%
F5	0 0%	0 0%	4 12.1%	5 15.1%	6 18.2%	3 9.1%	3 9.1%	3 9.1%	9 27.3%	33 100%

Table -13: Appearance of Olecranon

Age in yrs / Stages Of appearance	sex	3-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	Total
Not appeared	M	28 45.9%	8 13.1%	10 16.4 %	5 8.2%	7 11.5%	3 4.9%	0 0%	0 0%	0 0%	61 100%
	F	18 69.3%	5 19.2%	2 7.7%	1 3.8%	0 0%	0 0%	0 0%	0 0%	0 0%	26 100%
appeared	M	0 0%	0 0%	0 0%	0 0%	1 12.5%	6 75%	1 12.5%	0 0%	0 0%	8 100%
	F	0 0%	0 0%	1 20%	1 20%	3 60%	0 0%	0 0%	0 0%	0 0%	5 100%

Table-14: Fusion of head of Olecranon in males

Age in yrs / Stages of fusion	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-25	Total
F4	0 0%	0 0%	0 0%	7 50%	7 50%	0 0%	0 0%	0 0%	0 0%	14 100%
F5	0 0%	0 0%	0 0%	0 0%	5 6.4%	13 16.7%	18 23.1%	14 17.9%	28 35.9%	78 100%

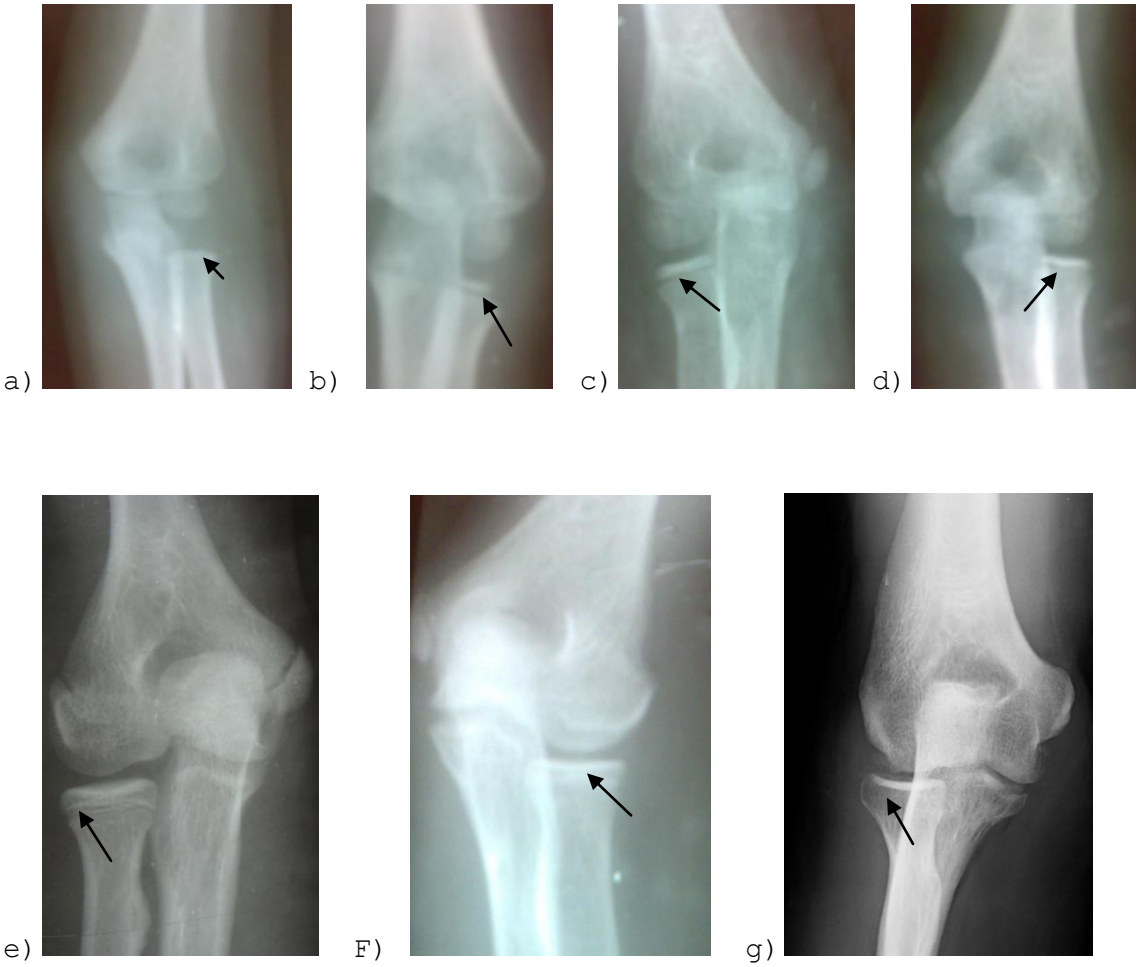
Table-15: Fusion of head of Olecranon in females

Age in yrs / Stages of fusion	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-25	Total
F4	0 0%	1 20%	3 60%	1 20%	0 0%	0 0%	0 0%	0 0%	0 0%	5 100%
F5	0 0%	0 0%	1 3.3%	5 16.7%	6 20%	3 10%	3 10%	3 10%	9 30%	30 100%

Table-16: Comparison of age of fusion by different Authors

Author	Present study				Galstaun study				H. S. Mehta		Pillai	Franklin
Centre of ossification	Appearance (Yr)		Fusion (Yr)		Appearance (Yr)		Fusion (Yr)		Fusion (Yr)		fusion (Yr)	Fusion (Yr)
	M	F	M	F	M	F	M	F	M	F	M&F	M&F
Trochlea	10-12	8-11	14-16	14-15	11	10	11-15	9-13	---	---	---	13-14
Lat. Epicondyle	11-13	9-11	15-17	14-15	12	10	11- 16	10-12	---	---	11-12	13-14
Med. Epicondyle	6-8	5-7	16-17	14-16	7	5	16	14	$16^{1/2}$ -17	13 - 14	14-17	14-15
Head of Radius	7-9	5-7	16-17	14-16	8	6	16	14	$15^{1/2}$ -17	$13^{1/2}$ -14	14-17	14-15
Olecranon	11-13	9-11	16-17	14-16	11-13	9-12	17	15	$15^{1/2}$ -17	$13^{1/2}$ -14	14-16	13-14

Different stages of fusion of Head of Radius



a) Not appeared, b) appeared, c) Fusion: Stage – 1, d) Fusion: stage – 2

e) Fusion: Stage - 3 F) Fusion: stage - 4 g) Fusion: stage – 5

Case Report
SUDDEN DEATH OR SUICIDAL DROWNING: A CASE REPORT

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Abstract:
A 35 year male was found dead in police custody with his head submerged, in small bucket. On autopsy showed few injuries, there were atherosclerotic changes in ascending aorta and at coronary, congestion of the organs and scanty lathery froth in bronchi. Being unusual presentation this case is presented.

Keywords: Sudden Death, Drowning, Suicide, Custody Death.

Case Report:

A 35 years old man was sent to police custody for allegedly killing his wife and daughter by burns. The police sentry noticed him lying in the lavatory attached to the custody room in dorsal position with his head submerged in a small bucket of water used for cleaning purpose. He was immediately taken to the hospital where the Doctor declared him dead. At autopsy, on external examination he was moderately built, average nourished adult, no froth at mouth or nostrils. Postmortem lividity was present on posterior aspect and was not fixed. There were three reddish, brownish contusions on back and buttocks and one reddish contusion on right upper thigh and a reddish abrasion just below right knee anterior. Internally the brain was congested and edematous, weighing 1300 gms with few petechieal haemorrhages. The lungs were congested, edematous and weighed 650 gms. The bronchi showed scanty, fine, lathery froth. The heart was normal externally and weighed 250 gms.Internally showed atherosclerotic patches at ascending aorta and coronary ostea. The right coronary was narrowed. Abdominal organs were congested, liver was weighing 1500 gms, spleen 300 gms and kidneys 150 gms each. Viscera were preserved for chemical analysis. Organ pieces were preserved for histopathological examination. The chemical analysis did not reveal any poison. However, the histopathological examination revealed atherosclerosis of aorta and left coronary, spleenic haemorrhages, interstitial pneumonitis with mild pulmonary haemorrhages and glomerular and tubular haemorrhages in kidneys.

Discussion:

Majority of the deaths due to submersion are either by accident or by suicide. Polson has described a case of a farmer, aged-61 years was in the habit of putting his head into a bucket of cold water during hot weather. He was found dead, half kneeling, half crouching in his wash house. He had signs of death by drowning and also of severe coronary artery disease. It appeared that he had had a heart attack and death was accelerated by drowning.

Polson has described a case **of** a woman aged 50 years, intending suicide, drowned herself by thrusting her face into a bowl of water, the depth of which was only 6 inches. She was found dead in her bed with the bowl tightly held in her hands.

Spitz has described a case of a 56 year old worker standing on a concrete platform painting a bridge support suddenly fell into the shallow water and was taken immediately to hospital where he died after fifteen minutes. At autopsy, no injuries were noted. The lungs were heavy, and on incision large amounts of fluid and foam exuded from cut surfaces. The appearance of the lungs suggested that the death was due to drowning. The coronary arteries showed far advanced atherosclerosis. At a later hearing before workman's compensation commission a fellow worker was painting next to the deceased testified that his friend had complained of severe chest pain few minutes prior to his fall. He was picked up within a few

seconds and his head and shoulders had not been submerged. On the basis of this testimony it was decided that the death was due to acute heart attack. In this case the typical findings suggestive of drowning or myocardial insufficiency or fatal injuries were absent. There was no evidence of any intoxication. Ordinarily the whole body submersion of the victim is required, but submersion of the nose and the mouth alone for a sufficient period can cause death from drowning. The injuries found on the body were not sufficient to cause death so also, the contusions on back and both buttocks were reddish brownish in colour indicating their age. On external and internal examination there was no evidence of injury to the scalp or brain. Homicidal drowning caused by forceful submersion of head in water seems impossible. The haemorrhages found on microscopic examination might be due to trauma exhibited on the back. From the postmortem examination, chemical analysis and histopathological reports the deceased appears to be succumbed to pre-existing coronary disease (atherosclerosis) accelerated by process of drowning.

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Case Report

FATAL LONG SCARF SYNDROME: A CASE REPORT OF UNUSUAL CAUSE OF DEATH

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Abstract:

Long scarf worn by Indian women resulted in number of cases of accidental strangulation with loss of life. This report illustrates an unusual cause of death in accidental strangulation caused due to long scarf. Strangulation by long scarf is caused as a consequence of scarf being caught in the wheel spokes of a vehicle.

Key words: *strangulation, cervical spine, accident, fracture, death*

Introduction:

Strangulation is a form of violent asphyxial death and majority of cases are homicidal in nature. However, few cases of accidental strangulation have been reported in literature (1, 2). Death in these cases is due to asphyxia, cerebral anoxia or vagal inhibition. This report illustrates an unusual cause of death in accidental strangulation caused due to long scarf.

Case report:

A 13-year old female was brought for forensic autopsy at Govt. Medical College and Hospital, Nagpur with history of accidental strangulation. The deceased was wearing a long oodhani (scarf) and was traveling in bullock-cart. She was standing by the side panel of cart close to wheel. Her oodhani get entrapped into wheel while cart was speedily rolling on sliding route. The lady was transferred to a private hospital where she was found to be quadriplegic. The patient survives for a day.

At autopsy, external examination reveals ligature mark on the left anterio-lateral part of neck, extending over nape and right aspect of face, of 20 cm in length and 6 cm in width (fig 1). Internal examination showed pale brain, hematoma in upper intercostal spaces, and signs of aspiration pneumonitis. Neck showed hemorrhagic infiltration in muscles. There was separation of C4-C5 joint with complete transaction of spinal cord at corresponding level (fig 2).

Discussion:

Strangulation by long scarf is caused as a consequence of scarf being caught in the wheel spokes of a vehicle. This condition got public attention when the famous dancer Isadora Duncan died in September 14, 1929. The long scarf, which she was wearing,

became caught in the wheels of Buggati car. Isadora died at the scene (3). Subsequently, cases related to scarf have been reported (4, 5) and being labeled as "long scarf syndrome" or "Isadora Duncan syndrome".

Figure 1: showing ligature mark over neck

Figure 2: showing complete transection of spinal cord (white arrow)

Long scarf (Chunni, oodhani) worn by Indian women resulted in number of cases of accidental strangulation with loss of life. Accidents occur when the scarf's free floating end becomes entangled in moving wheel; the unprotected spokes of wheel traps the scarf (Chunni, oodhani) worn by females (5). The scarves are 6-12 feet in length and are slackly wrapped about the neck with their ends flowing freely (6).

In spite of being more mobile but less stable than the thoracic and lumbar regions of vertebral column, cervical spine injuries are rare in strangulation (7). However, application of considerable force may cause fracture-dislocation of this vulnerable region. In the reported case, injury to neck occurs due to entrapment of one end of oodhani round the neck and other trapped in wheel. The recognized mechanism of injury includes entrapment of oodhani round the neck and face with cervical hyperextension and axial rotation resulting in separation of cervical vertebrae (8).

Cart powered by bullocks are prevalent mode of transport in rural India. The occupant sitting close to wheels is always in danger especially if wearing long scarf. This is rare but unfortunate mishap occurred due to bullock cart. Similar cases have been reported in India with

other mode of traveling like cycle rickshaws (1, 2). These incidents raise the need for preventive measures to be introduced or followed to avoid further occurrence.

In summary, this case exemplifies the unsuspected inherent danger of wearing long scarf while traveling in a vehicle with unprotected wheels.

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Case Report

CUSTODIAL DEATH: SUICIDAL HANGING BY PRISONER IN THE HOSPITAL

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Abstract:

Custodial death refers to the death of a person in the police custody/ lockup or in the prison. In the present custodial deaths, two prisoners had committed suicide by hanging in the government hospital while admitted for the treatment of cancer. In both cases, the cotton bandage available in the hospital ward is used as ligature material for hanging. Both the prisoner had committed suicide in the toilet of the ward due to agonising pain of cancer. This incidence highlight the need to prevent any loose material used for the treatment or present in the hospital wards that may be a possible means of suicide. The present custodial deaths are presented with a view to provide information which will help to design effective preventive programmes and the establishment of better preventive strategies to prevent such incidence in the hospital.

***Keywords**: Custodial death, prisoner, suicide, hanging, bandage, hospital, prevention.*

Introduction:

Death in custody is one of the most embarrassing situations for the law enforcement agencies and medicolegal experts. It increases the public interest and attracts the attention of the electronic media. To prevent violation of human rights and to provide compensation against these violations, National Human Rights Commission, New Delhi was established in 1984. Even the doctors have to follow the guidelines given by National Human Rights Commission while conducting postmortem examination in custodial death cases. The death of the prisoner usually occurs due to natural cause either in the prison or in the hospital while admitted for terminal illness; and rarely due to violent cause like suicide by hanging in the prison. However violent cause in custodial deaths are more common in police cell. With this background, two custodial deaths are presented, where the convicted prisoners had committed suicide by hanging in the hospital.

Case Reports:

Case 1: A dead body of sixty-year male prisoner was brought for medicolegal autopsy. As per the investigating officer, the deceased was a prisoner, convicted for cognizable offence. He was admitted in the government hospital two days before for severe agonizing pain due to carcinoma buccal mucosa. He

was under chemotherapy and radiotherapy for almost 3 months for the same. In the early morning hours, his body was found in the toilet of the ward in partial hanging position with a suicidal note that he has committed suicide due to severe agonising pain of cancer. The body was sent to mortuary for autopsy after preliminary magistrate investigation.

Autopsy findings:

On external examination, the ligature material of cotton bandage was present encircling the neck at the level above thyroid cartilage, tied by running noose at right mastoid of neck. Stock and glove type of lividity was present. There was congestion of face. Cancerous growth was present in the buccal mucosa on right side. Ligature mark was present around neck of size 13x1 inches. The mark was present at the level above thyroid cartilage and was running obliquely upwards and towards right mastoid. It was situated 1" below right mastoid, 3 ½'' above manubrium and 2" below left mastoid. It was brownish, parchmentised, and non-grooved.

Internally, on opening the ligature material, white glistening area was seen underneath corresponding to ligature mark. Reddish moist haematoma of size 1.5x1 cm was present in the muscles of neck on right side corresponding to ligature mark. Hyoid bone and laryngeal cartilage were intact. Mucosa of respiratory tract was congested and show shower of petechiae in the larynx. Thyroid gland was congested with haemorrhages on cut section. Visceral organs were congested. Lungs were congested and edematous with sub-pleural petechiae. Brain was congested and edematous. Histopathological examination of the buccal mucosal growth revealed squamous cell carcinoma.

Case 2: A dead body of forty-year male prisoner was brought for medicolegal autopsy. As per the investigating officer, the deceased was a jail prisoner serving 10 yrs imprisonment for cognisable offence tried u/s 302 IPC. He was admitted in the government hospital for severe agonizing pain due to carcinoma of pancreas. On the second night of admission, his body was found in the toilet of the ward in partial hanging position. He had committed suicide due to severe agonising pain of cancer. The body was sent to mortuary for autopsy after preliminary magistrate investigation.

Autopsy Findings:

On external examination, ligature material of cotton bandage was present around the neck, tied by simple knot at left mastoid. The free end of ligature material was tied to dupatta by simple double knot. Evidence of dribbling of saliva seen as dried salivary stains present over chin and chest on right side near midline. Bivaginal hydrocele was present. After removing the ligature material, the ligature mark of size 12 ½''x1'' was present around neck at the level above thyroid cartilage running obliquely upward and toward left mastoid. It was situated 3 1/2" above manubrium and 1 ½" below right mastoid and ¾" below left mastoid. It was brownish parchmentised and non-grooved.

Internally, the scalp, cartilage, pleura, pericardium and peritoneum show yellowish tinged. Haematoma of size ¼" x ¼" was present in the soft tissue on right side corresponding to ligature mark. Hyoid bone and laryngeal cartilage were intact. Mucosa of respiratory tract was congested. Thyroid gland was congested. Visceral organs were congested. Lungs and brain were edematous. Liver was enlarged and firm in consistency. Pancreas was adherant to the surrounding structure and becomes a hard mass. Histopathological examination of pancreas revealed moderately differentiated adenocarcinoma. Liver shows cirrhotic changes.

Discussion:

Suicide in prison causes an enormous degree of distress to other prisoners, prison staff and of course, to the inmate's family and friends outside. Indeed, it is sometimes regarded as a testament to the failure of our penal institutions to fulfil their obligation to provide offenders with a humane and safe environment during the period of their incarceration [1]. The statistics of the National Crime Record Bureau (NCRB) show that there were 1,357 custodial deaths across India in the year 2005. India has the highest number of cases of police torture and custodial deaths among the world's democracies and the weakest legislation against torture. The Asian Centre for Human Rights alleges that 7,468 persons died or killed in prison and police custody during 2002-2007 with Uttar Pradesh and Maharashtra tops the human right violation cases in the nation. [2]

In the custodial deaths, the deaths in prison outnumbered the death in police custody. The death in prison was natural in almost 85% cases and unnatural in 15% cases. Moreover all suicides in the custodial death occurred in the police cell. [3]. Thus the suicide in prison was uncommon in India, which is in sharp contrast to that seen in developed countries. In Australia, almost 50% of all prison deaths were as a result of inmate suicide with hanging as the most common method. [1]. Suicide is documented as the leading cause of death in prison in Canada [4], and in Britain [5] with hanging as the most common method. Moreover, Suicide in prison is much more common than suicide in community [4]. However, both England and US reports have noted the relative infrequency of suicide in special security hospitals [5,6].

The increase in custodial death is mainly due to increase in the number of suicide in police custody. The suicide in custody is worrisome and suggests lack of preventive effort by the authorities. As per the guidelines of NHRC, the government and the concerned authorities are taking all necessary precautions to prevent custodial death. However, the prisoner who wants to commits suicide finds one or other new ways to end their life. So the concerned authorities have made various other stringent measures at police lockup and prison to prevent death in custody. Now the prisoner who doesn't find anything to terminate the life in prison, commits suicide in the hospital while admitted for some ailment, posing problem mainly to the other patient, hospital staff and to the police who is on duty.

In the present custodial deaths, both the prisoners were admitted in the hospital for treatment of chronic ailment i.e. cancer. Both of them were convicted for cognisable offence and committed suicide by hanging for their agonising pain in the toilet of the hospital ward at night by using cotton bandage of the hospital that was freely available in the wards. Utmost precautions were taken in the jail to prevent the prisoner to commit suicide. But when the same prisoner was admitted to the hospital for any ailments, then the same precautions were not followed stringently. Only police guards were deployed for security reason so that the prisoner could not escape from the hospital.

While suicide is recognised as a critical problem within the jail environment, the issue of prisoner suicide in the hospital has not received comparable attention. Prevention of custodial related deaths should be recognised as an area of concern and should be given greater priority by the government and concerned authorities. It is always difficult, however, to preach prevention without first identifying the parameters of the problem, only by continuing to examine the problem of prisoner suicide and transmitting what is learned to those entrusted with the custody and care of the inmates will be in the best possible position to prevent the likelihood of prisoner suicide. The concerned staff should have a responsibility for preventing suicides through screening, identification and supervision of suicide prone prisoner. In the purview of human

rights, the commission should lay down certain guidelines to protect the life of prisoner in the hospitals too to avoid such phenomenon.

Despite the attention that these two cases received, standards have not been set regarding the type or placement of the loose materials used for the treatment of the patient within the hospital wards. Hence it is suggested that, there shall be separate prisoner's ward/ room in the hospital for prisoner. Same precautions should be taken while constructing those ward/ rooms in the hospital. Stringent measures should be taken to avoid any untoward incidence in relation to drug / medicine. Drug should be given under direct observation. The prisoner should be under direct observation through closed circuit camera. Precaution should be taken not to have free access to any loose material like drugs, syringes, bandage, dupatta, bed sheet, telephone cord, water pipes, etc. available in the hospital wards that may be used for committing suicide. The concerned authorities should adopt all necessary measure to avoid such incidence in the hospital.

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Case Report

DYADIC DEATHS (HOMICIDE- SUICIDE): THREE CASE REPORTS

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Abstract:

Homicide suicide (dyadic) deaths though rare, have got important social impact. Here, three cases of dyadic deaths with perpetrator as husband in two cases and boy friend in one case are reported. In one of the case, victim was daughter along with wife. Suicide note by perpetrator was found in two cases. Factors like profile of perpetrator and relationship between perpetrator and victim, circumstances of killing, method of killing, site of offence, are important in such cases and various studies and case reports are based on these factors. In two cases, financial burden and in one case jealousy was the reason for killing.

Key words: Method of killing, pattern of injuries, perpetrator, dyadic death.

Introduction:

Dyadic deaths (homicide – suicide) is defined as a dramatic violent event in which an individual kills another and subsequently commits suicide immediately or after certain period of time that may range from hours to 1 week. There is however no standardized operational definition[1].

Currently there is no classification system validated for this phenomenon, but Mazruk et al, have suggested a system of classification based on type of relationship between perpetrator and victim and sub classified it on motivation of crime .Thus dyadic deaths are classified as spousal/ consortial, familial, and extra-familial type with different sub classification based on motive of crime[1].

The Hanzlick–Koponen typology has the following special classifications, which can be divided into two broad categories: single victim and multiple victim events. And according to this, single victim events (dyadic deaths) include homicide - suicide or suicide pacts [2]. The most common type of dyadic deaths involve killing of intimate partners and perpetrators are male in most of cases.[1,-6]

Dyadic deaths are relatively rare when compared to separate incidences of homicide or suicide worldwide and related to demographic profiles of population. In India, National Crime Records Bureau hasn't given information regarding incidences of dyadic deaths. But, such deaths are not infrequent in society as evident from various case reports and media news.[7-11] These cases has got great social impact on after survivors of victim and perpetrators, and as well as on society [6].

Here we are presenting three cases reports of dyadic deaths, two of them occurred within a span of one month leading to social impact.

Case Reports:

Case 1 – On the scene of crime at home, husband, wife and daughter aged 13 years were lying over floor in pool of blood and bedroom door was locked from in. When family members

entered the room, husband was alive in unconscious condition and kitchen knife stained with blood present by his side while both wife and daughter were dead. Suicide note was not found at scene. And dead bodies of the wife and daughter brought sent for medicolegal postmortem at our institute.

On external examination of wife, about sixty three stab wounds present over the different body parts that includes abdomen, chest, back, both forearms and thighs. In addition to stab, incised wounds were also present over both hands suggestive of defense wounds. Stab wounds over heart, lungs and intestines were responsible for her cause of death.

On external examination of daughter, about 37 stab wounds present over body parts mostly over abdomen, left side of chest and upper part of back on left side .On internal examination, stab injuries to left lung, liver, small intestines and spleen were responsible for her death. No defense wounds were seen over body parts of his daughter.

Interestingly, husband was operated for 21 perforations of small intestine due to multiple stab injuries over abdomen at places. There were no other injuries over his body. While recovering in hospital, he confessed to the police regarding killing of his wife and daughter by kitchen knife, because of financial burden. He died later in our institution due to sepsis associated with perforation peritonitis.

Case 2 –

In house of her father, daughter was lying dead in prone position over bed and her husband was found in complete hanging position to ceiling fan with duppatta in late morning hours. Door was locked from inside and no one was present in home. Crime scene was intact and suicide note or any suspicious material was not found. History regarding recent quarrel between husband and wife, few days prior to incidence due to un-employment was given by her father. The couple was married since 5 years, without having any child.

Both the dead bodies were sent for medicolegal postmortem at our institute. On examination of husband, his hands were tied by duppatta with only simple knot in manner suggestive of self tying. Blood stains were present over it .Ligature material was odhani with slipping knot and salivary stains were also present at right angle of mouth and over shirt. Glove and stocking type of postmortem lividity and cyanosis was present .Ligature mark was of typical hanging and there were no other external injuries over other body parts and below ligature mark. Internal findings were suggestive of asphyxia as a mode of death in this case due to hanging.

On examination of his wife –

Face was congested with bilateral conjunctival & Petechial haemmoraghes over face. Blood stains were present in the nostrils and cyanosis was present. Lividity was present anteriorly over chest and fixed. No ligature material was present around neck but, single continuous ligature mark below the level of thyroid cartilage was present .Multiple obliquely placed scratch abrasions of size varying from 0.6cm to 0.3 cm were present over front of neck on both the sides. No other injuries were found on body part. Internal findings of neck, shows presence of hematoma beneath neck muscles on both the sides. Superior horn of thyroid cartilage was fractured on right side. Internal examination of other organs was suggestive of findings of asphyxia and cause of death was strangulation. As no ligature material for strangling was seen at the scene, husband might have used the duppatta for this and after killing her, he tied his hands with the same duppatta as blood stains on it was proved to be of his wife after chemical analysis. Chemical analysis of viscera in both cases does not reveal any poison.

Case 3-

An unmarried, 19 years old girl was found dead over terrace of her house in the morning on day of her engagement with presence of deep injury over neck .On her postmortem examination, only single horizontally placed chop wound was present over neck extending on both the the sides from midline and it cuts trachea, esophagus and cervical vertebra .Pattern of injury was suggestive of homicidal cut throat and her family members were inconclusive regarding motive of murder. But while searching for his tenant aged 23 years, father of girl found him in completely hanged position to ceiling fan with the nylon rope in other room of the same house and front door was locked from outside.

On postmortem examination, blood stains were present on clothes and anteriorly over both legs. External findings over neck with internal findings, confirmed cause of death as hanging. Chemical analysis confirmed blood stains over body of boy were that of victim. After investigations, it was revealed that the offender living as tenant and developed love relations with daughter of his landlord and they had affair since 2 years without knowledge of their respective family members. As girl was not willing for marriage provoked him to kill her brutally.

Discussion:

Dyadic death episodes are reported from various parts of India and mostly seen in low socio- economic, less educated or illiterate families and included single victim or multiple victim events. Demographic characteristic of perpetrator and victim are more or less same as observed in various reports. Most episodes occurred at home and perpetrator is known to victim. Extra familial incidents are rare.[7-10]

In all three cases described here, offenders were male, from low socio-economic class, living in semi- urban areas and less educated. 1st case, was a case of familicide in which daughter was killed by perpetrator in addition to wife. Whereas, remaining two cases are of consortial and spousal killing.

In developed countries, use of firearms is common method of homicide in dyadic deaths .Other weapons associated with this includes knives, blunt objects, and, other methods of homicide have included strangling /asphyxiation, poisoning and physical assault or vehicular accidents [5]. However, in India, dyadic deaths by using firearms are rare and in addition to other methods, drowning was also mentioned as common method of killing particularly for homicide of children's.[7 9 11]

Sharp weapons were used for killing in 1st and 3rd case and pattern of injuries suggests extremely brutal homicides in 1st case with multiple stab injuries over body of both victims. Such brutal murders only due to financial distress by family head in homicide – suicide pacts are not mentioned in literature.

When comparing homicide incidents to dyadic deaths, research has suggested that the perpetrator is more likely to die by suicide when motive is related to possessiveness /jealousy, sickness or stress and these incidents are more likely to be premeditated than a homicide alone [12]. Bossarte et al , observed , shooting (80.4%), Sharp weapons (11%), Hanging (6%), Poisoning (4%), fall (3%), Burns (1%), and vehicular accidents as method of suicide in perpetrators [5].Here perpetrators died by suicidal hanging in 2 cases and stabbing in 1st case.

Causative factors are multidimensional for such episodes as seen by Milroy CM, in his studies of 52 cases of homicide-suicide pacts, and established breakdown in a relationship

(46%), Mental illness (21%). Physical ill health (11%) and financial stress (10%) as important reasons for homicide - suicide.[3]

Graser identified a number of precipitating factors in perpetrators of familicide, including marital and financial problems, unemployment, depression and social isolation, alcohol abuse, physical and mental illness and, particularly in murder – suicide type of family murder, stated that victim precipitation in the form of behavior of spouse often provides a "trigger" for the family murder. The personalities of perpetrators and their victims, the prevailing circumstances, and the manner in which latter are defined, interact, possibly ending in tragedy [4].

Jealousy, conflict over extramarital, sexual, love affairs, threat of separation or actual separation from intimate partner is important factors seen in spousal or consortial homicide.

In Indian scenario financial distress is mentioned as predominant factor for familicide.[7, 9] Also, financial burden and marital disharmony are the principle reasons for suicide in India. And, such suicidal tendencies are now commonly seen in farmers of country due to agrarian crisis & unemployed youths making them vulnerable population.[13, 14]

While considering social disparity , the gap in consumption spending between poor and rich is more in urban India and disparity now increases to 9.8 times in 2011.Hence,rising financial distress in families precipitates such episodes.

Similar factor of financial distress was confessed as reason of familicide by perpetrator in 1st case whereas; frustration due to unemployment in young married couple was the reason in 2nd case as documented by their suicide note. And as observed in many studies that, conflict or jealousy in broken relationship as important cause for spousal/intimate partner homicide is in seen in 3rd case. In all three cases previous history of mental illness, suicidal tendancies, addiction and violent behavior was not seen in perpetrators and chemical analysis of viscera was negative for any substance abuse.

Of three cases described here, 1st two occurred within a span of 1 month leading to great impact on society as observed in Media reports and in particular, brutal killing of one's own child only for financial reasons has got deeper social impact.

Table: Observation table of three cases

Case no	Perpetrator	Relationship of victim with Perpetrator		Cause of death	
				Victim	Accused
I	Husband(39yrs)	Wife (34 yrs)	Daughter (13yrs)	Multiple stab injuries	Multiple stab injuries
I	Husband(25yrs)	Wife (21yrs)	-	Ligature Strangulation	Hanging
III	Boyfriend(22yrs)	Lover(19yrs)	-	Homicidal cut throat	Hanging

Conclusions:

But what exactly are the precipitating factors in previously normal individuals that lead to homicide – suicide episodes still remains unanswered ?Because ,in India there is no national surveillance system for such cases and investigating agencies are never been able to discover the facts due to death of an offender.

Hence, to prevent such episodes, it is necessary to focus on vulnerable population with multidisciplinary approach. Clinical management of after survivals should be done and it is

absolutely essential to establish national surveillance system for such episodes to know exact circumstances of each case.

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Case Photographs:

Case 1 Victim wife - Multiple stab wounds over anterior body parts

Case 1 Victim daughter with multiple stab wounds

Case 1 Accused husband

Case 1 Accused Husband operated at IGGMC, Nagpur

Case 2.Victim wife with strangulation ligature mark

Case 2- Perpetrator husband

Case Report

DYING TOGETHER: A STUDY OF SUICIDE PACTS

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Abstract:

Suicide pacts are relatively rare phenomenon, particularly in India. The present study deals with suicide pacts and summarizes the circumstances that surround these pacts with an overview of this phenomenon.

Keywords: *Suicide, suicide-pact, dyadic death*

Introduction:

Most suicides are solitary and private, but few result from pact between people to die together (1). Suicide pact is defined as mutual agreements between two or more people to end their lives at the same time and nearly always in the same place (2). Suicide pacts are relatively rare phenomenon in India and accounts for 2.5 % of total number of suicide (3). The objective of the current study was to give an account of the demographic profile of these pacts, to determine the circumstances that surround these pacts and review the subject.

Methods:

The study consists of six suicide pacts occurring in June 2004 to May 2007. Data were recorded in prescribed format to ensure consistency for the whole sample. Data were extracted from police inquest, autopsy report, chemical analysis report, suicide notes left by deceased, and interviews of relatives and friends.

Results:

Twelve suicides between the periods of June 2004 to May 2007 occurred resulted in six pacts. The findings are recorded in table 1.

1. Sex & age: all pacts happen between male and female. The mean, minimum and maximum age are shown in table 2.
2. Relationship: considering the relationship between the partners, 2 pacts (33.33%) involve husband and wife and 4 pacts (66.66%) turn out to be between lovers.
3. Place of incidents: 2 pacts (33.33%) occur at home whereas 4 pacts (66.66%) took place at outdoors (1 pact each at public lake and garden and two at lodge).
4. Suicide note: amongst all, suicide notes were found in 4 pacts (66.66%) and out of them three notes were jointly signed by both partners and one note bears signature of male partner only.
5. Marital status: 4 were married male and 3 married women. Amongst married male, two male arrange suicide pacts with their wives and one married male underwent pact with an unmarried female who happens to his lover. One married male and married female, who were married to separate individuals, planned suicide together.
6. Reason: in 4 pacts (66.66%), disappointed lovers, who want to marry with their partner but family members, opposed the marriage, commits suicide whereas in the 2 pacts (33.33%) the cause was financial hardship and poverty.

7. Cause of death: 8 persons of 4 pacts consumed insecticide, two individuals of one pact prefers to drown together whereas one couple hanged themselves.

Discussion:

The study carried out in England and Wales by Cohen during 1955 to 1958 comprises of 58 suicide pacts and he noted deaths by these pacts to be less than 0.6 % of all suicides (2). Subsequent epidemiological study on suicide pacts in same region revealed that the rate has declined over past 35 years (1). In India, study conducted at Banglore from 1967 to 1973 found 2.5 % of death by suicide pacts (3). However, succeeding data are lacking.

These pacts almost always involve people well known to each other, mostly lovers or spouses as in the present series (2, 3, 4) or between friends and peer group. However, recently attention has been drawn to these pacts as they had been arranged between strangers who met over the Internet and planned the tragedy via special suicide website (5). This is in contrast to traditional suicide pacts.

In suicide pacts, the deaths of partners are supposed to be with premeditation and cooperation, without coercion of one partner by the other. However, studies of survivors of pact have shown that constraint is always there. But since reluctance favors survival the findings cannot be generalized to pacts that prove fatal (1, 5). It was also found that at the time of committing suicide, the person leave suicide notes signed by both partners. Thus presence of such jointly signed suicide notes justifies that the death was with cooperation and mutual understanding. In such pacts both members typically employ the same method, a non-violent one, which permitted painless, synchronized death together. Most common method employed is poisoning as in the present study and in India, common agent is insecticide (1, 6). However, it was found that if access to violent means is easier, such as firearms, suicide pacts entail more violent method (5, 6).

Disappointed lovers, opposition of family members for marriage, poverty or financial worry are the prominent causes of suicide pacts in the present study (3). Relief of physical disorder and pain of self or spouse also appear to be one of the motives of persons entering in suicide pact. Apprehension about social security or isolation from society was a form of assimilation for shared psychopathology that resulted in suicide was also thought to be causative factor in number of pact (7). Moreover, association of mental disease in form of depression is a common in those who enter in suicide pact (4). History of past or present mental disorders either in one or both partners of marriage or a medical disorder interwoven with mental illness might be prior indications and timely interventions offered some hope for prevention of these tragedies (4).

A related phenomenon is a homicide-suicide episode in which a person commits murder of a related person and then ends his or her life. Dyadic death is a term used for such episode (8). The homicide-suicide episodes cannot be equated with suicide pacts because in homicide-suicide episode, the death of other person is forced. The high prevalence of jointly signed suicide notes, and employing the same method for terminating life nearly at same time and place suggest that deaths are planned and with collective efforts.

A term "family suicide" is related with family members committing suicide together or in a successive manner. These are ritualistic types of suicide and of dying together that bear resemblance with suicide pacts (9) Contagion has been offered as an explanation for suicidal behavior, especially when a suicide triggers a chain of suicides (7).

Folie a deux, relatively uncommon syndrome has been reported in association with suicide pacts. These pacts are embraced in the definition of folie a deux as a psychiatric entity characterized by the transfer of delusional ideas and/or abnormal behavior from one person to one or more others who have been intimately associated with the primarily affected patient (7).

Conclusion:

In conclusion, it can be added that disappointed lovers, opposition of family members for marriage, poverty or financial worry are some causes of suicide pacts identified in the present study. These pacts involve husband & wife or arranged between lovers. The phenomenon of suicide pact is complex one and further studies are needed to describe the epidemiological, social and medical factors responsible for these pacts so that timely interventions can be offered with hope for prevention of these tragedies.

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Table 1: displaying data of suicide pact partners

Pact no.	Age in yrs M	F	Place of incident	Cause of death Male	Female	Suicide note	Marital status Male	Female	Relationship	Reason
I	28	24	Outdoor	Drowning	Drowning	Yes	Married	Married	Husband & Wife	Financial
II	24	19	Home	Poisoning	Poisoning	Yes	Married	Married	Husband & Wife	Financial
III	25	20	Outdoor	Poisoning	Poisoning	Yes	Unmarried	Unmarried	Lovers	Opposition for marriage
IV	35	26	Outdoor	Poisoning	Poisoning	No	Married	Unmarried	Lovers	Opposition for marriage
V	24	18	Outdoor	Poisoning	Poisoning	Yes	Unmarried	Unmarried	Lovers	Opposition for marriage
VI	32	19	Home	Hanging	Hanging	No	Married	Married	Lovers	Opposition for marriage

Table 2: showing age related data

Sex	Minimum age in years	Maximum age in years	Mean age in years	Standard deviation
Male	24	35	28	4.46
Female	18	26	21	3.22
Both	18	35	24.5	5.26

WE, FORENSIC MEDICINE AND THE MEDICAL COUNCIL OF INDIA

Dr. Manish Shrigiriwar

Forensic Medicine is a branch of science that deals with the application of medical knowledge towards administration of justice. It is a fraternity so closely related to common man and its immense importance in judiciary and crime investigation cannot be denied off. The field has grown giants and leaps in the western world and some other countries where the human rights laws are stringent and utmost importance is given to conviction of the criminals and protection of innocents. But it this part of world due to lack of financial provisions, political will and host of other factors the field has failed to flourish. Still with the availability of basic infrastructure, we the forensic people have kept consistently working, assisting the judiciary with a hope that one day the outlook of the higher authorities towards forensic medicine will change and the subject will see the light of dawn.

But as it is rightly said being introspective never helps unless we fight for our rights. Taking undue advantage of our self contained attitude towards the growth of subject, the MCI had issued certain notifications last year. These notifications had created turbulence in the hearts of forensic experts. The decision was strongly condemned by the forensic experts across India. Here is a short overview of the MCI notification and the efforts taken to save forensic field from the wrath of MCI.

On September 17, 2010 MCI ad hoc body, the Board of Governors (BOGs) comprising of seven temporarily appointed members published a notification of amendment in minimum teaching staff requirement of various subjects in undergraduate medical curriculum. According to this curriculum the minimum teaching staff requirements in forensic medicine were drastically reduced. On reducing the minimum staff requirements in Forensic Medicine all the medicolegal work along with post mortem procedures will suffer. This will definitely affect the proper impartment of justice and ultimately common man would be the sufferer. This notification had attracted lot criticism from forensic medicine doctors all over India. We at Indira Gandhi Government Medical College, Nagpur decided to fight against MCI for this injustice done to our field. We made several correspondences with the Board of Governors, MCI. We got various associations involved in this correspondence like the Maharashtra State Medical Teachers Association (MSMTA), Maharashtra Association of Resident Doctors (MARD) and UG Medical Students Association etc. Applications under the RTI act were sent to MCI. On receiving irrelevant answers from the Appellate authority of MCI, we complained the matter to Mr. Shailesh Gandhi, The Chief Information Commissioner of India (CIC). The CIC rapped MCI for providing false details and asked them to answer our queries within four weeks. We do received MCI answers to our queries. These documents proved useful in the court to strengthen our stand. We urged faculties from other medical colleges to do the same. In spite of all these efforts the Board of Governors did not mend to it.

Meanwhile in December 2010 another bombshell came from the BOGs about the VISION 2015. This Vision 2015 was proposed to revamp the UG medical education in India. As per this proposal Forensic Medicine was made elective for the under graduate medical curriculum. This proposal would have definitely pushed Forensic Medicine into dark ages. A lot of cry and hue was created against this proposal amongst the forensic experts across India. Most of us were talking about legal remedies. Even the four hour marathon discussion to decide the action plan at the IAFM Conference 2011, Nellore went inconclusive. Some of our esteemed

faculty members were so enthusiastic about it that they were ready to go to the courts on their own. But alas no one came forward and actually made a move to drag the BOGs to the courts.

Lack of any progress regarding the issue made us restless. We conducted a series of meetings of the faculties in FMT from different colleges across Vidarbha at IGGMC, Nagpur. We also discussed the issue with the Indian Medical Association, Nagpur Branch. We created media awareness regarding the issues by conducting a series of articles in the local and National news papers (Times of India etc). The opinions in these articles were taken from various eminent forensic experts across Maharashtra, Advocates and police officials. We enthusiastically participated in the BLACK DAY observed across India against the policies of MCI.

A meeting was organized at Dept of FMT, IGGMC Nagpur on 26 January 2011 under guidance of Dr. Pradip G. Dixit, Professor and Head, Dept of FMT, GMC Nagpur and Dr. Manish B. Shrigiriwar, Professor and Head, Dept of FMT, SVNGMC, Yavatmal. The faculty members from medical colleges in Vidarbha were present for the meeting. It was unanimously decided in the meeting to file a petition at the Bombay High Court, Nagpur Bench. We decided to fight against MCI on two fronts - staff reduction and Vision 2015. The issue was discussed with two eminent Supreme Court lawyers from Nagpur. After thorough discussion with the lawyers we decided to file two Public Interest Litigations (one for staff reduction and another for Vision 2015) against MCI at the Bombay High Court, Nagpur Bench with petitioners as postgraduate students of GMC and IGGMC, Nagpur. Then the petition was finalised with the subsequent two or three meetings with the lawyers.

On 22/02/11 Indian Medical Association, Nagpur along with Maharashtra State Medical Teachers Association (MSMTA) and Maharashtra Association of Resident Doctors (MARD) [MARD, GMC and MARD, IGGMC Nagpur] organised agitation against various policies of MCI which are detrimental to medical education at large. Staff reduction and VISION 2015 were among the main issues for agitation.

The PIL against Minimum teaching staff requirements in Forensic Medicine was filed at Bombay High Court, Nagpur Bench on 28 February 2011. The Union of India, Government of Maharashtra and the Medical Council of India were the respondents in this PIL. It got approved as a PIL on 18 March 2011. The matter is subjudice now and has completed four hearings since then. Notices have been issued to all respondents and except for Government of Maharashtra the respondents have replied to the court. Maharashtra Government is expected to file its reply soon.

Our PIL regarding the VISION 2015 was filed at the Bombay High Court, Nagpur Bench on 25th March 2011. The respondents were the same as mentioned above. It took as many as 33 days to get the petition approved by the Committee of Judges and it got admitted as a PIL on 27th April 2011. Meanwhile summer vacations for high courts started. The courts reopened on 06/06/11. Finally the PIL was heard by the Bench on 20/06/11, (82 DAYS AFTER FILING) and the notices were issued. Three hearings were completed. The MCI denied any such proposal of making forensic medicine elective for UG medical students. They also made it clear that they will be implementing the forensic medicine syllabus prepared some of most eminent forensic experts in our country. The PIL was withdrawn on 17 August 2011 with liberty to file a fresh petition if occasion arises.

We have received a lot of support from the forensic experts across India in this movement. In a way we have tried our best to save our forensic field and will continue to do so in future.

Letter to Editor/ Commentary

Are we facing Identity Crisis?

Dr. Manoj Gupta

First I would like to congratulate a newly appointed young committee members and would like to extend good wishes to carry forward & continue good work of this esteemed association.

Who am I? This is what we ask ourselves after passing our post graduation in forensic medicine & toxicology.

But, astonishing fact is that we ourselves are confused to label our selves. Are we a Forensic expert or Medicolegal expert or Medicolegist or a Medicolegal Consultant?

In recent years, we have seen mushrooming of medicolegal consultants from nowhere. Every Tom, Dick & Harry after doing law (with medical degree or some without) has labeled themselves as a medicolegal consultant.

To, my knowledge Law & medicine is an optional subject in Law course. Some universities have started postgraduate diploma courses in medicolegal system. So are we losing our grip on this word 'Medicolegal'?

We toil ourselves for 3 years to get MD qualification but, we are not making any fuss about such pseudo medicolegal consultants.

{I had argued with one Delhi based medicolegal consultant who is MD in internal medicine & LLM. He is now practicing as a legal consultant. I asked him how he has labeled himself as medicolegal consultant and who gave him rights? He asked me to file PIL to challenge him}

Our forensic medicine textbooks do not define word Medicolegal. However there is no subject in entire MBBS course where medicolegal aspects are being taught or is mentioned. Then why we are afraid of using Medicolegal consultant?

Doing law does not make anyone medicolegal consultant but, a legal consultant. We teach each and every medical law and we have every right to label ourselves as a medicolegal consultant.

Now, the time has come to fight for our Identity before someone hijacks our rightful possession.

I would request President of MLAM to look in to this matter so that, we can define term Medicolegal consultant and no one else should suffix Medicolegal consultant to their name other than postgraduate in forensic Medicine.

INSTRUCTIONS TO AUTHORS

Aims and Scope

Journal Of Medicolegal Association of Maharashtra is an official scientific publication of Medicolegal Association of Maharashtra. The basic ideology of publication of this journal is based on the objectives of MLAM. It is a biannual journal published as a medium for the advancement of scientific knowledge of forensic medicine and allied sciences.

The contents of the journal are in the form of Commentary, Review articles, Original research, Case reports, Letters to editor, Short communication, Medical quiz and any other form of publication with the approval by the editorial board.

All manuscripts are required to be submitted in duplicate complete with sets of illustration and photographs typed in double space, double column, Times New Roman on A-4 sized paper with margin of 2.5 cms. on all sides. It should be accompanied by a Compact Disc Rewritable (CD-R) containing manuscripts typed in "Times New Roman" in double column and single space (letter size 12 for body of text and 14 for headings and sub-headings). Manuscript should conform to the general instructions (Vancouver style) "Uniform requirements for manuscripts submitted to biomedical journals" (1994), Lancet 1996, V2, 1-4 and Annals of Internal Medicine 1988, 108:258-265. The submitted manuscripts should be accompanied by a statement / certificate undersigned by all listed authors.

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Human studies should have been conducted in accordance with the principals of the declaration of Helsinki (1964, revised in 1975 and 1983). The authors should indicate that Ethical approval of the study was granted. Animal experiments should have been performed as per the guide lines of CPCSEA (Committee for the Purpose of Control and Supervision of Experiments on

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Units of Measurement

All Measurements must be expressed in metric system and / or the system International 'Units' (SI)

Submission Format

An abridged version is outlined below :

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Page 1 should include the following

- (i). Type of paper : Original article, Short communication, Case report, Letter to the editor etc.
- (ii). Full name of the authors along with their Degrees, Designations, Departments, and Institution and National affiliation.
- (iii). Number of pages in the manuscript.
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Abstract (Page 2)

It should contain factual and comprehensive summary of the entire paper in not more than 200 words. It should be a running text (without headings) and should include aims, material and methods, results and conclusions of paper. At the end of the abstract 3-5 key words are required to be endorsed for indexing purpose.

Text (Page 3 onwards)

The main text should be arranged in the following sequence:

- (i). Introduction : It should contain the review, aim of the study and its rationale.
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The reports should be limited to 1500 words and should be described in the following sequence : Abstract with key words, Introduction, Clinical summary, Pathological findings, Management and outcome of case, Discussion, Recommendations and References.

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Figures should be cited in the text and numbered sequentially with Arabic numerals. A brief descriptive legend should be provided with each figure. Photographs of identifiable persons must accompany the consent of the individual. Illustrations from already published articles / books, the permission of author and the publisher must accompany each illustration. All figures should be submitted separately in "jpeg" format with good resolution and figure legends in word file along with manuscript.

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Should be numbered as they appear in the text and each table should have a short title. The data given in the table should be clear and logical. It should supplement and not duplicate information present in the text.

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a) Journals :
- Jain R, Awasthi A, Basappa A. Hematological profile of leukemias, Int J of Hemat 2006; 10:104-106.
- Kurien D, Khandekar LL, Dash S et al. Cytodiagnosis of hydatid disease presenting with Horner's Syndrome A case report. Acta Cytol 2001; 45: 74-78.

b) Books and Monograph :
- Anemia, In: Cotran RS, Kumar V, Collins T. Robbins Pathologic Basis of Disease. 6th

ed. Singapore. WB Saunders Company, 1999: 1300-1321.

- Wetzler M, Bloomfield CD. Acute and chronic myloid leukemias . In : Harrison's Principles of Internal Medicine. 14th ed. Fauci AS, Braunwald E, Isselbacher K, et al, Eds McGraw-Hill, New york, 1998; 684-695.

c) Conferences Proceedings :

Vivian VL, Editor. Child abuse and neglect; A medical community response. Proceedings of the First AMA National Conference on child Abuse and Neglect 1984; Mar 30-31; Chicago: American Medical Association, 1985.