

Biomedical Paper Writing

Everything is easy when one know how! The skill of writing a scientific paper is no exception. To be a good writer, all you need to do is learn and then follow simple rules. Always remember editor needs authors more than authors need editor. All authors should remember their power over editors as they battle with the sometimes-difficult task of writing scientific papers. A well written scientific paper is one that is easy to read, tells an interesting story, has the information under the correct headings, and is visually appealing. If author wants the information in his paper to be read and to be used, he must be certain that he has presented it in an organized and accessible format.

It is an unpleasant fact that most of the medical fraternity is not conversant with scientific paper writing rules due to their busy schedule in patient care and exhaustive curriculum of their specialties. In the current academic and knowledge-based scenario across the globe, paper publications are important for career advancement and the economic survival of research departments. In many reputed institutions, the number of publications is used as a measure of research productivity. There are many other important reasons for publishing your work including: it is unethical to conduct a research work and not report the findings, your some results may be worth reporting, to progress scientific thought or improve patient care, to give credibility to research team, to reach a broad readers, to improve track record and add credibility to reputation, improve your chance of promotion and more likely to get research grant, etc.

Motive to publish very widely. Some researchers may have driving force to contribute to advancements in scientific knowledge and improvements in, patient care, or may simply love their work and want to share it with others. Other researchers may work in a team that has a “publish or perish” imperative so that journal articles are essential for professional survival.

Having good scientific writing skills can not only bring career success but also brings many other professional rewards like: writing time is more productive and less frustrating, colleagues will take you more seriously and give more respect, expertise will help to become a good reviewer or editor. These indicators may also be critical at a departmental level where the number of successful research grant applications, postgraduate students, and publications are used as formal markers of team productivity.

A good writer automatically becomes a good reviewer. As reviewer is an expert in his field who is asked to assess the scientific validity of submitted papers or grant applications. An experienced reviewer also invited to participate in advisory bodies that make decisions about the scientific merit of proposed studies, that judge posters or presentations at scientific meetings, or that have the responsibility of making a postgraduate thesis. All of these positions are rewarding recognition that author have that talent that has an important asset in the scientific community.

Scientific writing is a well-defined technique rather than a creative art. The three basic aspects to effective scientific writing are thought, structure and style. Thought is a matter of having some worthwhile results and ideas to publish. Author need some new results to publish and he need to be able to interpret them correctly. Structure is simply a matter of getting the right things in the right place whereas style is a matter of choosing the fewest and most appropriate words and using the rules of good grammar.

Writing a well-organized paper is the first step to improving accessibility and readability. A nicely structured paper with no worthwhile results or worthwhile results in a badly structured paper, are unlikely to be published.

Before start writing a paper author should have conferred with his authorship team about the specific questions that he will answer in his paper. At the same time author should obtain “Instructions to authors” of the journal to which he want to submit his paper for publication. Then he can begin.

First, author will need to start the paper by inserting the headings and subheadings that he will be using. By formatting a framework into which to assemble his aims, methods, observations, and his thoughts, he will find that all of his material falls into the correct places.

In most journals, reporting is usually confined to the IMRaD (introduction, methods, results, and discussion) format, so begin by putting “Introduction” at the top of one page, “Methods” at the top of next, “Results” at the top of the next, and so on. Next, he begins to fill each section in just one bit at a time starting with the simplest parts.

Approach each section with its length and content in mind. A paper should be no longer than 2000-2500 words, which will occupy only 8-10 double-spaced pages in draft copy. Do not plan to write more than this.

Always keep in mind that author’s purpose in writing scientific paper is to answer a specific research question or fulfill a specific research aim. He should provide only sufficient background about why he did the study, sufficient methods to repeat the study, and sufficient data and explanations to understand the results. Do not tempted to deviate from this path.

Scientific writing is not a competition in comprehensiveness. Author must limit himself to writing only the essential information that his readers need to know about the results that he is reporting.

All draft papers should be prepared in a format that is consistent with the "Uniform requirements for manuscripts submitted to biomedical journals". These requirements were first developed in 1978 when a group of journal editors met in Vancouver to establish guidelines for the format of manuscripts submitted to their journals. The group naturally became known as the Vancouver group and the standard format is still referred to as Vancouver format. The first uniform requirements for manuscripts and recommendations for formatting references were published in 1979, and updated regularly. The Vancouver group eventually evolved into the International Council of Medical Journal Editors (ICMJE) who publish the uniform requirements on their website (www.icmje.org). for example:

- Use double spacing throughout

- Pages should have margins at least 25 mm and be numbered

- Maintain the sequence title page, abstract, key words, text, acknowledgements, references, tables, and legends to figures.

- The title page should carry the title, a short running title, information of any disclaimer or funding bodies and the authors' full names, qualifications, affiliations, departments, and addresses.

- Text should be presented under the headings: Introduction, Methods, Results and Discussion.

- Begin each section on a new page

- Each table should be on a new page

- Illustrations and unmounted prints should be labeled on the back with the authors' name and the figure number, and should be no larger than 203X254 mm

- Include permission to reproduce previously published material or to use illustrations that may identify participants

- Enclose a transfer of copyright

- Submit the required number of paper copies

- Enclose an electronic copy (CD) if required: the CD should have the authors' name, file name, and format labeled clearly

- Keep an exact copy of everything submitted for record

In addition to these requirements, each journal may insist on its own specific requirements like: number of copies for submission, use of abbreviations, the standard dictionary to be used for spelling, the maximum length of the paper, the style for reference, etc.

If authors paper conforms exactly to a journals' guidelines, it is much more likely to be received favorably by the editor. This will also help to ensure that authors' paper is processed expeditiously and that unnecessary delays are avoided.

Once the authorship list is finalized, they can work towards an agreement on the role of each coauthor and the work that they will put into the paper. It is best to limit authorship to colleagues who make a true academic contribution. Four to five authors are usually optimal. Having fewer authors also avoids diluting the responsibility that each author must take for the paper.

Because authorship is such a serious issue, many journals will not consider a paper for publication without the signatures of all authors. Most journals also require a declaration of competing interests from their authors and contributors.

Deciding about who to formally acknowledge in paper requires also as much consideration as deciding authorship and contribution, although the criteria are less contentious. Basically, all research and support staff who make a direct contribution to a study but who do not fulfill the criteria for authorship or contributorship should be granted a formal acknowledgement.

By following these simple rules one can easily write a scientific paper and may enhance his professional reputation and also contribute in the progression of scientific knowledge.

Mukesh Yadav

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Etawah



Editor-in-Chief
Dr. Mukesh Yadav

From Editor's Desk

I feel immense pleasure to present before you the first issue of JIAFM 2006. I assure you about the quality of research papers and quality of printing in future issues. Your valuable suggestions are always encouraging me and I heartily welcome for future suggestions. On behalf of Executive Committee of IAFM for the years 2006-2008 I took resolution to further improve the quality and status of our Journal. We always learn from mistakes and try to improve upon these. I was not able to communicate with all of you, due to my shifting from Ambala to my new destination Saifai, Etawah, U.P., and again to Muzaffarnagar Medical College, Muzaffarnagar, for which I submit my apology. I am thankful to the advertisers who have provided additional financial resources for improving the quality of this issue.

The Quality of Citations in JIAFM: Where do we stand?

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Abstract

The citations or references are vital component of any scientific publication. The quality or accuracy of citation is of paramount importance in lending credibility to the article & author(s) in general and to the publishing journal in particular. They do provide an essential component of the communicative nature of scientific papers. Even reputed international journals have been found deficient in following the correct pattern of citations in variable degrees. This study was aimed at finding the degree of accuracy/quality of citations in journal of Indian Academy of Forensic Medicine (JIAFM). For this purpose, all the articles of volume 1 (first) and 4 (last) of JIAFM published in the year 2003 and 2004 were evaluated on the yardstick of Vancouver system of referencing; as also recommended by JIAFM.

Significantly an extremely high error rate in referencing was found in various articles of both volumes of JIAFM for year 2003, while 2004 issues of the journal had relatively less error rate. Although the responsibility of correct citation lies with the authors/contributors of the article but editorial board plays an equality important role during the process of publication; as quite often mistakes occur in these subsequent stages of publication. Various issues related to citations/referencing are being discussed so as to minimize the errors and thereby improving the quality of publication in JIAFM.

Key Words: Citation, References, JIAFM, Vancouver System.

Introduction:

The citations are vital component of any scientific publication. The quality i.e. accuracy of citations is of paramount importance in providing credibility to the article and authors in general and to the journal in particular. They also provide an essential component of the communicative nature of scientific papers (Roach et al)¹. Even major international journals of different stream of medical sciences have been found lacking in correctly following the pattern of citation in variable degree². However, there is no published data available on accuracy of citation in various Forensic Medicine journals published in India as well as abroad. The aim of this study is to examine the frequency and nature of citation errors in the journal of Indian Academy of Forensic Medicine (JIAFM), so as to enable the authors and editorial board to improve upon the quality of journal, which in due course of time will pave the way for getting JIAFM indexed and covered by various scientific agencies like Index Medicus, EMBASE (Excerpta Medica Database), Criminological abstract etc.

The quality of a journal may be assessed in number of ways. It includes the quality of the content, the technical quality of publication process and judgment of the value of content to readers³. The acknowledged standard for assessing the quality of content is the 'Impact Factor' of the particular journal. The technical quality of journal can be assessed subjectively from look of the publication or

objectively from the number of errors which either escape the review and editorial process or are introduced during production. Preparing a citation list is one of the dreariest tasks in writing a paper, but none the less these are essential part of the communication process and if it contains many errors, the doubts regarding authenticity of study itself may arise in the minds of readers.

Material and Methods:

All the citations of all the articles published in Vol 25 No. 1 & 4 i.e. first and last issues of year 2003 & 2004 were listed. A total of 328 citations were mentioned in these articles. The non-journal references like Chapters of book, Abstract & Conference Proceedings, Case Laws, Lay Press Publications, Committee Reports, Manual, Bulletin, Thesis/Dissertation & Personal Communication were excluded from the present study for sake of convenience. There were total 172 references belonging to this non-journal category; constituting more than half of total references & thus leaving 156 citations for cross-checking.

The accuracy of citations was verified using original articles sought in various institutional libraries including National Medical Library & Medline search. Each reference was carefully examined & compared against original for accuracy in following six bibliographic elements viz:

- (a) Author (b) Title (c) Journal (d) Year (e) Volume (f) Pages-First & Last.

These were then checked against guidelines for authors/contributors as mentioned in JIAFM i.e.

based upon yard stick of Vancouver system of referencing. A citation was labeled as wrong if there was an error in any six elements also including punctuation marks. The errors were then categorized into two i.e. major or minor. The errors which prevented the reader to immediately locate the article were labeled as major errors & these included:

- (a) Missing/Wrong First Author
- (b) Absent/Wrong Title
- (c) Absent/Wrong Journal
- (d) Missing/Wrong year of publication
- (e) Missing/Wrong number of Volume
- (f) Missing/Wrong page/first page

Minor errors were those which did not prevent the reader to locate the article but reflected a very poor quality of citation per se like:

- (a) Name of Co-authors wrong
- (b) Not mentioning all Co-authors i.e. using *et al* at their own sweet will ranging from 1 to 8
- (c) Wrong order of Co-authors
- (d) Missing/Wrong Last page
- (e) Wrong journal abbreviation
- (f) Wrong order of year
- (g) Wrong sequence/order (starting from article name instead of author's name)
- (h) Using own punctuation marks
- (i) Citing very old references

A cursory look was also given to each article for assessing the technical quality of journal for any gross mistake.

Observation and Result:

Out of 156 citations, 128 could be checked using various sources as 28 references were either very old (more than 40 years) or mentioned in language other than English like German and French and thus cannot be retrieved. A little bit of difficulty was faced while compiling the citations of various articles published in Volume 25 No. 1 of year 2003 of JIAFM, as most of the articles were not in single continuation i.e. citations along with some text mentioned on some other page. It also hampered the readability of the article. However, this unwarranted mistake was not observed in subsequent volumes of JIAFM i.e. Vol 25, No.4 of year 2003 and Vol 26, No. 1 & 4 of year 2004. Most of the articles published in year 2003 issues of JIAFM did not follow the recommended pattern of referencing in the text. The text did not have any numbering of the references which were mentioned at the end of the article. Similarly, few references which were mentioned in the text, but were not cited at the end. e.g. 2003, Vol 25, No. 1 at Page 11, the article mentions name of scientists like Cheit (1953), Nizan in Israel, Jaffe in New York, Assmussen,

Hauman, Broudel but none of them were cited in the bibliography. Conversely at Page 26 of the same issue, the article cites 4 references while text mentions about reference No. 1 & 4 only; that too in reverse order and totally skipping reference No. 2 & 3.

Also, while assessing the technical quality some glaring mistakes were observed which are as follows. On Page 25 of JIAFM Vol 25, No. 1 of year 2003, the article publishes 5 photographs whereas text mentions about only 3 photographs. Similarly on Page 126 of JIAFM Vol 25, No.4 of year 2003, the article mentions about pie diagram 1-2 and bar diagram 3 under the heading 'Observation and Result', but there is no depiction of any pie and bar diagram in the text. On Page 145 of Vol 25, No 4 year 2003 issue, under the heading 'Discussion', there is duplication of tables showing comparative studies. Further, the table mentions about 5 different studies, whereas only one is cited under reference. Vol 26, No. 1 of year 2004 at Page 37 mentions name of deceased in both case reports revealing the identity of deceased which is grossly unethical.

All these reflect very poorly on the quality of JIAFM published in year 2003. These omissions were rectified to large extent in subsequent volumes of journal published in year 2004. No article in both volumes of year 2003 had followed correct citation pattern as per recommended JIAFM guidelines and were found deficient in variable degree of correctness. Again year 2004 issues have minimized it to a large extent and citations were mentioned in parenthesis in numerics as per Vancouver system.

After verifying 128 citations, only 26(20.3%) were found to be without any error in all bibliographic elements. Rest 102 (79.7%) citations contained total 311 mistakes, of which 71 falling into category of major errors as per our classification.

A break-up as per checked elements is given in the following table:

Distribution of Errors in Citations

| Major Errors | Total No. | Minor Errors | Total No. |
|---------------------------|-----------|---|------------|
| Wrong First Author | 7 | Wrong No. of authors (et al) | 36 |
| Wrong/Absent Title | 11 | Co-author name/order wrong | 7 |
| Wrong/Absent Journal | 3 | Wrong Journal Abbreviation | 61 |
| Wrong/No Year publication | 13 | Wrong order of year | 38 |
| Wrong/missing Volume | 17 | Wrong/missing last page | 16 |
| Wrong/missing First page | 20 | Using own/wrong punctuation marks at different places (- ; : .) | 82 |
| Total | 71 | | 240 |

Few examples of the incorrectly cited references which were observed in various volumes of JIAFM are as under, to illustrate various types of errors:

1. Wrong pattern of citation, wrong name of journal, No volume, No page no. mentioned (P. 156, Ref. No. 3 of Vol 25, No. 4 of year 2003). Battered Women: Dilemmas and care (Tabak N: Med Law, 1998)
 2. Name of author incomplete, absent title, wrong journal abbreviation, too old reference (P. 160, Ref. No. 10 of Vol 25 No. 4 of year 2003). Henderson –British Medical Journal, 9th January 1926, pg. 44.
 3. Name of journal missing (P. 139, Ref. No. 4 of Vol. 26, No.4 of year 2004). Henry JB and Smith FA. Estimation of postmortem interval by chemical means 1980, Dec; 1(4): 341-347.
 4. Missing volume, missing page, wrong punctuation marks (P.132 Ref. No.4 of Vol 25, No.4 of year 2003). Cummins RO, LoGerfo P, Inui TS, Weiss NS-High yield referral criteria for post traumatic skull roentgenography Response of physicians and accuracy of criteria. JAMA, (1980)
 5. Name of article missing, order of year wrong, wrong punctuation marks (P.149, Ref. No.4 of Vol 25 No. 4 of year 2003). Chaudhry S, Sangani B, Ojwang SB, Khan KS-East Afr Med J 27(3), 1995, 200-202.
 6. Missing year, Missing Page No. (P.29, Ref. No. 14 of Vol 26 No. 1 of year 2004), Kozel FA. A Replication Study of the Neural Correlates of Deception. Behavioral Neuroscience, Vol 118, No. 4
 7. Full Name of author, No Page Number; wrong punctuation marks (P.26 Ref. No.2 of Vol 25 No. 1 of year 2003).
 8. Faruk B Presswala- The Pathophysics and Pathomechanism of Trauma. Med Sci Law 1978; Vol. 18: No. 4,
 9. Incomplete name of author, No Journal, No Year, No volume, wrong punctuation marks (P. 13 Ref. No. 16 of Vol 26, No. 1 of year 2004)
 10. Todd and Lyon; Present the facts concerning suture closure and its relation to the racial form and individual contour of the brain case; 1924-26.
 11. Name of Co-author wrong, wrong abbreviation of journal, wrong order of year, wrong punctuation marks (P. 15 Ref. No. 4 of Vol 25, No. 1 of year 2003).
 12. Murty OP, Agnihotri K-Homicidal deaths in South Delhi, Journal of Indian Academy of Forensic Medicine, Vol 22 No. 1-2, p. 9-11, 2000.
 13. Second name of authors in full, wrong abbreviation of journal, wrong punctuation marks, along with year month also mentioned, some identification number marks also mentioned (P. 13, Ref. No. 14, Vol 26, No. 1 of year 2004).
 14. Smith Deborah R, Limbird Keith G & Hoffman JM: Identification of Human skeletal remains by comparison of bony details of the cranium using computed topography scans. Journal of forensic science, September 2004, Vol. 47, No. 5: 937-939, paper IDJFS 2001240-475.
- Another category of mistake was frequently found while using *et al* at the end of name of authors. These range from 1 to 8 authors i.e. some of have used '*et al*' just after mentioning name of first author, some have mentioned name of 3 authors followed by *et al* and some even have mentioned 8-9 authors in the references. Few examples are as follows:
15. P.15, Ref. No. 3 of Vol 25, No. 1 of year 2003 (also wrong order of year, wrong punctuation marks).
 16. Regehr C et al-Survivors of sexual abuse allege therapist negligence. J Am. Assc. Psy. Law. 25(1); 49-58, 1997.
 17. P. 146 Ref. No. 24 of Vol 26, No. 4 of year 2004
 18. Bhullar DS, Oberoi SS, Aggarwal OP et al. Profile of Unnatural deaths (between 18-30 years of age) in GMCH Patiala,(India). JFMT 1996; XIII(3): 5-8.
 19. P. 29, Ref. No. 8 of Vol 26, No. 1 of year 2004 (Vol. & Page No. also missing)
 20. Langleben DD, Schroeder L, Maldjian JA, Gur RC, McDonald S, Ragland JD, O'Brien CP and Childress AR. Rapid Communication, Brain Activity During Simulated Deception: An Event-Related Functional Magnetic Resonance Study. Neuroimage, May, 2001.
 21. Few of citations were mentioned in language other than English which neither can be understood nor can be searched e.g. P. 9, Ref. No. 9 of Vol 26, No. 1 of year 2004.
 22. Herch M. Papillarmuster Bei Engeotorenen Der Loyalty Inschm Berichungan Swischen Papillarmuster And Bluntgrainppen Beidiessen An Liner Dentschem Verglei Chsgrmppe. Ztschr. F. Rasseh Physio: 1932; 5:163-168.
 23. In some articles while compiling the references, the author(s) have used different abbreviations for the same journal i.e. Journal of Forensic Sciences; in a single article. e.g. P. 146, Vol. 26, No. 4 of year 2004.
 Ref 8 & 9- JFSCA
 Ref. 11 & 15- JFSA
 Ref. 12, 13 & 14- J. Forensic Sci.

Discussion and Suggestions:

References appended at the end of any article serve as a source of information for the readers who seek more information. Care in the preparation of reference lists is an essential communication process. Errors that inhibit this process are very serious because of the time that may be wasted in a futile search for an incorrectly cited paper³. Despite editorial instructions for checking the accuracy of citations prior to submission of manuscript, this continues to be a major problem in almost all medical journals. An overall 44% to 56% error rate was found in the citations in different journals on anaesthesiology⁴. Evans et al discovered an overall error rate of 48% in various journals of surgery. The error rate in the journal of Indian Academy of Forensic Medicine (79.7%) is much higher when compared to various studies on other specialty journals. It is definitely a deterrent in getting the journal ie. JIAFM indexed in Index Medicus.

The primary responsibility of checking the accuracy of citations lies with the authors. They must verify them against the original articles as far as possible. The names of authors and title must be crosschecked. The correct journal abbreviation should be verified. It must be ensured that year, volume number and first and last page numbers of the article are mentioned correctly. Regarding using *et al* as per Universal Guidelines, names of author's upto 6 in number should be mentioned and afterwards *et al* should be used⁵.

At the same time, the editorial board and reviewers cannot be absolved from their responsibility especially for the errors, which occur during production and are definitely avoidable e.g. No citations mentioned year 2003, Vol 25, No. 1, Page 22-23. In the same volume on Page 24-26, six photographs published in the text but only four mentioned. This reflects very poorly on the part of contributors in general and editorial board in particular. The manuscript having several gross mistakes like 'starting with name of article instead of author' 'mentioning of *et al* instead of name of authors' should have been returned back to contributors for necessary corrections before

accepting the article for publication. In few articles, instead of following Vancouver system, Harvard system of referencing has been followed by contributors and accepted by editorial board. Although Harvard system of referencing is also an accepted method of citation (especially followed by the journals published from UK) but to maintain uniformity as per JIAFM guidelines, the Vancouver system of referencing has to be adhered upon.

Of course it is a crude fact that number of contributors to journal is less in number as compared to other branches of medical sciences. Resources are meager to meet the expenses in publishing the journal on regular basis. But whatever is available that has to be improved in existing circumstances. The editorial board and reviewers; apart from going through the scientific content, must check a sample of references and if error rate exceeds a certain level, the same should be returned to authors for revision. As an extreme step, the authors may be asked to provide first page of the cited article for verification¹.

Another suggestion is that in the guidelines for contributors as mentioned in the journal, it should be supplemented by an illustration/example regarding citation from journal, book, Case Laws, Internet and other sources. The contributors may be provided the Galley proofs to check for errors occurring during transcription before final printing. The authors should be asked to submit their articles through Floppy/Diskette/CD/E-mails to minimize typographical mistakes, which occur during transcription. The e-mails in present scenario are easiest, time saving, money saving and easy to retrieve; so submission through e-communication must be encouraged. The editors may mention the correct citation pattern of that particular article at the end of the abstract or at the bottom of first page of the article, to help correct citation by the readers for further referencing whenever required.

Every effort must be done to minimize the errors during citation because they are frustrating to those searching for articles i.e. readers, irritating to the authors concerned i.e. editorial board and damaging to the reputation of the journal⁴.

References:

1. Roach VJ, Lau TK, Ngan Kee WD. The quality of citations in major international obstetrics and gynecology journals. *Am J Obstet Gynecol* 1997; 177: 973-5.
2. Evans JT, Nadjari HI, Burchell SA. Quotational and reference accuracy in surgical journals. A continuing peer review problem. *JAMA* 1990; 263: 1353-4.
3. Faris I, Waxman B, Chapuis P. Quality control and the journal. *Aust N Z J Surg* 1997; 67: 399.
4. Asano M, Mikawa K, Nishina K, Mackawa N, Obara H. The accuracy of references in anaesthesia. *Anaesthesia* 1995; 50: 1080-2.
5. International Committee of Medical Journal Editors. Uniform requirements for manuscripts submitted to Biomedical Journals. Updated October 2001. <http://www.icmje.org> assessed on 10 Aug., 2006.

Secondary Abdominal Ectopic Pregnancy: Diagnosis at Autopsy

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Abstract

A 25-year-old female, a third gravida, presented with seven months amenorrhoea and acute pain in abdomen. At the time of admission, foetal heart sounds were inaudible. The woman died within 36 hours of admission before diagnosis could be established and appropriate treatment instituted. A medico-legal autopsy was conducted following allegations of death due to negligence. Autopsy revealed a ruptured ectopic pregnancy (abdominal type).

Key words: Amenorrhoea, Acute Abdomen, Ultrasound, Secondary Abdominal Pregnancy, Ectopic Pregnancy

Case Report:

A 25-year-old lady was brought to the emergency of New Civil Hospital, Surat by her husband at around 4 am in the morning with complaint of acute pain in the abdomen. There was history of seven months amenorrhoea. At the time of presentation her pulse and blood pressure were recorded as normal and there was no bleeding per vaginum. The foetal heart sounds, however, could not be auscultated. This was her third pregnancy and both previous deliveries had been at home. She was referred to the department of obstetrics and gynaecology and was admitted. A decision was taken to get an ultrasound examination of her abdomen done the next morning.

In the morning however, she was sent back from the radiology department without an ultrasound scan with reasons that the patient was uncooperative and that her bladder was empty. An attempt was again made in the afternoon on the same day to get an ultrasound scan of her abdomen but she was again sent back without the sonography with the remarks that the patient was highly irritable and uncooperative. In the evening, a psychiatric consultation was done for her irritable behaviour and the patient again sent for sonography, this time with a medical escort. The psychiatrist was of the opinion that she did not permit an ultrasound scan due to the intense pain that she was suffering from. This time also her sonography could not be done for the same reason of severe abdominal pain and irritability. She

was brought back to the ward and as per medical records the patient went missing later on the same night.

Next day, however, she presented at the emergency for the same complaint and was again admitted – this time under a different unit but died shortly afterwards, before any diagnosis could be established or treatment instituted. Her husband alleged that she was seriously ill the previous day and died because she was not properly attended to. He lodged a police complaint and requested a legal inquiry.

Autopsy Findings:

The post-mortem examination was conducted a day after her death. Externally the body was unremarkable with no external injury and whitish froth present at both nostrils. Internally, all the organs were pale. Abdominal cavity contained 1.5 litres of fluid blood and 150g of clotted blood. A single dead foetus was lying on the left side of the peritoneal cavity over the descending colon. The membranes were ruptured. The uterus was slightly enlarged with endometrium showing decidual changes. The cervical mucous plug was intact. The placenta was attached on the outer surface of the left fallopian tube in its middle third and over the left broad ligament. The lumen of the left fallopian tube was patent and filled with blood. Placental diameter was 9 cm and it weighed 250 gm. The umbilical cord was attached to the placenta and was 28 cm in length. Foetal weight was 400 gm and its length

from head to heel was 29 cm. There was a tear on the placenta on abdominal aspect measuring 4cm x 3cm x 0.7 cm in size.

Discussion:

Ectopic pregnancy refers to the implantation of a fertilized egg in a location outside of the uterine cavity, including the fallopian tubes, cervix, ovary, cornual region of the uterus and abdominal cavity. Abdominal pregnancies can be further classified as 'primary' when implantation takes places outside the uterine adnexae, or as 'secondary' believed to result from undetected rupture of a tubal ectopic pregnancy (Ramachandran, 2004). Following rupture the ovum can implant itself anywhere in the abdomen including the ligaments, liver, spleen, intestines, etc. The abnormally implanted gestation grows and draws its blood supply from the site of abnormal implantation.

Ectopic pregnancy is said to be a common occurrence but abdominal pregnancy is a rare one, variably reported varying from 1 in 3371 deliveries (Beacham, 1962) to 1 in 10200 deliveries (Rahman, 1982) and 10.9 per 100,000 live births and 9.2 per 1000 ectopic pregnancies in the United States (Atrash, 1987). The incidence of abdominal pregnancy is reported to be as low as about 1.6% of all ectopic pregnancies (Golz, 1984) and is reported to increase with age (Goldner et al, 1993). The most logical explanation for the increasing frequency of ectopic pregnancy is previous pelvic infection; however most patients presenting with an ectopic pregnancy have no identifiable risk factor.

Mechanical factors including endosalpingitis, peritubal adhesions caused by postabortal or puerperal infection, appendicitis or endometritis, developmental abnormalities of the tube, previous operations on the tube, multiple previous induced abortions and previous caesarean section, etc. have all been implicated in the etiology of ectopic gestation (Cunningham FG et al, 1997.) Cigarette smoking at the time of conception has also been shown to increase the incidence of ectopic pregnancy (Coste, 1991; Phillips, 1992.) Abdominal pregnancy has been reported after assisted reproductive techniques like in-vitro fertilization and embryo transfer (Balmaceda et al, 1993; Ferland et

al, 1991.) Multiparity, heroin addiction, and previous secondary amenorrhoea have also been found to be associated with secondary abdominal pregnancy (Acien, 1987).

As the gestation enlarges, it creates the potential for organ rupture because only the uterine cavity is designed to expand and accommodate the foetal development. Ectopic pregnancy, if left unattended, can lead to massive haemorrhage, infertility and death. Clinical features of an acute ectopic pregnancy include abdominal pain, amenorrhoea, vaginal spotting or bleeding associated with hypotension and a cold clammy skin. A pelvic mass may be appreciable and a slow bleed may result into a pelvic hematocele which in turn gets absorbed in some cases while in others it may rupture into the peritoneal cavity or get infected to form an abscess. The presentation, however, is late as the bleeding and the discomfort caused by the hematocele are mistaken for a true menstrual flow. The woman may complain of pain caused by movements of the foetus in the later months of pregnancy. Positive laboratory tests for pregnancy, especially a raised β -hCG titre, an otherwise unexplained increase in the serum alpha-fetoprotein level and identification of fetal heart beat outside the uterine cavity using a real-time ultrasound provides firm evidence of an abdominal ectopic pregnancy. A vaginal ultrasound is highly sensitive and specific for finding of free peritoneal fluid (96% and 99% respectively) and a tubal mass (81% and 99% respectively) (Sadek and Schiotz, 1995). Routine ultrasound scans can miss the diagnosis of an abdominal ectopic pregnancy in about 50% of cases (Costa et al., 1991). An MRI scan may be considered the gold standard for the diagnosis of an abdominal ectopic pregnancy. The most common causes of death in ectopic gestations in order of frequency are hemorrhage, embolism, PIH complications and infection (DiMaio, 1991).

In this case, the female presented with about 7 months amenorrhoea. Usually ectopic pregnancies do not last so long but cases of advanced abdominal pregnancy have been reported. Also the patient did not present with history of any of the risk factors associated with an ectopic gestation.

The only complaint she had was that of acute pain in the abdomen. Hence it is not surprising that the diagnosis is missed in such cases. The case is presented here for its rarity, its unusual presentation and the legal colours that can be imparted to it by such a presentation.

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Abortion Law: The Approaches Of Different Nations For Safe Abortion An Overview

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Abstract

A review is presented of laws governing abortion in various countries throughout the world. The laws are described in terms of five categories with selected countries illustrating each category. While advances in medical science and improved health services have combined to reduce maternal mortality throughout the world, death rates from criminal abortion continue to present a public health problem of enormous proportions. In countries which make it a crime to perform an abortion except to save the woman's life, abortion is the largest single cause of maternal death.' In India, legalizing abortion done in 1971 has not yielded the expected results. Despite the existence of liberal policies, the majority of women still resort to unsafe abortion and hence contributing the burden of maternal morbidity and mortality. This is partly due to the lacunae in legal system and a large number of misconceptions about the law amongst providers. Liberal abortion policies and legislation by themselves are thus not adequate to ensure access to safe abortion services. This paper critically reviews current abortion policy vs. the West with content, context and conformity with international policy, as well as how it is practiced, identifies policy gaps in the context of reproductive rights.

Key Words: Abortion, Law, Reproductive rights, Maternal Death.

Introduction:

Abortion laws enacted a century ago, however, prevent physicians from utilizing this knowledge for the benefit of their patients. The stringency of such laws drives women to self-inflicted abortions or abortions performed by unqualified persons, and to abortions performed by qualified persons under improper conditions. In Chile, two-fifths of all maternal deaths are the result of septic abortion, and in the United States abortion accounts for one-fifth of all maternal deaths^{1, 2}. It is estimated that 350,000 women a year suffer postoperative complications from abortion^{3, 4}. In those jurisdictions in which the law makes it a crime to perform an abortion except to save the life of the woman, the physician's hands are tied. No matter how gravely continuation of the pregnancy may affect the health of the woman or the well-being of the child, the physician is powerless to act. The abortion laws of different countries may be classified in five categories, listed below, together with selected countries illustrating each category:

1. Laws authorizing abortion on demand: USSR, Bulgaria, and Hungary
2. Laws authorizing abortion on social grounds: Japan, Poland, Czechoslovakia, and Yugoslavia.
3. Laws authorizing abortion on sociomedical grounds: Iceland, Sweden, Denmark, and Norway

4. Laws authorizing abortion on medical grounds: Syria, Honduras, Switzerland, England, several American states

5. Laws authorizing abortion only to save the life of the woman: Majority of American states, Western Australia, Venezuela, Chile, and France.

The variations among the laws of the countries is explained

(1) Laws Authorizing Abortion on Demand

Several eastern European countries have laws authorizing abortion on the request of the pregnant woman, commonly described as "abortion on demand," The present law legalizing abortion in the Soviet Union was passed in 1955 following a see-sawing history of four periods: 1917-1920, when abortions were illegal even on medical grounds; 1920-1936, when abortions were legal provided certain conditions were met; 1936-1955, when abortions were again illegal. Abortion is now permitted at the request of the woman, with the authorization of a physician⁶, permitted only in hospitals or other medical institutions, and is a criminal offense for both doctors and others without special medical qualifications. In 1956 Bulgaria issued Instructions of the Ministry of Health and Social Welfare permitting interruption of pregnancy in case of desire for it⁷. It stated that Abortions may be performed only on patients hospitalized in

obstetrical or gynecological institutions. They may not be performed in the presence of specific contraindications, one of which is pregnancy of more than three months' duration; in that case, an abortion may be performed only if the pregnancy and delivery might endanger the woman's health or life. Hungary enacted a similar law also in 1956⁸. It provides that interruptions of pregnancy shall be subject to medical authorization by regional boards attached to hospitals or clinics. The board (composed of a medical practitioner as chairman, a representative of the social affairs section of the people's council, and a woman put forward by the trade unions) is required to explain the possible prejudicial effects of an abortion and to dissuade those women whose applications appear unjustified. Where, despite these efforts, the applicant maintains her application, the board is required to grant authorization. As in the USSR and Bulgaria, all abortions must be performed in a hospital or clinic while the patient is hospitalized⁹ and not in case of contraindications.

(2) Laws Authorizing Abortion on Social Grounds

In this second category is the Eugenic Protection Law of Japan and selected eastern European laws. Abortions in Japan are carried out under the provisions of the Eugenic Protection Law of 1948 as amended¹⁰. The Japanese law authorizes abortions on social grounds. Eastern European Countries-Poland authorizes interruption of pregnancy by a medical practitioner on medical grounds or by reason of difficult living conditions of the pregnant woman or where there is presumptive evidence that the pregnancy resulted from a criminal act¹¹. Earlier legislation in 1954 had authorized abortions only in the interest of the health of the woman, but the admission to hospitals of 80,000 women a year suffering from the results of attempted abortions indicated that the law failed to protect the health of women¹². In cases of sex crimes, the public prosecutor must certify presumptive evidence that the pregnancy resulted from a criminal act. A gynecologist-obstetrician, by a surgeon, or by a well-trained medical practitioner, must perform the operation. Criminal penalties are provided for bringing pressure on a woman to have her pregnancy interrupted and for interrupting a pregnancy with the consent of the woman but contrary to the provisions of the law. The woman herself cannot be prosecuted, since maternity is deemed, basically, a matter for the free choice of the woman. Czechoslovakia enacted a statute in 1957 authorizing abortion on specified medical conditions and also on the following social and humanitarian grounds: (a) advanced age of the woman; (b) numerous children; (c) loss or disability of spouse;

(d) broken home; (e) predominant economic responsibility of the woman for the maintenance of the family or child; (f) difficult circumstances of an unmarried woman as a result of pregnancy; (g) pregnancy due to rape or another punishable act¹³. In 1961 the law was revised, retaining these provisions, with the following changes: "the existence of at least three living children," instead of the less precise ground of "numerous children" as in (b) above; "risk to the standard of living in cases where predominant economic responsibility for the maintenance of the family or the child devolves upon the woman" instead of (e) above¹⁴. All abortions were made free of charge. As a result of this law, legal abortions rose sharply. Subsequently, a declining birth rate in Czechoslovakia resulted in tightening the regulations to allow applications for abortion only in the district of permanent residence and to reduce the number of interruptions of first pregnancies¹⁶. Yugoslavia enacted its present law in 1960. It authorizes interruption of pregnancy with the consent of the woman When . . . no other method can save her life or prevent serious damage to her health ...; When the conclusion can be reached on medical grounds that because of a disease suffered by the parents, the child will be born with grave physical or mental defects; When the pregnancy has been caused by a criminal act . . .; When it can be reasonably expected that the pregnant woman will find herself placed, as a result of the birth of the child, in difficult personal, family, or material conditions, which cannot be remedied by any other means¹⁵. Decisions on abortion are made by commissions of first instance, composed of two physicians (one a specialist in obstetrics and gynecology) and a social worker, with a right of recourse to a commission of appeal. All interruptions of pregnancy must be carried out in health establishments where commissions of first instance exist. These commissions are required to warn the pregnant woman of the possible harmful effects of an abortion and of methods she can use in the future to prevent pregnancy.

(3) Laws Authorizing Abortion on Sociomedical Grounds

Scandinavian countries authorize abortion for sociomedical or "extended medical" reasons. Iceland has had a law authorizing abortion for sociomedical reasons since 1935¹⁷. In Sweden, the initial impetus for a therapeutic abortion law came from the large number of criminal abortions in the 1930's, app. 20 per cent of all live births¹⁸. A committee appointed in 1934 to present proposed legislation recommended far-reaching legislation, including justification of abortion "when the birth of the child would place a woman in a state of permanent need or distress

which could not be avoided by other means."¹⁹ The Abortion Act of 1938 which ensued, however, limited the grounds for abortion to danger to life or health of the woman, pregnancy resulting from a criminal act, cases in which the patient was below the age of 15 at the time of conception, or expectation of hereditary mental or physical defect in the child. This law caused virtually no decrease in the number of criminal abortions, and therefore in 1946 the sociomedical indication of anticipated infirmity was added. Under this amendment, abortions are allowed if the woman's living conditions are such that her physical or mental powers would be seriously impaired through the birth or care of a child. In 1963, the Swedish law was amended, as a result of the experience with thalidomide, to permit abortion "when there are grounds for believing that, as a result of some injury during pregnancy, the child will suffer from some severe disease or deformity."²⁰ In 1964, the law was further amended to require prosecution or a judicial proceeding as a prerequisite to abortion where the pregnancy resulted from a criminal act. The usual procedure for obtaining an abortion is an application to the Board of Health on the report of two physicians. A special four-member committee of the Board of Health (three physicians and a woman) makes the decision. No appeal from this decision is provided; but the patient may request reconsideration by the committee, or the committee may seek consultation from an expert or hospital observation of the patient²¹. Operations are not permitted after the 20th week of pregnancy. In 1939, Denmark enacted legislation permitting abortion on eugenic, humanitarian, and medical grounds²² resulting in increase in number of legal abortions. Experience with this law led to the enactment in 1956 of the present Danish law which permits abortion to avert a serious danger to the life or health of the woman, if the pregnancy is result of a crime, if there is imminent danger of a child afflicted with mental disease or deficiency or any serious and incurable abnormality or physical disease, and on sociomedical grounds and abortions to be performed only by licensed physicians in hospitals and in private nursing homes. Where an abortion is sought on other grounds, application must be made to a maternity aid center, which obtains the advice of specialists. A committee of three (two physicians and the matron of the center or another with equivalent training) made the final decision. Woman, who induces an abortion herself or by an unqualified practitioner is illegal abortions, attracts criminal penalties. The most recent comprehensive amendment of a Scandinavian abortion law occurred in Norway in 1960²³. This law, enacted long after the

Icelandic, Swedish, Danish, and Finnish laws to reflect existing practice in Norway. It includes the sociomedical grounds of the other Scandinavian statutes and thus affirms the Workability of this approach.

(4) Laws Authorizing Abortion on Medical Grounds

A number of countries authorize abortion not only to preserve the life of the woman but also to preserve her health. For example, it is prohibited in Syria for a medical practitioner to induce an abortion, except that he may do so where the pregnancy endangers the health of the patient²⁴. Tunisia provides for an exception to Section 214 of the Penal Code imposing penalties for abortion, when the health of the woman is endangered by continuation of the pregnancy or when the parents have at least five living children. In Honduras, an interruption of pregnancy may be carried out for therapeutic reasons, on approval of a medical committee, but all methods for preserving the health of the mother without prejudice to the life of the fetus must have been tried without success²⁵. In Peru, an abortion is authorized if there is no other means of saving the life of the woman or of avoiding grave and permanent injury to her health." The statutes of six states in the United States have long allowed abortion to preserve the health of the woman²⁶. The 1967 Therapeutic Abortion Act of California does not contain the ground of fetal abnormality but allows termination of pregnancy only if there is substantial risk that continuation of the pregnancy would gravely impair the physical or mental health of the woman or if the pregnancy resulted from rape or incest. Switzerland also permits abortion to protect the health of the woman. The statutory provisions are contained in the Swiss Penal Code.58 Articles 118 and 119 provide criminal penalties for abortion induced by the woman and by others.

(5) Laws Authorizing Abortion Only to Save the Life of the Woman

The majority of American states permit an abortion only to save the life of the woman. In most states, there is not even a requirement that a physician perform the abortion. The defense that the abortion was undertaken to save the life of the woman is equally available to the unqualified person as to the ethical physician. The American laws on abortion thus resemble Turkey law (only when abortion is the sole means of saving the life of the mother)²⁷; Western Australia²⁸; a number of South American countries, e.g., Venezuela²⁹ and Chile³⁰; and France³¹. Several South American countries, as mentioned above, allow abortion to preserve the health of the woman (Honduras and Peru) and in cases of rape (Mexico). Even those countries, like

Venezuela and Chile, which allow abortions only to save the life of the woman, provide diminished penalties for self-inflicted abortions or for abortions performed on members of one's own family, called archly in the statutes "abortions for honor." In France, Article 317 of the Penal Code specifies the penalties for abortion or attempted abortion for the pregnant woman or supposedly pregnant woman and other persons. The decree of November 28, 1955, embodying the code of medical ethics, however, permits a therapeutic abortion if this is the only way of saving the mother's life. The physician in attendance must obtain the written certificates of two medical consultants to this effect.

Abortion Policy In India: Lacunae and Remedy:

The MTP Act (Act No. 34 of 1971) has been defined as 'An Act to provide for the termination of certain pregnancies by registered medical practitioners and for matters connected therewith or incidental thereto'. Passed by Parliament on August 10, 1971, this is a Central Act that extends to the whole of India except the state of Jammu and Kashmir, which adopted it in 1980. The purpose of this act was to define the situations and circumstances in which safe abortion could be legally performed and to empower medical practitioners and institutions delivering this service. For registration of abortion facilities, the amended MTP Rules stipulate a time frame of two months for inspection after receipt of application and another two months for approval after full compliance with requirements. By making the Government accountable, this serves to encourage safe abortion facilities to obtain registration. However, it does not specify measures or redress mechanisms if certification procedures are not completed within the stipulated time frame. More substantively, the amended MTP Rules differentiate between and rationalize the training/experience criteria required of the doctor and the physical standards required of the facility for first and second trimester abortions. This amendment has the potential to increase the availability of first trimester abortion without compromising on safety. The amended MTP Rules also allow registered medical practitioners to provide medical abortion within the scope of the law. This amendment serves to expand the availability of medical abortion at all levels. The MTP Rules define person and place requirements, but do not refer to any national or international technical guidelines for safe abortion care. In the absence of such guidelines for good clinical practice, providers esp. at rural centers, continue to use unsafe abortion practices like sharp curettage, check curettage

following a vacuum aspiration, general anesthesia, different drug dosage & schedules and protocols for medical abortion, etc. Thus the scope of an abortion policy needs to be broad enough to internalize emerging advances in reproductive technology and newer practices within the legal framework. The MTP Regulations define procedures to ensure confidentiality and anonymity in provision of safe abortion services. However, there are no guidelines for ensuring the privacy and dignity of the woman. States are yet to respond to the recent (June 2003) amendments to the MTP Rules and Regulation and some of them continue to add burden to bureaucratic procedures, leading to unnecessary administrative barriers. For instance, regulatory procedures like the need for a blood bank within a 5 km distance of the abortion facility are illogical and not required by abortion policy. The irrational nature of such overzealous regulations by states becomes apparent when it is realized that these requirements are applied only to abortion facilities in the private sector. The time and effort required to procure registration for an abortion facility are long and thus reflects the state. Low awareness and misconceptions about abortion laws and policies amongst providers adds to the overall lack of availability of safe abortion services. The result of the State Regulations thus appears to be that of controlling rather than of facilitating and training in abortion services. Para 63(iii) of ICPD+5 mandates the health system to train and equip to ensure that safe abortion care is available and accessible. A large level need for MTP training exists in both the public and private sectors like caseload to allow hands-on training. The private and non-governmental sectors potential for training has not been tapped. And while the goal of training policy is to provide MTP training to medical officers at all Public Health Centres (PHCs) but poor coordination, low priority and lack of clarity about training needs have resulted in very few trained doctors at PHCs. An important gap in training policy is the lack of training opportunity for private medical practitioners desirous of providing abortion care. Training policy needs to address the training needs of the private sector and allow MTP training centre to charge private medical practitioners for training services. Covert and overt coercion for post-abortion contraceptive use in public institutions often compels women to seek unsafe abortion elsewhere³². Abortion policy should also be linked to national and international technical guidelines for management of post-abortion complications. Policies need to clearly demarcate the purposes and domains of the PNMT Act and the MTP Act. Recent media has highlighted the weakness in PNMT Act to prevent sex selective

abortions within the legal framework. The PNDDT Act and the MTP Act do not conflict or contradict but coexist. The belief that a restrictive abortion policy will prevent sex selective abortion is unfounded. Policies need to ensure that measures for preventing sex selective abortion do not affect access to safe abortion care for the genuine abortion seeker. The problem of record keeping and reporting and the consequent fear of accountability to the state, has restrained private doctors from taking part in public policy dialogue. The general lack of concern in the private sector about ethical violations and the lack of adherence to minimal quality standards on the one hand, and the blind eye it turns towards the uncertified and unqualified providers of illegal and unsafe abortion among its fraternity on the other, raises concerns about self-regulation within the sector. Several national-level consultative efforts like policy-makers, professionals groups, NGOs and health activists, have recommended major policy change to improve access to safe and legal abortion services in India. Increasing availability, creating qualified providers and facilities, simplifying the registration process, de-linking place and provider, linking policy with technology and research and good clinical practice, and providing comprehensive and quality abortion care are some of the immediate policy measures needed to bring about a change in the current abortion scenario in India.

Comment :

If the so-called abortion on demand is omitted, this comparative law survey reveals five main grounds for legal termination of pregnancy: (1) lifesaving; (2) medical (health of the woman); (3) eugenic (defective child) (4) humanitarian (pregnancy resulting from rape or incest); and (5) social (living conditions, economic responsibilities, number of children, and so forth) .

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Accidental burns in Indian kitchens: Are they really accidental?

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Abstract

Burn injuries sustained by the Indian women while working in the kitchen / cooking food comprise a unique entity in the burn epidemiology as even though almost all such kitchens are equipped with LPG stoves, these victims are reported to have been cooking on kerosene oil stove at the time of the alleged accident. This retrospective study was undertaken with an aim to highlight the various aspects of such 'accidental fatal burns'. 19% of the medicolegal autopsies conducted during the study period were the deaths due to burns. The 21 to 30 years age group accounted for 56% of the cases and male: female ratio was 1: 4. The most common cause of death in these cases was septicemia, while in 26% of the cases, 51 to 60% of the total body surface area (TBSA) was involved. Majority of the females sustained burns in the early evening, between 6 – 7.30 PM (34%); in their in-law's house, (61%); and belonged to a lower socioeconomic strata having an income of < 10,000 INR per month, (76%). Whereas, majority of the males sustained burns in the afternoon (1.30 – 4.30 PM) or early evening (6 – 7.30 PM), 19% cases each and at their work places, 53% cases. These trends of gender based burn injuries speak for themselves and demand for a comprehensive review of the laws relating such incidents.

Key Words: Burns, Dowry Deaths, Kitchen Accidents.

Introduction:

Fire is a necessary evil. Even before the primitive man learned to use fire, he has been a victim of it. Burns injury and its associated mortality and morbidity is prevalent all over the world but it has an altogether different significance in India. Alleged dowry death due to burning of married women is a frequent occurrence in India, however, the cases are presented to the police by the husband or the in-laws as accidental burns and accordingly, the approach of investigating agencies extends from homicide/suicide to accident. In almost every case, it is stated that the clothes of the victim caught fire while cooking on kerosene oil stove or on a wood stove even when the house has the facility of Liquefied Petroleum Gas (LPG) cooking. In the present study, an attempt is made to analyze the data statistically collected on such cases, with the objective to highlight various aspects of so-called accidental fatal burns.

Materials and methodology:

This retrospective study was conducted in the department of Forensic Medicine & Toxicology, Govt. Medical College Hospital, Chandigarh; during the period from January 1996 to December 2005. The reports of 617 cases of burn injuries subjected to medico-legal autopsy were the subjects of the

study. The age and sex of the deceased, the venue and time of sustaining burn injuries, socio-economic strata of the victims, body surface involved, survival period and cause of death, etc., were ascertained from the autopsy records and the hospital records.

Observations:

During the period under study, a total of 3178 medico legal autopsies were conducted by the department, of which 617 (19%) were deaths due to burn injuries. The study revealed a gradual increase in the percentage of deaths due to burns from 17% in 1996 to 22% between 1999 and 2001; thereafter it decreased to 19% in 2002 and 2004 to again increase to 21% in 2005. The lowest percentage (15%) was noted in 2003. While there was a fluctuation in the number of cases, gender distribution was constant with females comprising 4 to 5 times the number of male victims. (Table 1)

Young adults, of the age group 21-25years, accounted for the maximum number of victims, 191 (31%), followed by the age group 26-30 years, 155 (25%). Taken together, the 21-30 year age-group accounted for 56% of the victims of burn injuries. Extremes of age, the less than 15 years and the more than 50 years groups, comprised 5% of victims, each. (Table 2)

Maximum percentage of victims survived for up to 2-3 days, 212 (34%) cases, the cause of their death being septicaemic shock. Only 27 (4%) victims died within an hour of sustaining burns, dying of neurogenic shock; while 111 (18%) cases survived for upto 24 hours, their cause of death being burns shock. One hundred and fourteen (19%) victims survived for more than one week, later succumbing to ATN/septicemia/complications (Table 3)

Taking the body surface area involved in burn injuries into consideration, it was observed that in about 26% (162) victims, 51-60% of the body surface was involved, while in 19% (117) victims, 31-40% body surface area was involved. In only 6% (35) victims, <30% body area was involved in burns. (Table 4)

On the whole, maximum victims sustained injuries in the early evening, at about 6 - 7.30 PM, 189 (31%) cases, followed by the morning time between 7.30 - 9 AM, 114 (19%) cases, and the noon, between 12 - 1.30 PM, 95 (15%) cases. However, males sustained burn injuries equally in the afternoon, between 1.30 - 4.30 PM and early evening, between 6 - 7.30 PM, 23 (19%) cases each; followed by the morning period, between 7.30 - 9AM, 17 (14%) cases. Females, in comparison, sustained burns in the early evening, at about 6 - 7.30 PM, 166 (34%) cases, followed by the morning, between 7.30 - 9.00AM, 97 (20%) cases and noon, between 12 - 1.30 PM, 85 (17%) cases. (Table 5)

Taking the place of occurrence into consideration, it was observed that maximum number of female victims sustained burn injuries at their in-laws house, 301 (61%) cases, followed by the husband's/own house, 86 (17%) cases; while most of the males sustained burns at the work place, 66(53%) cases, followed by the fields/woods-28 (23%) cases. (Table 6)

Most of the victims, both male as well as females belonged to the lower rung of the socioeconomic strata having a monthly income of < INR 5,000 per month, 283 (46%) cases, followed by the INR 5-10,000 per month strata, 193(31%) cases. This socioeconomic group of < INR 10,000 per month

accounted for more than 3/4th of the total burn victims, 476 (77%) cases. No cases were observed from the > INR 50,000 per month socioeconomic group. (Table 7)

Discussion:

Burning incidents amongst women are a major concern in India as they have become pervasive throughout all social strata and geographical areas. The observations of the present study that 56% of these victims belonged to the age group of 21 to 30 years, 78% sustained burns at their in-law's or husband's house and 77% had a total body surface area involvement of 31 to 70% speak for itself. These observations are in conformity with other studies from the various regions in India [1 - 9] and in contrast to the studies from other developing and the developed countries [10 - 15]

In a cohort of 152 burned wives, 70 (46%) were accidental victims; most of the women were illiterate Hindu housewives hailing from joint families of rural community. The majority (60%) of the affected wives were 16-25 years of age at the time of the accident and sustained less than 90% total body surface area burn injury. Most had the survival period more than 1 day, and more than half of them died of septicemia. [4]

A study of 180 cases of fatal burns from Kanpur, reported that burns constituted 11% of the total medicolegal deaths autopsied. Majority of the victims were young Hindu housewives burnt within 5 years of their marriage. The most common source of fire was cooking apparatus like chulha, coalfire, stove or cooking gas. In a substantial number of cases, presence of kerosene oil was found. In about 50% of these burn cases, cooking on open unguarded flames and loose highly inflammable synthetic sarees of the victims were to be blamed. [16]

A study from an adjoining state reported that 11.4% of the total cases subjected to medicolegal autopsy were deaths due to burns, the commonest age group 21 to 30 with 43% cases, and the male: female ratio of 1: 2.5 [1].

The findings of a study from Manipal [2], is an eye opener and some findings of the same have been tabulated below :

| History of the case by police and hospital file | | Results of further investigation | | Age and marital status of the victim | |
|---|-----|--|-----|--------------------------------------|-------------------------|
| Stove burst while cooking in the kitchen | 63% | No stove in the kitchen and cooking by gas/fire wood | 22% | Unmarried < 18 years | 12% |
| Pouring kerosene oil in a burning stove | | No body in the family knew what actually happened | | 24% | Unmarried 18 – 30 years |
| Lighting sacred lamp in pooja | 20% | Heard shouting/screaming | 42% | Unmarried > 30 years | 00% |
| Alleged psychiatry patient | | Door locked from inside | | 4% | Married < 18 years |
| Alleged dowry death | 8% | Victim unhappy with inlaws | 8% | Married 18 – 30 years | 43% |
| | 2% | | | Married > 30 years | 40% |
| | 7% | | | | |

Among those who die in suspicious circumstances, i.e., burnt alive or forced to commit suicide by fire, dowry and family quarrels and marital disharmony are the two important predisposing factors. Illiteracy, arranged and child marriages, joint family structure, oedipal dominance of mother-in-laws, unemployment and economic dependence of the husband on the parents, near complete dependence of women on their husbands and in-laws, and lack of social security amongst Hindu females were other contributory factors affecting the incidence in some way [17 - 20]. This is supported by the observation that 77% of the victims in our study belonged to a low socioeconomic stratum.

Conclusion:

Burn injuries have been a major cause of concern since prehistoric days to the present era of modern medicine. However, the general belief that the burns usually occur at the two extremes of age, indicating the accidental nature of infliction does not hold true in the present Indian setup where the majority of reported cases belongs to second or third decade of life. Moreover, a clear evidence of female preponderance from a specific age group, socioeconomic status, marital status etc., is enough to compel any reasonable person to think of bringing the burns out of the purview of the 'household accidents'.

Table 1 : Year wise distribution of Cases

| Year | Total Autopsies | | Burn Cases | | | | | |
|--------------|-----------------|------------|------------|--------------|------------|--------------|------------|--------------|
| | | | Total | | Male | | Female | |
| | No. | % | No. | % | No. | % | No. | % |
| 1996 | 226 | 07.11 | 38 | 16.81 | 06 | 15.79 | 32 | 84.21 |
| 1997 | 264 | 08.31 | 44 | 16.67 | 08 | 18.18 | 36 | 81.82 |
| 1998 | 287 | 09.03 | 52 | 18.12 | 09 | 17.31 | 43 | 82.69 |
| 1999 | 303 | 09.53 | 68 | 22.44 | 15 | 22.06 | 53 | 77.94 |
| 2000 | 352 | 11.08 | 77 | 21.88 | 15 | 19.48 | 62 | 80.52 |
| 2001 | 372 | 11.71 | 81 | 21.77 | 18 | 22.22 | 63 | 77.78 |
| 2002 | 288 | 09.06 | 55 | 19.14 | 11 | 20.00 | 44 | 80.00 |
| 2003 | 338 | 10.64 | 51 | 15.09 | 09 | 17.65 | 42 | 82.35 |
| 2004 | 369 | 11.61 | 70 | 18.97 | 15 | 21.43 | 55 | 78.57 |
| 2005 | 379 | 11.93 | 81 | 21.37 | 18 | 22.22 | 63 | 77.78 |
| Total | 3178 | 100 | 617 | 19.42 | 124 | 20.10 | 493 | 79.90 |

Table 2 : Age and Gender distribution of cases

| Age Group (In years) | Males | | Females | | Total | |
|----------------------|-------------|-----------|-------------|-----------|-------------|-------|
| | No. (n=124) | % (20.10) | No. (n=493) | % (79.90) | No. (n=617) | % |
| < 15 | 06 | 20.00 | 24 | 80.00 | 30 | 04.86 |
| 16-20 | 21 | 20.79 | 80 | 79.21 | 101 | 16.37 |
| 21-25 | 41 | 21.47 | 150 | 78.53 | 191 | 30.96 |
| 26-30 | 20 | 14.90 | 135 | 87.10 | 155 | 25.12 |
| 31-40 | 19 | 21.59 | 69 | 78.41 | 88 | 14.26 |
| 41-50 | 07 | 30.43 | 16 | 69.57 | 23 | 03.73 |
| 51-60 | 06 | 37.50 | 10 | 62.50 | 16 | 02.59 |
| > 60 | 04 | 30.77 | 09 | 69.23 | 13 | 02.11 |

Table 5 : Time of Occurrence

| Time of Occurrence | Total Cases | | Male | | Female | |
|--------------------|-------------|-------|-------------|-------------|-------------|-------------|
| | No. (n=617) | % | No. (n=124) | % (n=20.10) | No. (n=493) | % (n=79.90) |
| 6.01-7.30AM | 36 | 05.84 | 06 | 04.84 | 30 | 06.09 |
| 7.31-9AM | 114 | 18.48 | 17 | 13.71 | 97 | 19.68 |
| 9.01AM-12Noon | 20 | 03.24 | 07 | 05.65 | 13 | 02.64 |
| 12.01-1.30PM | 95 | 15.40 | 10 | 08.07 | 85 | 17.24 |
| 1.31-4.30PM | 43 | 06.97 | 23 | 18.55 | 20 | 04.06 |
| 4.31-6PM | 33 | 05.35 | 15 | 12.10 | 18 | 03.65 |
| 6.01-7.30PM | 189 | 30.63 | 23 | 18.55 | 166 | 33.67 |
| 7.31-9PM | 59 | 09.56 | 09 | 07.26 | 50 | 10.14 |
| 9.01PM-12AM | 15 | 02.43 | 06 | 04.84 | 09 | 01.83 |
| 12.01-3AM | 03 | 00.49 | 02 | 01.61 | 01 | 00.20 |
| 3.01-6AM | 10 | 01.62 | 06 | 04.84 | 04 | 00.81 |

Table 6 : Place of Occurrence

| Place of Occurrence | Total Cases | | Male | | Female | |
|----------------------|-------------|-------|-------------|-------------|-------------|-------------|
| | No. (n=617) | %* | No. (n=124) | % (n=20.10) | No. (n=493) | % (n=79.90) |
| In-law's house | 303 | 48.62 | 02 | 1.61 | 301 | 61.06 |
| Own/ husband's house | 97 | 15.56 | 11 | 08.88 | 86 | 17.44 |
| Parental house | 71 | 11.83 | 10 | 08.07 | 61 | 12.37 |
| Work place | 98 | 16.05 | 66 | 53.22 | 32 | 06.49 |
| Fields/ woods | 38 | 06.16 | 28 | 22.58 | 10 | 02.03 |
| Road side | 10 | 01.78 | 07 | 05.65 | 03 | 00.61 |

Table 7 : Socio-economic Status

| Socio-econ. Status (INR / month) | Cases n = 372 | | | | | |
|----------------------------------|---------------|-------|----------------|-------|---------------|-------|
| | Male (n=124) | | Female (n= 93) | | Total (n=617) | |
| | No. | % | No. | % | No. | % |
| High | | | | | | |
| > 50,000 | 00 | 00 | 00 | 00 | 00 | 00 |
| 25-50,000 | 02 | 01.61 | 07 | 01.42 | 09 | 01.46 |
| Middle | | | | | | |
| 15-25,000 | 06 | 04.84 | 18 | 03.65 | 24 | 03.90 |
| 10-15,000 | 18 | 14.52 | 94 | 18.46 | 109 | 17.67 |
| Low | | | | | | |
| 05-10,000 | 35 | 28.23 | 157 | 31.85 | 192 | 31.12 |
| < 05,000 | 63 | 50.81 | 220 | 44.63 | 283 | 45.87 |

Table 3 : Survival Period

| Survival Period | Cases n=372 | | Cause of Death |
|-----------------|-------------|-------|----------------------------------|
| | No. | % | |
| < 1Hour | 27 | 04.38 | Neurogenic shock |
| 1 – 24 hours | 111 | 17.99 | Burns shock |
| 24 – 48 hours | 60 | 09.72 | Burns shock + Toxemia |
| 2 – 3 days | 212 | 34.36 | Septicemia shock |
| 3 days – 1 week | 93 | 15.07 | Septicemia + ATN |
| > 1 week | 114 | 18.48 | ATN + Septicemia + complications |

Table 4 : Body Surface Area involved

| Body surface area involved (in percentage) | Cases (n= 372) | |
|--|----------------|-------|
| | No. | % |
| < 30 | 35 | 05.67 |
| 31-40 | 117 | 18.96 |
| 41-50 | 108 | 17.50 |
| 51-60 | 162 | 26.26 |
| 61-70 | 88 | 14.26 |
| 71-80 | 59 | 09.56 |
| > 80 | 48 | 07.78 |

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Study of Acid Phosphatase Activity in Post Coital Subjects

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Abstract

The present study is to detect acid phosphatase activity in post coital vaginal swab & its relation with post coital interval (PCI). The study was done on 60 female patients attending the Obstetrics & Gynaecology OPD of RIMS, Imphal. The age of the subjects ranged from 20-40 yrs, who were all parous and their husbands were fertile. Vaginal swabs were collected after enquiring detailed history of (time & date) recent vaginal intercourse, douching and contraceptives. The collected samples were kept in refrigerator at 4°C till the analysis was done. Quantitative analysis of Acid phosphatase was done by using Modified Kings Method (using the kit manufactured by Coral clinical syst, Goa, India). The results were compared with corresponding PCI and the relationship studied.

Key Words: Vaginal Swab, Acid Phosphatase, Sexual Assault, Pregnancy

Introduction:

Determination of prostatic acid phosphatase activity (ACP) may be employed for the identification of semen in the vaginal fluid of alleged rape victim.¹ Since ACP is confined to the seminal fluid and is not present in the spermatozoa, any detection of elevated ACP level is dependent on the presence of seminal fluid irrespective of spermatozoa.² Persistence of post coital vaginal fluid ACP was studied in this series.

Material & Method:

Quantitative analysis of ACP was done by using Modified Kings Method (using the kit manufactured by Coral clinical syst, Goa, India).

Post coital vaginal swabs were obtained from 60 patients attending obstetrics & gynaecology OPD. Age, LMP & post coital interval (PCI) of the volunteer were recorded by direct interview.

Samples were collected using sterile cotton swabs. Swabs were then diluted with 3 ml of 0.9% NaCl, extracted for 30 mins at room temperature, centrifuged and measured for ACP using supernatant.

Results & Observations:

The distribution of the PCI of the vaginal swabs obtained varied from within 24 hrs to several weeks after sexual intercourse.

Table 1 shows the distribution of cases according to the PCI. The subjects included in the study were in the age group of 20-40yrs. Number of cases with

PCI ≤ 2 months was 53. The rest were with PCI ≥ 2 months – 6 months.

Table 2 shows mean ACP of the different PCI. From the table, mean ACP was highest in PCI of 1 day and gradually decreases with increasing PCI. Therefore it is evident that an inverse proportion exists between the PCI and the ACP value, as the correlation coefficient is -0.67 meaning with increase in PCI there is decrease in ACP.

Table 3 shows 'P' value. The level of significance at PCI=2, is shown by p<0.05% which is highly significant. At PCI=3, p<0.1% but at PCI=10, the p<0.5% which indicates that 50% of the cases studied may show the presence of significantly raised post coital acid phosphatase in the vaginal swab. By studying the trend of significance level, it can be inferred that raised acid phosphatase level in the vaginal swab can be detected upto a PCI of 37 days.

Discussion:

Sexual assault is an unwitnessed crime. Difficulty lies in proving the crime especially in the absence of any injuries and also when there is doubt regarding the presence of sperm in the semen. Therefore, acid phosphatase identified in vaginal fluid after an alleged sexual assault constitutes an important physical evidence, apart from presence of spermatozoa, which is useful in courts of law, during subsequent court trail.³

Vaginal acid phosphatase activity rate in non-coital women is at the most 10U/litre⁶. It has been seen that stability of ACP in post coital vaginal swab

remains high up to duration of 24 hrs & it continues to maintain its significant rate up to 36 hrs^{1, 3, 4, 5}. The negative correlation is also indicated by the correlation co-efficient, which is -0.67, in this study. Also, in this series, at PCI=2 days, p<0.05%, which is highly significant. At PCI=10, p<0.5%, indicating that only 50% of the post coital cases studied may show the presence of raised acid phosphatase. The significance level also shows that acid phosphatase in the vaginal swab can be detected up to a PCI of 37 days.

Conclusion:

By statistical analysis, a normal female can maintain slightly raised acid phosphatase i.e., more than 10KU/litre in the vaginal swab up to a PCI of 37 days. After PCI of 37 days, there is no question or room for detecting raised acid phosphatase more than 10KU/litre.

Therefore, an opinion, as to whether sexual intercourse has taken place or not, can be made based on the presence of raised Acid phosphatase level in the post coital vaginal swab, especially when the accused is vasectomised or azoospermic and also, a rough estimate of the time of offence, can be made based on the raised ACP level.

Table 1 : shows the distribution of cases according to the PCI

| PCI(days) | No.of cases |
|-----------|-------------|
| 1 | 16 |
| 2 | 5 |
| 3 | 5 |
| 4 | 1 |
| 5 | 4 |
| 7 | 5 |
| 10 | 1 |
| 14 | 4 |
| 15 | 1 |
| 30 | 8 |
| 60 | 3 |
| 70 | 1 |
| 90 | 3 |
| 120 | 1 |
| 150 | 1 |
| 180 | 1 |

Table 2 : shows mean ACP of the different PCI

| PCI(days) | Mean ACP (KA units/ml) |
|-----------|-------------------------|
| 1 | 35.32 |
| 2 | 31.59 |
| 3 | 17.88 |
| 4 | 16.25 |
| 5 | 15.85 |
| 7 | 15 |
| 10 | 14.79 |
| 14 | 14.75 |
| 15 | 13.96 |
| 30 | 10.95 |
| 60 | 9.375 |
| 70 | 8.54 |
| 90 | 7.50 |
| 120 | 5. |
| 150 | 4.06 |
| 180 | 4.28 |

Table 3 : shows ‘P’ value

| PCI(days) | Mean ACP(ka units/ml) | ‘p’ value |
|-----------|-----------------------|-----------|
| 2 | 31.59 | <0.05% |
| 3 | 17.88 | <0.10% |
| 10 | 14.79 | <0.5% |

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Controversial Subjective Assessment of Clause V of Section 320 I.P.C.

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Abstract

Controversy regarding tendon injury, whether to declare it grievous under clause v of 320 I.P.C. prevails amongst doctors and court officials. Article is an attempt to review this controversy by clubbing it with disability under workman compensation act.

Keywords: Clause v section 320 I.P.C.

Section 320 I.P.C. clause v reads as “destruction or permanent impairment of the power of any member or joint”

Various mechanical injuries directly or indirectly which are covered under this clause are innumerable like:-

1. Head injury leading to monoplegia/monoparesis, hemiplegia or paresis.
2. Spinal injury leading to quadriplegia/paresis, paraplegia or paresis, loss of bladder & bowel control.
3. Injury to plexus, cord or main nerve root producing various paralytic effects involving limbs.
4. Destruction of joint due to direct injury.
5. Extensive injury to muscle & tendon producing permanent impairment of power or function of joint.
6. Ischemic necrosis impairing power of group of muscles involving functions of joints, e.g. Volkman ischemic contracture.
7. Burns and scalds involving the flexors of the limbs producing contractures.
8. Injury to tendons though temporarily leading to impairment of power of joint; its outcome can be determined after repair of tendons or natural healing etc.

Mostly the people who are involved in the medicolegal job, they directly declare the injury to tendons as Grievous hurt. As many orthopedic surgeons believe, even after repair of tendon, permanent power of joint is not restored. This loss may be negligible i.e. in tune of 1-10%. When they declare that there is permanent loss of power to joint, doctor who gives opinion under clause v is justified to declare this injury as grievous technically.

But on the other hand when we talk of compensation under Workman compensation act, to get compensation, loss of function should be gross, if it is less than 40% the person is not eligible for benefits under disability. In other words loss of function below 40% it is a simple disorder i.e. he is not declared handicapped. To make it a grave disorder loss of function should be over 40%, then and only then the person is considered disabled under relevant act.

So while declaring the injury i.e. cut tendon, it should be assessed by orthopedic surgeon after healing of tendon from repair or otherwise. If it is below 40% it should be treated as simple.

The section 320 I.P.C. vis a vis disability act should be applied to declare the nature of injury.

Loss of power of joint should be gross before one declares the injury as grievous otherwise nature of injury is simple and should be kept under observation to healing of tendon i.e. about 21 days.

Applying plaster after stitching in form of splint to limb does not constitute that patient could not perform his ordinary pursuits. Even person with one limb amputated can perform his ordinary pursuits. This does not form the base for declaring this injury as grievous under section 320 I.P.C. clause VII sub clause III.

Even if the patient does not subject himself for treatment of cut tendon, the loss of function of joint should be declared by orthopedic surgeon, as not subjecting himself for getting treatment does not absolve the assailant of charge related to offence committed. Final opinion should be rested on Orthopedic surgeon who declares the extent of damage and nature of injury is to be declared by Forensic expert on the basis of orthopedic surgeon.

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Methods of Suicide: A Medicolegal Perspective

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Abstract

Methods opted for suicide varies widely from region to region. Knowledge about the different methods of suicide and expertise in differentiating suicide from accident and homicide is a pre-requisite in the forensic practice. 'Determined death seekers' are known for resorting to physical as well as chemical methods to terminate their own lives. A systematic review had been made to provide a brief explanation of each of these methods highlighting the medicolegal nuances.

Key Words: Chemical, Methods, Physical, Suicide

Introduction:

Pattern of suicide in a region depends upon variety of factors, ranging from availability and access of the method to the socio-economic status of the individual and also the prevailing cultural and religious influences. Methods of suicide employed generally reflect the different avenue available in the community.¹ Knowing the pattern of suicide in an area not only helps in early management of such cases but also suggests taking earliest preventive measures. It is necessary for the death investigators to be aware of the common scenarios, risk factors, methods and victims as well as pitfalls that may be encountered.²

Methods of suicide that are commonly encountered in the routine medicolegal practice could be broadly categorized into physical methods and chemical methods or self-poisoning. 'Determined' suicides are known to use one or a combination of both methods. A brief explanation of each of these methods, highlighting the medicolegal considerations is presented.

Discussion:

Suicide by physical methods:

Hanging: Hanging is a common mode of suicide, where the body is wholly or partially suspended by the neck so that the constricting force applied to the neck is the weight of the body. It differs from strangulation where the neck is constricted by an

extraneous source, irrespective of any effect caused by the weight of the body.

In the routine medicolegal practice, the distinction between the two groups is important because hanging is considered as suicidal until otherwise proved and strangulation is usually homicidal.³

Hanging usually results in asphyxial death. But there are a number of cases on record in which hanging has witnessed survivors too. In a study conducted at Manipal, India, twelve cases of hanging were studied during a span of five years where eleven were suicidal. Among them ten recovered completely and only two died. All victims were unconscious on admission and regained consciousness at varying periods of time.⁴ A study conducted by Litman and Swearingner regarding the time taken for unconsciousness to ensue in hanging showed that a thin rope around the neck had caused unconsciousness in 15 seconds.³

Suicidal ligature strangulation is not uncommon and sometimes causes difficulty in differentiating from murder. The winding of several turns of ligature and the tying of multiple knots is consistent with suicide.⁵

Almost all published series record that in suicidal hanging, the ligature is above the level of the larynx in vast majority of cases. This can be explained by the fact that when hanging takes place in a vertical position, the ligature will slip up until it is held by the jaw.

It has been observed that a suicide after failing in other methods may lastly resort to hanging. In such

circumstances, evidence of some other adopted means like: cutting the wrist, slashing the throat, poisoning etc. may be forthcoming. Corroboration of suicidal hanging may be gathered from the facts like presence of a suicide note in the handwriting of the deceased, place of occurrence being a secluded place, easily approachable point of suspension and easily accessible ligature material, usually some household articles or belongings of the victim himself / herself.⁶

The masochistic or sexual asphyxia must be carefully distinguished from suicide and also homicide. Some asphyxial deaths with sexual aspects appear to be suicidal in nature or at least, the inevitability of the fatal outcome must have been apparent to the victim.⁵ The 'victims' of such autoerotic masochistic exercises are usually adolescent males, found nude or wearing female attire, with presence of mirrors and cameras in the vicinity to watch the events by themselves. Nude photographs or pornographic literature may also be found at the scene. The whole tale speaks of some sexual perversion and mental eccentricity. In most of the cases, death is accidental in origin. Mislabeling the same as suicide may have implications in insurance and inheritance.⁶

Sometimes a stick or other object is inserted under a ligature and twisted to tighten the cord against the neck. This is called a 'Spanish Windlass'. The stick gets jammed against the body to prevent the tightened ligature from becoming loose once the twisting is completed. Though usually suicidal, this device is sometimes used for homicide.⁵

Burns: Most of the suicidal burns were performed by Soaking the clothing and the body with some inflammable substances, usually kerosene and then setting it alight.^[7]

In the contemporary times, suicide by burns in the married women is increasing, probably due to marital disharmony, dowry harassment and the like. In the historical times, some parts of India have approved suicide by burns under certain circumstances like Sati and Johar. A study from New Delhi on the patterns of suicides had documented that the number of female suicides predominated over male suicide and the most common method adopted was self-immolation.⁸

Emotionally challenged people are known to commit suicide impulsively, by self-immolation in public places under various circumstances. For example, whenever one's idol of worship dies, like a political leader, a movie star or any known public figure. People torching themselves in front of public offices, as a means of protest and to get their demands met are also not uncommon. These are highlighted in the various mass media the every other day.

Drowning: Drowning is defined as a mode of asphyxial death, where air entry into the lungs is prevented due to submersion of mouth and nostrils into water or any fluid medium. According to Modi, drowning was the commonest mode of committing suicide.⁹

Suicide by drowning is fairly common in India, especially among women folk. This could be accounted to the domestic conflicts and easy accessibility to the source of water like wells, rivers, canals and oceans. A determined suicide may tie his hands and legs together or attach weights to his body before immersion.¹⁰ Ingestion of poison, cutting the throat and then jumping into the water is also not unknown. Death can occur in an ocean or water as shallow as 6 inch in the case of an unconscious person.¹¹ 'Dry drowning' is the entity where the fatal cerebral hypoxia is not due to the occlusion of the airways by water but rather to a laryngeal spasm and is said to occur in 10-15% of all drowning.¹¹

Attachments of heavy weights to a body to keep it underwater, even though is consistent with suicide, need not be always true. People in India believe that putting the dead body in the holy river Ganga, leads to the attainment of salvation of the deceased soul. Dead bodies floating in the river Ganga are quite commonly encountered. This will lead to lot of medicolegal hassles to the concerned authorities as to determine the circumstances of 'drowning'.

At autopsy, there may not be any pathognomonic findings to make the diagnosis of drowning. The diagnosis is based on the circumstances of the death and a variety of non-specific anatomical findings. Chemical tests aimed at the diagnosis are non-specific and essentially unreliable.¹¹ If a body is found in water and all other causes of death have been excluded, it is presumed to have 'drowned'. Dimaio has categorically remarked that 'diagnosis of drowning is a diagnosis of exclusion', and cannot be made without a complete autopsy more so a complete toxicological analysis.¹¹

Jumping from a Height: Jumping from a height, otherwise known - as 'precipitation' is another usual method of suicide, where the circumstances rather than the autopsy findings determine the motivation.⁵ It may sometimes be possible to deduce the fact that the victim must have actively projected himself outwards rather than fallen close to the wall or cliff-face, by measuring the distance from the jumping point to where the body strikes the ground. It may help to distinguish between a suicidal jump and an accidental fall. Goonetilleke studied the nature of the injuries in precipitation depending upon the attitude of the body when striking the ground, contact with obstacles

during the fall and the height of the fall.¹² A study reported from Newyork deduces that elderly subjects aged 65 years and above had preferred jumping from height to commit suicide when compared to their younger counterparts.¹³

Railway Injuries: Railway network is one of the bare necessities of transportation. There are several unprotected railroad crossings in most of the developing countries. These lonely railway tracks are a 'safe heaven' for determined 'death seekers'. A fairly common railway fatality is suicide by laying oneself in front of the approaching train. A suicide may sometimes opt to jump from a speeding train. Railway injuries usually present with decapitation and severe mutilation of the body into several pieces and soiled by axle grease and dirt from the wheels and tracks.¹⁴ Such railway fatalities could be suicidal or accidental. But dead body of a homicide victim may also be placed on the rails to simulate suicide. Hence a careful autopsy has to be conducted on a body recovered from the railway track and ante mortem injuries has to be distinguished from those inflicted post mortem. The presence of corroborative evidences like suicide note, previously expressed suicidal ideas, death wish, evidence of other means of suicide like ingestion of poison, cutting the wrist etc. favours the circumstances of death as 'suicidal'.

Motor Vehicle Injuries: Attempts at deliberate self-destruction by the use of a motor vehicle are said to be not uncommon, though it is difficult to prove in most cases. The opinion is more likely to be based on circumstantial rather than medical evidence, a task for the investigating authorities rather than the autopsy surgeon. Suspicion of suicide may arise from the circumstances preceding the incident, like financial crisis, family conflicts, previous suicide attempts, history of depression and a suicide note. The characteristics of a suicidal death by the occupant is a head on collision with a road side object, an oncoming vehicle, or into a solid obstruction at the road side, without evidence of an effort to apply the brakes or to evade striking the object.¹⁵ However, this could be hardly proved in the absence of definite evidence.

Stabbing and Cutting: A suicidal knife wound has to be differentiated from deliberately self inflicted knife wounds without the intention of death but with the intention of some gain/motivation. A sound dictum is to consider all the stabbing and cutting injuries as homicidal until the contrary is proved. The position and characteristics of the injuries and the circumstances must be considered before labeling the manner as 'suicidal'. Even then, it may not be possible for the autopsy surgeon to opine in this

regard in every case and better be left to the investigating authorities. In their common occurrence, suicidal wounds are usually found on certain 'sites of selection' on accessible parts of the body like throat, wrist, chest and abdomen. Suicidal knife wounds are usually incised or punctured and rarely lacerated. Suicidal cut throat wounds are usually situated higher up in the neck and are characterized by hesitation or tentative cuts. 'Hara-kiri' was in practice amongst Japanese, who used to commit suicide by inflicting incised penetrating wound over abdomen directed from below upwards.¹⁶

Firearm Injuries: Distinction between suicide, homicide and accident may be difficult and sometimes impossible in gun shot injuries. Yet it is the first question asked by the crime investigator in every death involving a shooting. Like other suicidal wounds, suicidal gun shot wounds are seen in certain 'sites of selection' like temple, forehead, mouth, nose, chin and precordium.

Autopsy surgeons to define the manner of death within reasonable medical certainty use certain criteria. Among these, evaluation of the range of fire is of utmost importance. It is obvious that a distant shot could not have been self-inflicted, unless there is a contraption specifically designed for this purpose. The length of the victim's arm is very much important in determining whether he could have fired the weapon himself. But it is not uncommon to note that the trigger may be moved as easily by using a toe, stick or a coat hanger.¹⁷

Spitz and Fisher¹⁷ report a case, where a forty three-year-old man addressed a suicide note to his wife before shooting himself thrice. A superficial graze was noted in the forehead, a through and through bullet wound piercing both the cheeks and a last fatal shot on the right temple. The first two non-fatal injuries were adjudged as 'hesitation shots' similar to 'hesitation cuts' encountered in suicidal stab wounds. The degree of incapacitation resulting from each shot must be determined so as to make out the fatal shot. Another point favouring suicide is that suicides often remove the clothing from the area they intend to shoot.

'Russian roulette' is a betting game in which the players hold a revolver loaded with a single cartridge, the position of which in the cylinder is unknown. Then they pull the trigger pointing it to the temple. Eventhough many authors has considered the death here as 'accidental', Spitz and Fisher opines that these deaths has to be categorized as 'suicidal' due to the significant element of deliberate self destruction involved.¹⁷

In all sort of firearm injuries, the availability of videographs, photographs and diagrams of the

scene is of paramount importance to confirm or refute the circumstances of injury as 'suicidal'.

Suffocation: Suffocation and plastic bag suicide is increasing in incidence, the means being universally available. Death due to suffocation is characterized by violent asphyxiation, where passage of air between the atmosphere and the lungs is prevented by mechanical ways other than constriction of neck or drowning. This has been observed in mentally challenged persons and in prisoners.¹⁸

Suicide by Chemical Methods: Poisoning is of prime concern in India since the bygone ages. It is estimated that more than 50,000 people die of poisoning every year.¹⁹ Suicide by chemical methods are often found in the forensic practice. This could be from self-administration of an over dosage of a medicinal drug, pesticides, detergent or a cleansing solution ordinarily used at home.²⁰ Deliberate self-harm by chemicals may result from ingestion, injection or inhalation of the poison.

Ingestion: The oral ingestion of single or multiple medications is a clear sign of suicidal intent until the contrary is proved. The presence of these substances in the blood, viscera and gastric contents provide proof of the fact. Suicides often opt for poisons with which they are routinely encountered in their daily life. For instance, in an agricultural country, most of the poison deaths are encountered with insecticides. People ailing for a long time by chronic illnesses may take an over dosage of medicines they are possessing. The autopsy surgeon could determine the probable poison by performing a meticulous autopsy, emphasizing on both the external and internal findings.

Incidence of suicidal poisoning with cyanide is rather common among members of terrorist organizations. These people carry 'cyanide capsules' with them, which they consume when apprehended by law enforcement authorities, in order to evade interrogation and punishment. Contrary to the popular belief, death is not always instantaneous in cyanide poisoning. Ingestion of cyanide salts causes death only after several minutes or hours whereas it may prove fatal much earlier in inhalation.²¹

In general, the ingestion of chemical agents such as insecticides, rodenticides, fungicides, detergents, salts of heavy metals, antiseptics and other substances may be manifested by a primary burning injury to the perioral tissue, oral cavity, esophagus and stomach. Occasionally, it may be associated with aspiration of material into the lungs, giving rise to pneumonia.¹⁸ Varying degrees of cerebral and pulmonary edema may be noticed at autopsy.

Secondary effects may manifest in the form of hepatic and renal damage and subsequent failure. Many a times, postmortem detection of poisoning may go unsuspected. While some poisons, like arsenic mimicks the features of natural illness yet some other poisons like barbiturates often produce no visible features.²⁰

Injection: Death may be most rapidly accomplished when the poison is administered by intravenous route. Injection of massive doses of barbiturates and other sedatives is most frequently observed in suicides among doctors, nurses and other paramedical personnel due to easy accessibility. An overdose of insulin may be opted by a dejected diabetic person. The inadvertent coma may go unnoticed until the death is discovered. The Queen Cleopatra is alleged to have committed suicide by letting an asp, an exotic variety of viper, bite her.²¹

Inhalation: Suicide by inhalation of poison is best exemplified by the use of a source of carbon monoxide for the attempt, like an automobile exhaust system in a closed space such as a garage. The other methods could be, turning on the gas jets of an oven, water geyser or home heater. Carbon monoxide gas could also be introduced into a closed system such as a scuba mask or a tank.

Suicide by miscellaneous methods:

Suicide by starvation is allowed in Hinduism, which is also known as "Sallekhana". It is usually resorted to achieve political or religious mileage. Mentally ill persons may refuse to take food and starve to death.¹⁶ Suicidal *electrocution* is rare in which person winds wire around finger or wrist, which are then connected to live electricity.¹⁵

Conclusion:

Autopsy surgeons and the crime scene investigators are expected to be acquainted with the different methods of suicide in their respective area of practice. Methods opted for suicide may sometimes simulate an accident or a homicide. In such cases with an equivocal manner of death, the autopsy surgeon's opinion, coupled with the circumstantial evidences is crucial, in concluding the manner of death as 'suicide'.

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Study of Sudden Unexpected Deaths In Medico-Legal Autopsies

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Abstract

The investigation of sudden or unexpected death has got immense importance where the vital objective of the investigation is to exclude an unnatural cause of death. Total 2509 autopsies were performed during January 2001 to December 2002 (2 years), out of which 224(8.92%) were sudden deaths. Most of the sudden deaths were in the middle age group i.e. 31-50 years of age. Male predominates female among all sudden deaths with male: female ratio 1:0.178. Cardiovascular causes were the leading causes of death followed by respiratory causes among all sudden deaths. Death due to coronary artery disease amounts to almost half of all sudden deaths (42.85%). The role of histopathological examination in confirmation of cause of death was discussed.

Key words: Sudden death, Natural death, Unexpected Death, Autopsy.

Introduction:

Natural deaths undoubtedly constitute a significant portion of deaths, which undergo autopsy for investigation of death. In most of the natural deaths in such instances, the death has occurred suddenly or unexpectedly without any obvious disease.

There are instances when a healthy person with no previous history of any disease or precipitating factor, if found dead, creates suspicion of foul play. In few cases, the physician has not attended at the time of terminal event of death or attending physician cannot determine a cause of death or death is suspicious. In such cases, after completion of autopsy, the outcome may often reveal some natural disease, the presence of which may trigger issue like association of disease with trauma, work, crime etc. and its relative contribution towards death. The study of sudden death gives systemic view of differential diagnosis of cause of death and to make a logical choice of most likely cause will help to improve the mortality statistics, assist the legal authorities and satisfy the bereaved relatives.

Material & Methods:

The present study has been conducted in the Department of Forensic Medicine, Government Medical College & Hospital, Aurangabad (Maharashtra), during the period of 1st January 2001 to 31st December 2002. The material for the present study consists of the cases where the deceased had died suddenly and / or unexpectedly and had been subjected to medico-legal autopsy.

The criteria for selection of cases was as per definition of sudden death - 'sudden death is a death which is not known to have been caused by any

trauma, poisoning or violent asphyxia and where death occurs all of a sudden or within 24 hrs of the onset of the terminal symptoms'.

A careful autopsy examination was carried out in every case and the whole organ or pieces of organ showing gross pathologic changes were preserved for histopathological examination. After the receipt of histopathological report, final opinion as to cause of death was given. The findings were recorded and analysed statistically.

Observation:

During the period of study, total 2509 medico-legal autopsies were carried out. Out of which 224 cases (8.92%) were due to sudden death with known natural cause of death. Age wise distribution showed maximum number of cases belonged to age group 31-40 years (28.50%) and 41-50 years (24.10%) with male predominance. Sexwise distribution showed male predominance with male: female ratio 1:0.178. (Table No.1) Among the causes of sudden death, 111 cases (49.55%) were due to cardiovascular causes, 61 cases (27.23%) were due to respiratory causes, 27 cases (12.05%) were due to central nervous system causes, 18 cases (8.03%) were due to gastrointestinal causes, 2 cases (0.89%) were due to genitourinary causes and in 5 cases (2.23%), no clear-cut cause was established. (TableNo.2) Amongst the cardiovascular causes, coronary artery disease was the leading cause of death (86.47%) with male predominance. Out of 61 cases died of respiratory diseases, Pulmonary Koch's (36.06%), Pneumonia (26.22%) and combinations of two (29.50%) were leading causes of death. (TableNo.3) Recent myocardial infarction

was seen in 32 cases (33.33%) and in 14 cases (14.58%), old myocardial infarction was seen on gross examination.

Discussion:

The term "sudden" has no agreed universal definition. In the material for the various studies, the duration of the death process has ranged from 1-24 hours, but it is difficult to determine exactly how long the fatal symptoms have been present, as death often occurs before the victim reaches hospital, in such circumstances no data on the symptoms are available for want of eye witnesses.

In the present study, the incidence of sudden death was 8.92% (224/2509) amongst all the medico-legal autopsies conducted during the study period. The findings of incidence of sudden death in the present study are somewhat consistent with the study of T. Sarkoija et al (5%)¹ and Anders Siboni et al (4.06%)². This finding is inconsistent with that reported by A. Meina Singh et al (2.66%)³ and Ivar Nordrum et al (27.8%)⁴. The inconsistency is mainly due to differences in selection of cases due to lack of proper definition of sudden death.

Age distribution for the present study showed most of the cases belonged to age group 31-40 years (28.50%) and 41-50 years (24.10%). (Table No. 1) This finding matches with the study of A. Meina Singh et al (34.5%)³, Kagne R.N. et al (19%)⁵, R. M. Whittington et al⁶, T. Sarkoija et al¹. From all above these studies, it is seen that the maximum number of sudden deaths are seen in the middle age (31-50 years). This may be due to westernization of Indian society, sedentary lifestyle with increased smoking and alcohol consumption habit.

Out of 224 cases of sudden death, 190 (84.8%) were male and 34 (15.1%) were female with male: Female ratio 1:0.178. (Table No.1) This finding is consistent with the study of T. Sarkoija et al (82%)¹, Anthony Thomas et al (73.9%)⁷, Ivar Nordrum et al (79.67%)⁴ & A. Meina Singh et al (94.5%)³.

Although there are numerous causes of sudden death, cardiovascular causes are the principle cause among sudden death in the present study. Out of 224 cases of sudden death, 111 cases (49.55%) were due to cardiovascular causes, of which 102 (91.89%) were male and 9 (8.10%) were female. (Table No.2)

Dr. K.S.Narayan Reddy⁸ and Apurba Nandy⁹ stated that most of the deaths were due to cardiovascular causes about 45-50%. Similar findings were seen in the study of Kuller Lewis et al (49.50%)¹⁰, Anders Siboni et al (46.20%)², Di Maio V.J.M. et al¹¹ (60.9%), T. Sarkoija et al (61%)¹, James Luke et al (38%)¹², Ivar Nordrum et al (69.15%)⁴, Anthony Thomas et al (69.5%)⁷.

Coronary artery disease was not only the principle cause among cardiovascular causes (86.47%) but also important cause among sudden death amounting to 42.85% with male predominance, which is consistent with previous studies^{1, 4, 7, 11, 12, 13}.

In the present study, out of 224 cases of sudden deaths, 61 cases (27.23%) were due to respiratory causes. The important among respiratory causes were Pulmonary Koch's (36.06%), Pneumonia with pulmonary Koch's (29.50%) and pneumonia (26.22%). (Table No 2,3) This finding of deaths due to respiratory causes are comparatively higher as compared to other studies^{2, 3, 4, 7, 8, 9, 11, 12}. This may be due to cases of pulmonary Koch's and pneumonia are higher in our studies. This may be due to lower economic status, increased pollution and treatment defaulter in pulmonary Koch's patients.

Conclusion:

The study reveals that-

1. The incidence of sudden death among the total medico-legal autopsies performed is 8.92%.
2. Adults between the ages of 31-50 years are most vulnerable to sudden death.
3. The marked preponderance of males in the present study is significant.
4. Cardiovascular disease accounts for the greatest number of sudden death.
5. Coronary artery disease is not only the main cause of cardiovascular deaths, but also of all sudden deaths.
6. Histopathological study helps in confirmation of the cause of death in sudden death cases.
7. The study can be of great help in positively convincing and counseling bereaved relatives of deceased about cause and manner of death. This is particularly important when relatives complain of negligence by hospital authorities out of ignorance, trauma of death and suspicion expressed by unrelated persons.

In last few years, medical science has changed a lot due to invention in medical and paramedical fields. The diseases which were not in position to be diagnosed during life in past, can now be easily diagnosed. In such cases newer techniques are found to be helpful in diagnosis of cause of death especially in sudden unexpected deaths in persons without any signs of disease.

Table No 1

Age and sexwise distribution among sudden death cases

| Age Group | No. of Cases | Male (%) | Female (%) |
|--------------|--------------|-------------------|------------------|
| 0-10 | 06 | 03 (1.33) | 03 (1.33) |
| 11-20 | 10 | 05 (2.23) | 05 (2.23) |
| 21-30 | 25 | 19 (8.48) | 06 (2.67) |
| 31-40 | 64 | 60 (26.78) | 04 (1.78) |
| 41-50 | 54 | 50 (22.32) | 04 (1.78) |
| 51-60 | 38 | 34 (15.17) | 04 (1.78) |
| 61-70 | 20 | 12 (5.35) | 08 (3.57) |
| 71 & above | 07 | 07 (3.12) | 00 (00) |
| Total | 224 | 190 (84.8) | 34 (15.1) |

Table No 2

**Causes of sudden death :
Distribution of organ system**

| Organ system involved | No. of cases (%) | Male | Female |
|-------------------------|------------------|------------|-----------|
| Cardiovascular system | 111 (49.55) | 102 | 09 |
| Respiratory system | 61 (27.23) | 45 | 16 |
| Central Nervous System | 27 (12.05) | 24 | 03 |
| Gastrointestinal system | 18 (8.03) | 17 | 01 |
| Genitourinary system | 02 (0.89) | 00 | 02 |
| No clear cut cause | 05 (2.23) | 03 | 02 |
| Total | 224 (100) | 191 | 33 |

Table No 3

Distribution of sudden deaths according to the cause of death

| System | Causes | M | F | Total | |
|-------------------------|-------------------------------------|----------------------------------|----|-------|----|
| Cardiovascular System | Coronary artery disease | 89 | 07 | 96 | |
| | Hypertensive cardiovascular disease | 08 | 00 | 08 | |
| | Dilated cardiomyopathy | 02 | 01 | 03 | |
| | Myocarditis | 01 | 00 | 01 | |
| | Valvular heart disease | 01 | 01 | 02 | |
| | Pericardial effusion | 01 | 00 | 01 | |
| | Pneumonia | 12 | 04 | 16 | |
| Respiratory System | Pulmonary Koch's | 15 | 07 | 22 | |
| | Pneumonia with pulmonary Koch's | 16 | 02 | 18 | |
| | COPD* | 00 | 02 | 02 | |
| | Pyothorax | 01 | 00 | 01 | |
| | Atelectasis | 01 | 00 | 01 | |
| | Pulmonary infarct | 00 | 01 | 01 | |
| | Intracerebral haemorrhage | 06 | 00 | 06 | |
| | Subarachnoid haemorrhage | 03 | 00 | 03 | |
| | Central Nervous System | Intracerebral haemorrhage + SAH* | 03 | 01 | 04 |
| | | Subdural haemorrhage | 02 | 01 | 03 |
| Meningitis | | 03 | 01 | 04 | |
| Encephalitis | | 03 | 00 | 03 | |
| Brain abscess | | 01 | 00 | 01 | |
| Brain infarct | | 03 | 00 | 03 | |
| Cirrhosis of liver | | 07 | 00 | 07 | |
| Hepatitis | | 04 | 00 | 04 | |
| Fatty liver | | 01 | 01 | 02 | |
| Gastrointestinal System | | Intestinal intussusception | 01 | 00 | 01 |
| | Acute haemorrhagic Pancreatitis | 01 | 00 | 01 | |
| | Ileitis | 02 | 00 | 02 | |
| | Liver abscess | 01 | 00 | 01 | |
| Genitourinary System | Puerperal sepsis | 00 | 01 | 01 | |
| | Retained placenta | 00 | 01 | 01 | |

Male: M; Female: F

*COPD- Chronic Obstructive Pulmonary Disease

SAH – Subarachnoid Haemorrhage

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Profile & Pattern of Fabricated injuries by Mechanical Violence in G.G.S. Medical College, Faridkot (Punjab)

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Abstract

From times immemorial, man has been attempting to subjugate fellow human beings. Over the centuries and along with the growth of civilization, there has been increased use of violence, abuse and torture to twist and turn people around. Earlier, the main purpose of torture was to get information or confession, to punish or to terrorise and accordingly it has been defined by " U.N. Convention Against Torture and Other Cruel, Inhumane or Degrading Treatment or Punishment" as " Any act by which severe pain or suffering whether physical or mental, is intentionally inflicted on a person for such purpose as obtaining from him or third person, information or a confession, punishing him for an act he or a third person has committed or is suspected of having committed...." and this does not include physical pain or suffering in the form of fabricated injuries caused to self by application of mechanical violence to support a false charge of assault against the alleged accused or by the injured persons having been sustained minor injuries in assault cases who inflict fabricated injuries on self to enhance gravity of crime and penal punishment against the accused causing mechanical violence. Out of 200 cases of mechanical injuries resulting from assault and examined by the author in GGS Medical College Faridkot (Punjab), 26 cases were diagnosed as being fabricated or were strongly suspected to be fabricated injury cases sustained to support a false charge of assault. Profile and pattern of such fabricated injuries by mechanical violence and the corrective and preventive measures to check self-harm and penal punishment to those against whom such injuries are caused, are discussed in this paper.

Key Words: Fabricated injuries, Torture, Assault, Grievous hurt, Dangerous weapons, Police custody, Human rights, Right to life.

Introduction:

Fabricated injuries are the type of medico legal injuries inflicted with some motive. These are superficial injuries, mostly self-inflicted or occasionally inflicted with the help of another person. When self-inflicted, these are on the approachable parts of the body. When inflicted with the help of another person these may be placed elsewhere. When incised wounds are produced by oneself then the injuries bear all the features of self-inflicted incised wounds. But it is unlikely that, bruises, lacerations or deep stab wounds will be fabricated in nature. The motives for producing fabricated injuries are to bring a false charge of assault against an enemy, to alter the appearance of a simple injury to attract more attention and severer punishment for the alleged accused, by an assailant to establish a ground of self defense, by prisoners to bring a charge of atrocity against a jail or police official or by policemen, soldiers or factory workers to avoid duty. [1] Self-inflicted wounds are several superficial cuts or scratches made with a knife, razor or some pointed instrument. They are often parallel with straight regular margins and their direction varies according to site. [2] Modern Criminal Investigation is teamwork of several experts working

in close collaboration with law enforcement agencies with common objectives to arrive at the truth. The role of forensic expert is to help in the administration of justice. The qualities needed in Forensic expert is qualification, training and experience to identify the problem with their professional knowledge, observe accurately and interpret the results properly so as to form a scientific conclusion and to furnish opinion on his findings. [3] Medico legal examination was practically, until a few years, a ritual or a formality. Unlike in the past, it is not always intended to seek justice but for variety of other reasons which might be to bring a false charge to harass someone or for pushing someone into litigation or to get him arrested or to create psychological pressure to withdraw some case. The increasing criminal behavior of the injured, the easy access to courts, as well as the easy availability of legal assistance has brought new dimensions to the medico legal work and the legal expectations from a medical man, therefore, have also changed in equal proportions. [4]

Observations:

1. Incidence:

Out of 200 cases of mechanical injuries resulting from assault and examined in GGS Medical College Faridkot (Punjab), 26 cases were diagnosed as

being fabricated or were strongly suspected to be fabricated injury cases sustained to support a false charge of assault with incidence of such injuries to be 13 percent in this part of the state of Punjab.

2. Age Wise Distribution of cases (Table No. 1)

- a. 0-20 YEARS: 3 (11.54 %)
- b. 21-40 YEARS: 15 (57.7%)
- c. 41-60 YEARS: 7 (26.9%)
- d. Above 60 years: 1 (3.8%)

Maximum number of cases were reported in the younger age group of 21-40 years followed by middle aged generation and minimum incidence in the persons aged above 60 years.

3. Sex Wise Distribution of cases (Table no.2)

- A. Male: 22 (84.6%)
- B. Female: 4 (15.4%)

The incidence was more than five times in males compared to females.

4. Rural / Urban Distribution of cases (Table No. 3)

- A. Rural: 16 (61.5%)
- B. Urban: 10 (38.5%)

Rural urban ratio of cases was 1.6: 1 meaning rural population was involved 1.6 times more in fabricated injuries than urban population.

5. Occupation Wise Distribution of cases (Table No. 4)

- A. Agriculture: 8 (30.8%)
- B. Labourers: 8 (30.8%)
- C. Housewives: 4 (15.4%)
- D. Students: 3 (11.5%)
- E. Business Class: 2 (7.8 %)
- F. Others: 1 (3.8%)

Persons involved in agriculture and labour were equally involved in crime both groups forming more than sixty percent of the total cases followed by housewives and students. Business class persons were reported to be involved minimum.

All the female cases reporting with fabricated injuries were housewives.

6. Time of Examination of cases (Table no. 5)

- a. Day Time (Morning 5 & Evening 10): 15 (57.7)
- b. Night Time: 11 (42.3%)
- c. Afternoon & Night Hours (E+N): 21 (80.8%)

Maximum number of cases was reported in the evening and night hours.

7. Nature of Injuries (Table no. 6)

- a. Simple: 17 (65.4%)
- b. Grievous: 7 (26.9)
- c. Both: 2 (7.8%)

The ratio between cases with simple and grievous injuries was 2.4:1.00 meaning incidence of simple injuries compared to grievous injuries was more than twice and in 7.8 percent of cases injuries were of mixed nature.

8. Number of cases with Simple Injuries (Table no. 7)

- a. One Injury: 10 (52.6%)
- b. More Than One: 9 (47.4%)

The number of cases with one and more than one simple injuries was almost equal with ratio of 1.1:1.00.

9. Parts of Body in Simple Injury Cases (Table no. 8)

- a. Upper Limb: 28 (Lt. 16, Rt. 12) (80%)
- b. Back: 4 (11.4%)
- c. Lower Limb: 2 (Lt. 1, Rt.1) (5.7%)
- d. Chest: 1 (2.9%)

In majority of cases (80 percent) simple injuries were inflicted on the upper limbs only followed by injuries on the back and lower limbs. In one case injuries were also detected on the chest.

10. Type of weapon used:

In all the 26 cases the type of weapon used was sharp or heavy sharp type. The linear abrasions were inflicted with pointed end of the sharp weapons. The incised wounds were from sharp weapons and the amputation of the parts of the body especially fingers resulting in grievous injuries were the result of the use of sharp heavy weapons.

Discussion:

Of the offences affecting the human body in relation to life and hurts, under the Indian Penal Code, 1860 (Act No.45 of 1860) Chapter XVI, different offences with penal punishments are defined. Sections 319 to 338 define hurt or grievous hurt caused to another person with simple or dangerous weapons or means with motives like to extort money, to constraint to an illegal act, to compel for restoration of property, deter public servant from his duty, on provocation or causing hurt or grievous hurt endangering life or personal safety of others. Sections 299 to 311 define offences and punishments related to killing or attempt to kill others and abetment or attempt to commit suicide or self-killing. Similarly Sections 349 to 358 define offences with criminal force and assaults on provocation or otherwise. Under these sections of law there is no mention of punishments for persons involved in self-harm by infliction of fabricated or fictitious injuries to support a false charge against others. Under Section 182 of Indian Penal Code, 1860, whoever gives to any public servant any information, which he knows to be false, intending thereby to cause, or knowing it to be likely that he will thereby cause, such public servant (a) to do or omit anything which such public servant ought not to do or omit if the true state of facts respecting which such information is given were known by him, or (b) to use the lawful power of such public servant to the injury or annoyance of any person, shall be

punished with imprisonment of either description for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both [5] This section of law can be used to punish the person causing self-harm with mechanical violence to support false charge against others but the punishment described here is only six months in contrast to the minimum punishment under Section 324 IPC with punishment of minimum of three years for causing hurt to others by dangerous weapons or means, meaning the alleged accused in fabricated injury cases if unable to prove his innocence may be subjected to punishment of three years of imprisonment. The alleged injured is involved in triple crime first harming self, attempt to level false charges of causing injuries against an innocent alleged accused or enhance gravity of crime against the accused who might not have used any dangerous weapon in the case and giving false information to the public servant punishable under Section 182 IPC thus indicating an urgent need to amend law to suitably punish the guilty involved in the crime of fabricated injuries.

It has been noticed that most of the times the cases by the investigating authorities are registered against the alleged accused on the statement of the complainant or the injured persons with fabricated injuries and on the basis of the findings of the medico legal injury_reports prepared by the medical professionals and later on the investigation is started when occurrence of the false injuries is brought to the notice of investigating authorities by the alleged accused. The doctors who are not specialists in forensic medicine prepare the medico legal reports in majority of cases and the preliminary opinions by them in the injury reports include the nature of injuries, the probable duration of injuries, the type of weapon and the medico legal investigations of the case. As the doctor is not witness to the crime, he may not be able to comment most of the times whether a particular injury is of homicidal nature or self suffered or self sustained. He may even not like to comment on it due to more than one reason although he is in a position to comment authentically from his medical and or forensic knowledge that a particular injury is of fabricated nature. In the course of natural justice, he is desired to use his medical knowledge to ascertain the facts and help the investigating authorities for some logical conclusions related to the case. There need be clear cut guidelines to register cases under 324 and 326 IPC after thorough investigation of the matter in suspected fabricated injury cases with comments of the medical professional in the injury report whether these are homicidal injuries or suspected to be otherwise. In the eyes of law, the eyewitnesses are given much

significance but they may not be acting as independent witnesses and the medical professional who has examined the injured can be more useful to the justice system as he is acting as an independent as well as expert witness commenting on the facts on scientific basis if he is a trained medico legal professional.

Most of the authors have commented that fabricated injuries are superficial injuries but the findings in the present study show the nature of injuries in nearly thirty percent cases examined to be grievous in nature in this part of the country being caused by sharp heavy weapons an indicator that the scenario in respected of pattern of fabricated injuries is different in the areas of study than other parts of the country having mention of studies on fabricated injuries. There was hearsay from the eminent persons of some localities under study that majority of the population in one or the other village especially male persons are living with amputated fingers meaning involvement in the crime at one or the other time in their life.

Presence of incised wounds, indicates an intentional act, in the United Kingdom, fatal cases are usually suicidal. The pattern of injury is of great importance in determining whether the wound is self-inflicted or not. Self-inflicted wounds show obvious deliberation and although they are occasionally inflicted in an attempt to achieve publicity, their pattern will be similar to that seen in deliberate attempts at self-destruction. [6]

Unraveling of the fact or the confession by the injured that the injuries were self-inflicted or self-suffered brings to the light following questions

1. Whether the doctor is guilty of any offence under IPC or not. In other words how does one know that medico legal examination was done by sheer ignorance and not by indulging in criminalisation deliberately?
2. Can he be prosecuted for participation in the conspiracy of an offence?
3. If the doctor suspected an injury to be self-suffered why did he not deny the examination and advised him to come through police.

When the injured confesses in the police custody that the injuries were self-suffered or self-inflicted who would rely that the doctor was unaware of the design of the conspiracy. Every medical man is entitled to draw his conclusions from the type and appearance of the injuries and by the account given for causation of an injury. Medico legal examination in these cases where neither there is police request u / s 53 of Cr.P.C., court order u / s 54 Cr.P.C. nor there is any kind of emergency necessitating immediate medical intervention, if done directly on the request of the injured, has the risk of being

blamed for working in collusion with the injured. If one has or should have a reason to be convinced about the intention of the injured to falsely implicate someone why not medico legal examination be denied without the court order or police request.

U.N. Convention Against Torture and Other Cruel, Inhumane or Degrading Treatment or Punishment" under its definition of torture, does not include physical pain or suffering in the form of fabricated injuries caused to self by application of mechanical violence to support a false charge of assault against the alleged accused or by the injured persons having been sustained minor injuries in assault cases who inflict fabricated injuries on self to enhance gravity of crime and penal punishment against the accused causing mechanical violence. In recent years 'health and human rights' is becoming a major issue of concern to medical profession throughout the globe. Diverse social and medical issues are emerging as important public health issues that need bio-ethical teaching e.g. International and domestic human rights issues, professionals' role in torture intervention, ethnic health care, minority health, gender issues in health provision etc. Health professional must be aware against the political abuse of medicine [7] and must not be instrumental, either directly or peripherally, in the perpetuation of torture and must hold their ethical obligation to resist and oppose all types of torture. An ethical physician must resist the pressure of any force to assume neutrality in the presence of human rights violation and trauma of torture affecting his patients [8] and must not involve himself in causation of injuries to persons to support a false charge against some innocent.

The Article 21 of the Constitution of India provides that "No person shall be deprived of his life and liberty except according to procedure established by law." "Right to life" in Article 21 of the Constitution of India means something more than survival or animal existence. It includes right to live with dignity and all those aspects of life, which go to make a man's life meaningful, complete, and worth living. Torture of person by self or others is degrading and in utter violation of his dignity. Thus torture adversely affects one's right to life and therefore it comes within the ambit of Article 21. Under Article 20(3) of the Constitution of India no person accused of any offence shall be compelled to be a witness against himself. [9]

Often members of medical profession come across situations during discharge of their professional duties where the laws of land are at loggerheads with medical ethics and vice-versa. During such situations the doctors face dilemmas about their duty and ultimately yield for the demands of the law

ignoring the medical ethics. The lawmakers and medical council thus place the doctors in not only embarrassing positions but also causing mental torture [10]

Recommendations:

1. The doctors dealing with medico legal injury cases should be able to differentiate between fabricated and other varieties of injuries.
2. Law should be suitable amended to punish those involved in self-harm against the spirit of the constitution.
3. Investigating authorities should registrar cases against the alleged accused persons of injuries causing grievous injuries only after thorough investigation of the case taking into consideration the medico legal opinion in detail.
4. Combined efforts can prevent self-torture.
5. Torture is a global problem and affects people worldwide. Opinion of doctors in certifying various types of torture is very significant. Meticulous examination is desirable in order to prove guilt or innocence.

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Negligence in Medical Profession A Review of Apex Court Judgment-2005

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Abstract

With increasing commercialization of health services in India cases of medical negligence are bound to increase in changed scenario. It may increase distrust between patients and doctors, which is not in the interest of society. This paper deals with review of the Apex Court judgment of 2005, so that issue of negligence can be easily understood by the medical fraternity to save themselves as well as prevent the occurrence of negligence case in future. Applicability of Bolam Test, doctrine of *res ipsa loquitur* is discussed at length.

Kew Wards: Negligence, Medical, Profession, Apex Court, Doctor, Bolam Test, Res Ipsa Loquitur.

Introduction:

In the law of negligence, professionals such as doctors, lawyers, architects and others are included in the category of persons professing some special skill or skilled persons generally. A physician would not assure the patient of full recovery in every case. A surgeon cannot and does not guarantee that the result of surgery would invariably be beneficial, much less to the extent of 100% for the person operated on. The only assurance which such a professional can give or can be understood to have given by implication is that he is possessed of the requisite skill in that branch of profession which he is practicing and while undertaking the performance of the task entrusted to him he would be exercising his skill with reasonable competence. This is all what the entire person approaching the professional can expect. He does not assure his client of the result. A lawyer does not tell his client that the client shall win the case in all circumstances.

Who are professionals?

Any reasonable man entering into a profession, which requires a particular level of learning to be called a professional of that branch, impliedly assures the person dealing with him that the skill, which he professes to possess, shall be exercised and exercised with reasonable degree of care and caution.

Standard of Judgment:

Any task, which is required to be performed with a special skill, would generally be admitted or undertaken to be performed only if the person possesses the requisite skill for performing that task. Judged by this standard, a professional may be held liable for negligence on one of **two findings**:

- Either he was **not possessed of the requisite skill which he professes to have**

possessed, or,

- He did not exercise, with reasonable competence in the given case, the skill, which he did possess.

The **standard to be applied** for judging, whether the person charged has been negligent or not, would be that of an **ordinary competent person exercising ordinary skill in that profession**. It is not necessary for every professional to possess the highest level of expertise in that branch which he practices (**Relied Para 18**). [1]

In a case [3] **CA, Sedley, L.J.** said that where a profession embraces a range of views as to what is an acceptable standard of conduct, the competence of the defendant is to be judged by the **lowest standard** that would be regarded as acceptable. [4]

What is 'Bolam Test'?

Of the quoted passage defining negligence by professionals, generally and not necessarily confined to doctors, is to be found in the opinion of **McNair J.** in a Bolam case [5] in the following words: "Where you get a situation which involves the use of some special skill or competence, then the test as to whether there has been negligence or not is not the test of the man on the top of a Clapham omnibus, because he has not got this special skill. The test is the standard of the ordinary skilled man exercising and professing to have that special skill... A man need not possess the highest expert skill; it is well established law that it is sufficient if he exercises the ordinary skill of an ordinary competent man exercising that particular art" (Para 19). [4, 1]

The water of **Bolam test** has ever since **flown and passed under several bridges**, having been **cited and dealt with in several judicial pronouncements**, one after the other and has **continued to be well received by every shore** it has

touched as **neat, clean and well-condensed one (Para 20)**. [1]

After a review of various authorities **Bingham L.J.** in his speech in a case [6] summarized the **Bolam test in the following words:**

“From these general statements it follows that a professional man should command the corpus of knowledge, which forms part of the professional equipment of the ordinary member of his profession. He should not lag behind other ordinary assiduous and intelligent members of his profession in **knowledge of new advances, discoveries and developments in his field**. He should have such **awareness** as an ordinarily competent practitioner would have of the deficiencies in his knowledge and the limitations on his skill. He should be **alert to the hazards and risks** in any professional task he undertakes to the extent that other ordinarily competent members of the profession would be alert. He must bring to any professional task he **undertakes no less expertise, skill and care** than other ordinarily competent members of his profession would bring, **but need bring no more. The standard is that of the reasonable average. The law does not require of a professional man that he be a paragon combining the qualities of polymath and prophet**” (Para 20). [4, 1]

Degree of Skill and Care Required by a Medical Practitioner:

“The practitioner must bring to his task a reasonable degree of skill and knowledge, and must exercise a reasonable degree of care, neither the very highest nor a very low degree of care and competence, judged in the light of the particular circumstances of each case, is what the law requires, and a person is not liable in negligence because someone else of greater skill and knowledge would have prescribed different treatment or operated in a different way; nor is he guilty of negligence if he has acted in accordance with a practice accepted as proper by a responsible body of medical men skilled in that particular art, even though a body of adverse opinion also existed among medical men.

Deviation from normal practice is not necessarily evidence of negligence. **To establish liability on that basis it must be shown:**

(1) That there is a usual and normal practice;
(2) That the defendant has not adopted it; and
(3) That the course in fact adopted is one no professional man of ordinary skill would have taken had he been acting with ordinary care” (Para 21). [7, 1]

Above said **three tests** have also been stated as **determinative of negligence in professional practice** by **Charles worth & Percy** in their celebrated work on **Negligence**(*ibid*, Para 8, 11,

22). [4, 1]

Mischance or ‘**misadventure**’ or an ‘**error of judgment**’ not **Negligence:**

In the opinion of **Lord Denning**, “a medical practitioner was not to be held liable simply because things went wrong from **mischance** or **misadventure** or through an **error of judgment in choosing one reasonable course of treatment in preference of another**. A medical practitioner would be liable only where his conduct fell below that of the standards of a reasonably competent practitioner in his field” (Para 23). [8, 1]

The decision of **House of Lords** in a case [9] by a **Bench consisting of five Law Lords** has been accepted as having settled the law on the point by holding that it is not enough to show that there is a body of competent professional opinion which considers that decision of the defendant professional was a wrong decision, if there also exists a body of professional opinion, **equally competent**, which supports the decision as reasonable in the circumstances. It is not enough to show that subsequent events show that the operation need never have been performed, if at the time the decision to operate was taken, it was reasonable, in the sense that a responsible body of medical opinion would have accepted it as proper. **Lord Scarman** who recorded the leading speech with which at her **four Lards** agreed quoted the following words of **Lord President (Clyde)** in another case, [10] observing that the words cannot be bettered: “In the realm of diagnosis and treatment there is ample scope for genuine difference of opinion and one man clearly is not negligent merely because his conclusion differs from that of at her professional men The true test for establishing negligence in diagnosis or treatment on the part of a doctor is whether he has been proved to be guilty of such failure as no doctor of ordinary skill would be guilty of it acting with ordinary care”.

Lord Scarman added: “a doctor who professes to exercise a special skill must exercise the ordinary skill of his specialty. Differences of opinion and practice exist, and will always exist, in the medical as in other professions. There is seldom any one answer exclusive of all others to problems of professional judgment. A court may prefer a one body of opinion to the another but that is no basis for a conclusion of negligence. His Lordship further added that a judge’s ‘**preference**’ for one body of distinguished professional opinion to another also professionally distinguished is not sufficient to establish negligence in a practitioner whose actions have received the seal of approval of those whose opinions, truthfully expressed, honestly held, were not preferred” (Para 24). [1]

Lack of Intention or *mens rea* on the part of doctor:

No sensible professional would intentionally commit an act or omission, which would result in loss or injury to the patient: as the professional reputation of the person, **is at stake**. A single failure may cast him dear in his career (Para 27). [1]

Limited Applicability of Doctrine of *Res ipsa loquitur*:

Res ipsa loquitur is a rule of evidence, which in reality **belongs to the law of torts**. Inference as to negligence may be drawn from proved circumstances by applying the rule **if the cause of the accident is unknown and no reasonable explanation as to the cause is coming forth from the defendant**. In **criminal proceedings**, the burden of proving negligence as an essential ingredient of the offence lies on to prosecution. Such ingredient cannot be said to have been proved or made out by resorting to the said rule. [11]

Incidentally, it may be noted that in another case [12] the Court has observed that there may be a case where the proved facts would themselves speak of sharing of **common intention** and while making such observation one of the learned judges constituting the Bench has in his concurring opinion merely stated "*res ipsa loquitur*". **Nowhere, it has been stated that the rule has applicability in a criminal case and an inference as to an essential ingredient of an offence can be found proved by resorting to the said rule. In our opinion, a case under Section 304A IPC cannot be decided solely by applying the rule of *res ipsa loquitur* (Para 28).** [1]

Even in **civil jurisdiction**, the rule of ***res ipsa loquitur*** is **not of universal application** and has to be **applied with extreme care and caution** to the cases of **professional negligence and in particular that of the doctors**. Else it would be **counter productive**. Simply because a patient has not favorably responded to a treatment given by a physician or a surgery has failed, the doctor cannot be held liable ***per se*** by applying the doctrine of ***res ipsa loquitur*** (Para 27). [1]

Courts' Views in favour of doctors:

A medical practitioner faced with an emergency **ordinarily tries his best to redeem the patient out of his suffering**. He **does not gain anything by acting with negligence** or by omitting to do an act. Obviously, therefore, it will be for the complainant to clearly make out a case of negligence before a medical practitioner is charged with or proceeded against criminally. A surgeon with shaky hands under fear of legal action cannot perform a successful operation and a quivering physician cannot administer the end-dose of medicine to his

patient (Para 29). [1]

Loss to Society:

"If the hands be trembling with the dangling fear of facing a criminal prosecution in the event of failure for whatever reason whether attributable to himself or not, neither a surgeon can successfully wield his life-saving scalper to perform an essential surgery, nor can a physician successfully administer the life-saving dose of medicine. Discretion being better part of valour, a medical professional would feel better advised to leave a terminal patient to his own fate in the case of emergency where the chance of success may be 10% (or so), rather than taking the risk of making a last ditch effort towards saving the subject and facing a, criminal prosecution if his effort fails. Such timidity forced upon a doctor would be a disservice to the society" (Para 30). [1]

What is the purpose of law for holding a doctor negligent?

The purpose of holding a professional liable for his act or omission, if negligent, is **to make the life safer and to eliminate the possibility of recurrence of negligence in future. Human body and medical science - both are too complex to be easily understood**. To hold in favour of existence of negligence, associated with the action or inaction of a medical professional, **requires an in-depth understanding of the working of a professional as also the nature of the job and of errors committed by chance, which do not necessarily involve the element of culpability**. [1] [Para 31]

Negligence by medical professionals calls for treatment with a difference:

The subject of negligence in the context of medical profession necessarily calls for treatment with a difference. Several relevant considerations in this regard are found mentioned in the literature. [13]

Human Attitude:

There is a **marked tendency to look for a human actor to blame for an untoward event: a tendency, which is closely linked with the desire to punish**. Things have gone wrong and, therefore, somebody must be found to answer for it. To draw a **distinction between the blameworthy and the blameless, the notion of *mens rea* has to be elaborately understood**. An empirical study would reveal that the **background to a mishap** is frequently far **more complex than may generally be assumed**. It can be demonstrated that actual blame for the outcome has to be attributed with great caution.

Need for a deeper understanding of the practical side of medicine:

For a medical accident or failure, the responsibility may lie with, the medical practitioner and equally it may not. The **inadequacies of the system**, the

specific circumstances of the case, the nature of human psychology itself and sheer chance may have combined to produce a result in which the doctor's contribution is either relatively or completely blameless.

Human body and its working is nothing less than a highly complex machine. Coupled with the complexities of medical science, the scope for misimpressions, misgivings and misplaced allegations against the operator i.e. the doctor, cannot be ruled out. One may have notions of best or ideal practice which are different from the reality of how medical practice is carried on or how in real life the doctor functions. The factors of pressing need and limited resources cannot be ruled out from consideration. Dealing with a case of medical negligence needs a deeper understanding of the practical side of medicine (Para 32). [1]

Need for careful consideration by the judiciary:

At least three weighty considerations can be pointed out which any forum trying the issue of medical negligence in any jurisdiction must keep in mind:

1. That legal and disciplinary procedure should be properly founded on firm, moral and scientific grounds;
2. That patients will be better served if the real causes of harm are properly identified and appropriately acted upon; and
3. That many incidents involve a contribution from more than one person and the tendency is to blame the last identifiable element in the chain of causation: the person holding the 'smoking gun'.

Meaning of Accident:

Accident during the course of medical or surgical treatment has a wider meaning. Ordinarily, an accident means:

1. An unintended and unforeseen injurious occurrence;
2. Something that does not occur in the usual course of events or
3. That could not be reasonably anticipated.

[14]

Care has to be taken to see that the result of an accident, which is exculpatory, may not persuade the human mind to confuse it with the consequence of negligence (Para 33). [1]

Medical Professionals in Criminal Law treated on different footings:

The criminal law has invariably placed the medical professionals on a pedestal different from ordinary mortals. [1]

Act in 'good faith', 'not intended to cause death' even 'without consent' for the 'benefit of

sufferer' not Negligence:

Section 88 IPC provides exemption for act not intended to cause death, done by consent in good faith for person's benefit.

Illustration:

'A', a surgeon, knowing that a particular operation is likely to cause the death of 'Z', who suffers under a painful complaint, but not intending to cause 'Z's death and intending in good faith, Z's benefit, performs that operation on 'Z', with 'Z's consent. 'A' has committed no offence.

Section 92 IPC provides for exemption for acts done in good faith for the benefit of a person without his consent though the acts cause harm to a person and that person has not consented to suffer such harm. [There are four exceptions listed in the Section, which is not necessary in this context to deal with.]

Illustrations:

'Z' is thrown from his horse, and is insensible. 'A', a surgeon, finds that 'Z' requires to be trepanned, 'A', not intending 'Z's death, but in good faith, for 'Z's benefit, performs the trepan before 'Z' recovers his power of judging for himself. 'A' has committed no offence.

'A', a surgeon, sees a child suffer an accident, which is likely to prove fatal unless an operation be immediately performed. There is no time to apply to the child's guardian. 'A' performs the operation in spite of the entreaties of the child, intending, in good faith, the child's benefit. 'A', has committed no offence.

Communication in 'Good Faith', not Negligence:

Section 93 IPC saves from criminality certain communications made in good faith.

Illustration:

'A', a surgeon, in good faith, communicates to a patient his opinion that he cannot live. The patient dies in consequence of the shock. 'A' has committed no offence, though he knew it to be likely that the communication might cause the patient's death (Para 34). [1, 15]

It is interesting to note what Lord Macaulay had himself to say about Indian Penal Code. We are inclined to quote a few excerpts from his speech to the extent relevant for our purpose:

"Under the provisions of our Code, this case would be very differently dealt with according to circumstances. If 'A' kills 'Z', by administering abortives to her, with the knowledge that those abortives are likely to cause her death, he is guilty of voluntary culpable homicide, which will be voluntary culpable homicide by consent, if 'Z' agreed to run

the risk, and murder if 'Z' did not so agree. If 'A' causes miscarriage to 'Z', not intending to cause 'Z's death, nor thinking it likely that he shall cause 'Z's death, but so rashly or negligently as to cause her death, 'A' is guilty of culpable homicide not voluntary, and will be liable to the punishment provided for the causing of miscarriage, increased by imprisonment for a term not exceeding two years. Lastly, if 'A' took such precautions that there was no reasonable probability that 'Z's death would be caused, and if the medicine were rendered deadly by some accident which no human sagacity could have foreseen, or by some peculiarity in 'Z's constitution such as there was no ground whatever to expect, 'A', will be liable to no punishment whatever on account of her death, but will of course be liable to the punishment provided for causing miscarriage.

It may be proper for us to offer some arguments in defense of this part of the Code. It will be admitted that when an act is in itself innocent, to punish the person who does it because bad consequences, which no human wisdom could have foreseen, have followed from it, would be in the highest degree barbarous and absurd”(p. 419) [Para 35-36]. [1, 16]

No security of human life:

“To punish as a murderer every man who, while committing a heinous offence, causes death by pure misadventure, is a course which evidently adds nothing to the security of human life. No man can so conduct himself as to make it absolutely certain that he shall not be so unfortunate as to cause the death of a fellow-creature. The utmost that he can do is to abstain from every thing, which is at all likely to, cause death. No fear of punishment can make him do more than this; and therefore, to punish a man who has done this can add nothing to the security of human life. The only good effect, which such punishment can produce, will be to deter people from committing any of those offences, which turn into murders what are in themselves mere accidents. It is in fact an addition to the punishment of those offences, and it is an addition made in the very worst way” (p. 421). [16]

“When a person engaged in the commission of an offence causes death by rashness or negligence, but without either intending to cause death, or thinking it likely that he shall cause death, we propose that he shall be liable to the punishment of the offence which he was engaged in committing, superadded to the ordinary punishment of involuntary culpable homicide” (Para 35-36). [1]

“The arguments and illustrations which we have employed for the purpose of showing that the

involuntary causing of death, without either rashness or negligence, ought, under no circumstances, to be punished at all, will, with some modifications, which will readily suggest themselves, serve to; how that the involuntary causing of death by rashness or negligence, though always punishable, ought, under no circumstances to be punished as, murder”(p. 422). [16]

The following statement of law on criminal negligence by reference to surgeons, doctors etc. and unskillful treatment is classic:

“Where a person, acting as a medical man, he be, whether licensed or unlicensed, is so negligent in his treatment of a patient that death results, it is manslaughter if the negligence was so great as to amount to a crime, and whether or not there was such a degree of negligence is- a question in each case for the jury. In explaining to juries the test which they should apply to determine whether the negligence in the particular case amounted or did not amount to a crime, judges have used many **epithets**, such as ‘**culpable**’, ‘**criminal**’, ‘**gross**’, ‘**wicked**’, ‘**clear**’, ‘**complete**’. But whatever epithet be used and whether an epithet be used or not, in order to establish criminal liability the facts must be such that, **in the opinion of the jury, the negligence of the accused went beyond a mere matter of compensation between subjects and showed such disregard for the life and safety of others as to amount to a crime against the State and conduct deserving punishment**”. [17]

“Whether he be **licensed or unlicensed**, if he **display gross ignorance, or gross inattention, or gross rashness**, in his treatment he is **criminally responsible**. Where a person who, though not educated as an accoucheur, had been in the habit of acting as a man-midwife, and had unskillfully treated a woman, who died in childbirth, was indicted for the murder, **L. Ellenborough** said that there was **no evidence of murder**, but the jury might convict of man- slaughter. “To substantiate that charge the prisoner must have been **guilty of criminal misconduct**, arising either from the **grossest ignorance** or the [most?] **Criminal inattention**. One or other of these is necessary to make him guilty of that criminal negligence and misconduct which is essential to make out a case of manslaughter” (Para 37). [1, 17]

Summary & Conclusions:

The classical statement of law in **Bolam's case** has been widely accepted as decisive of the standard of care required both of professional men generally and medical practitioners in particular. It has been invariably cited with approval before **Courts in India and applied to as touchstone to test the pleas of**

medical negligence. In tort, it is enough for the defendant to show that the standard of care and the skill attained was that of the ordinary competent medical practitioner exercising an ordinary degree of professional skill. The fact that a defendant, charged with negligence acted in accord with the general and approved practice is enough to clear him of the charge.

Two things are pertinent to be noted:

- **Firstly**, the standard of care, when assessing the practice as adapted, is judged in the light of **knowledge available at the time** (of the incident), and **not at the date of trial**.
- **Secondly**, when the charge of negligence arises out of **failure to use same particular equipment**, the **charge would fail if the equipment were not generally available at that point of time** on which it is suggested as should have been used (Para 25). [1]

A mere deviation from normal professional practice is not necessarily evidence of negligence. Let it also be noted that a **mere accident is not violence of negligence**. So also an **error of judgment** on the part of a professional is **not negligence per se**. **Higher the acuteness in emergency and higher the complication, more are the chances of error of judgment**. At times, the professional is **confronted with making a choice between the devil and the deep sea** and he has **to choose the lesser evil**. The medical professional is often called upon **to adapt a procedure which involves higher element of risk**, but which he **honestly believes as providing greater chances of success** for the patient **rather than a procedure involving lesser risk but higher chances of failure**. Which cause is **more appropriate to follow**, would **depend on the facts and circumstances of a given case**. The **usual practice** prevalent nowadays is **to obtain the consent of the patient** or of the **person in charge of the patient** if the patient is not be in a position to give consent before adopting a given procedure.

So long as it can be found that the procedure which was in fact adopted was one which was acceptable to medical science as **on that date**, the medical practitioner cannot be held negligent merely, because he chose to follow one procedure and not another and the result was a failure (Para 26). [1]

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