



VISCERA REPORT IN FATAL POISONING CASES- A RETROSPECTIVE STUDY.

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ABSTRACT

Handlers of medico legal autopsies in India came across with fatal poisoning cases very frequently. Viscera samples become most crucial clues in such cases and are subsequently preserved to ascertain the cause of death. Hence it become very important to successfully isolate the poison and recognise it before arriving at final opinion on exact cause of death. A one **retrospective** study was conducted on the viscera reports of fatal deaths due to suspected poisoning at Patna Medical College & Hospital (PMCH), Patna between September 2017 to August 2018. During the period a total of 2732 autopsies were done of which 210 (7.68%) cases were of suspected poisoning subjected to confirmation by chemical analysis of viscera by FSL. The purpose of this study is to cover **various aspects** of these viscera reports along with the suggested remedies.

KEYWORDS : Fatal poisoning, viscera preservation, Postmortem.

INTRODUCTION:

Poison is defined u/s 284 IPC as any substance or thing if taken, is likely to endanger human life or will cause hurt or injury to any person. When an autopsy surgeon conducts postmortem on a suspected case of poisoning, he routinely preserves the viscera and reserves his opinion till the receipt of **viscera report**. These documented evidences based on scientific tests are of vital importance to a criminal cases, particularly when the witnesses are increasingly showing a tendency to turn **hostile**. Especially after the high profile **Sunanda Puskar's** death case, the **Supreme Court** has made it mandatory for investigating agency to seek such scientific reports before completing the probe. Hundreds of medicolegal cases might be pending in the courts because the police either didn't send viscera for chemical analysis or viscera reports were not brought on record. Hence many death cases go cold in forgotten viscera samples leading to the murderers got off scot-free. Who knows whether these lapses are the result of inadvertence or they are calculated move to influence the verdict. Had the viscera report been on record and the case of poisoning was true, the prosecution would had been on still firmer ground. In many cases, the viscera report came **negative** or detects the poison in the quantity not sufficient to cause death. This put the autopsy surgeon in a fix as police expect him to give the cause of death so as to reach a logical ending to the probe. If he terms that death as unnatural, his opinion is frequently challenged by the accused party. It should be made very clear here that merely a **negative viscera** report didn't rule out death due to poisoning. The Society of Forensic Toxicologists (**SOFT**) in 2006 had formulated **guidelines** for practice of autopsy in case involving toxicological examination. It recommends following **specimen** and its amount to be preserved. 1) **STOMACH**-whole of it along with the content 2) **INTESTINE**- proximal 30cm along with its content 3) **LIVER**- 500g 4) **KIDNEY**- half of each kidney 5) **BLOOD** – 30ml 6) **URINE**- 30ml.

Container to store viscera should be a **glass** bottle of 1 lit capacity which is wide mouthed with a fitting lid. Rubber inserts should **not** be used as it can extract certain poisons like chloroform. Solid organ and hollow viscera are preserved in separate jar. Multiple incisions are given over solid organs to facilitate the absorption of preservatives. Upper 1/3rd of jar should be kept empty. The properly **labelled and sealed** bottles are then put in a cardboard box, which is then again sealed using personal or departmental seal.

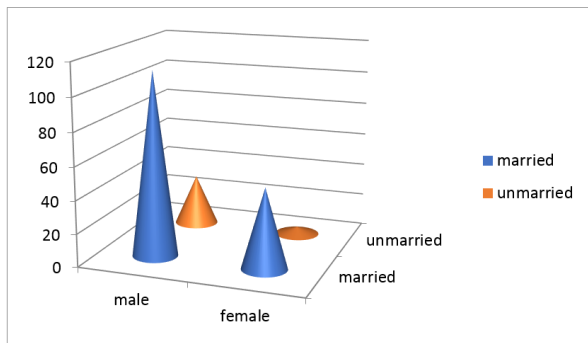
Preservatives used could be super saturated solution of

common **salt** or **rectified spirit** or sodium fluoride depending upon the poison suspected. Preservatives are not needed if the viscera is being analysed within 24 hrs. or if the sample is being kept in refrigerator or ice box. The viscera should **never** be preserved in formaldehyde and the same should be used only for histopathology purpose rather than toxicology purpose.

OBSERVATION AND RESULT:

A one year retrospective study was conducted from **September 2017 to August 2018**. During this period altogether **2732** autopsies were done in the mortuary of Dept. Of FMT, Patna Medical College and Hospital (**PMCH**), **Patna**. Out of these, **210** (7.68%) cases were reported to be of suspected poisoning. The viscera were preserved in all of the cases and the concerned Investigating Officer was directed to make immediate arrangement for the transportation of the preserved viscera to the FSL for chemical analysis, through a proper chain of custody. Even after clear instruction, only **41** (19.58%) viscera samples were carried along with the postmortem report. **34** (16.19%) of the samples were carried after one month of preservation, **27** (12.85%) were carried between 1- 6 months, **22** (10.47%) were carried between 6-12 months, **20** (9.52%) carried when one year had passed and the remaining **66** (31.42%) were not carried till date. Of the total **144** (68.57%) viscera samples carried, only **47** (22.38%) were tested positive for presence of poison while the rest **97** (46.14%) were tested negative. Majority of the samples that tested positive were either carried along with the report or within a month of its preservation highlighting the importance of immediate transportation of the samples to the FSL. Aluminium phosphide claimed **16** lives (34.04%) of total positive samples, **9** cases (19.14%) of organophosphorus poison, **6** cases (12.76%) of methanol poisoning, **5** cases (10.63%) of sedatives, and the remaining **11** cases (23.40%) were of others poisons including carbolic acid. Occupation wise, majority of cases **72** (34.28%) were labourers/**farmers**, **56** cases (26.66%) were that of **housewives**, **42** (20%) were **students**, and the remaining **40** cases (19.47%) were of other occupation. Manner of death in most of poisoning, were suicidal **134** (63.80%), mainly due to depression (32%) followed by failure in exam or business (28%). The other causes of suicide also include family dispute, inter caste love affair or break ups, etc. Among the **65** cases (30.95%) **homicidal** deaths, the leading cause were dowry deaths, honour killing, and extra marital affair with 33%, 31%, 24% respectively. **161** (76.66%) fatal poisoning cases were of married and **49** (23.33%) were of unmarried person. **Male**

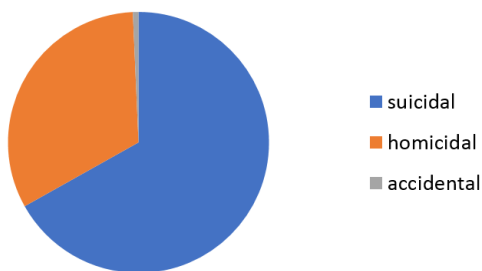
dominates with 143 cases (68.09%) over **female** with 67 cases (23.33%). Age wise distribution shows peak cases at the age group of 21-30yrs with 114 cases(54.28%) followed by 30-40yrs with 64 cases (30.47%) and 00-20yrs group with 22 cases (10.47%).



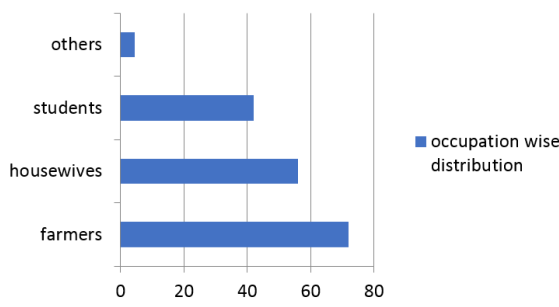
AGE GROUP	NO. OF CASES
00-20yrs	22(10.47%)
21-30yrs	114(54.28%)
31-40yrs	64(30.47%)
>40yrs	10(4.76%)

FATE OF SPECIMEN	NO. OF CASES
Carried along with PM report	41(19.52%)
Within 1 month	34(16.19%)
Between 1-6 months	27(12.85%)
Between 06-12months	22(10.47%)
After 1 yr.	20(9.52%)
Not carried till date	66(31.42%)

manner of death



occupation wise distribution



DISCUSSION AND CONCLUSION:

The preservation of viscera for toxicological examination is required in almost all cases of poisoning. Apart from this, it is also done in few cases of sudden, suspicious and unknown cause of death. In **India**, common poison used for suicidal and homicidal purpose has changed but PM analysis and sample collection has not seen much changes resulting in false negative viscera reports in even those samples which showed very clear signs of poisoning on autopsy. Although this false

negative viscera reports could be procedural based, sample based, or laboratory based but the main culprit which emerges out through this study was the delayed collection of samples for chemical analysis from mortuary to the FSL. With the use of **advance techniques** like PCR, DNA Fingerprinting, chromatography etc. the detection of toxin in small amount of body fluid become feasible but to validate the results and their authentication, **sophisticated instruments** like spectrophotometer, GC-FTIR, GC-MS, GC-HS, AAS, IC, HPLC, and HPTLC should be used.

Based on the above study, there are certain recommendations in order to reduce the number of false negative viscera reporting:1) Prescribed **time frame** for sending the sample from concerned police station/ mortuary to FSL, and for testing, and for the receipt of the report.2) Mandatory viscera report in suspected case of death by poisoning. 3) Establishment of **standard toxicology lab** and hiring expertise scientist. 4) **Training** of police and lawyers and judges for better understanding of forensic science evidences 5) Presence of medical officer at **scene of crime** should be made mandatory.

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