

## Right Approach towards Collection and Preservation of Visceral and Biological Materials, Consequences and Some Remedial Steps in Forensic Toxicology

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### Abstract

The present study highlights the proper preservation and collection of biological, visceral material and consequences of irrelevant and improper preservation of these materials especially on quality of results and finally remedial steps to overcome quality and pendency related issues of cases in toxicology section of forensic science laboratory.

**Keywords:** Forensic Science; Visceral Material.

### Introduction

The challenges faced by forensic toxicologist have increased in degree and multitude exponentially in the past few decades, due to both the higher number and frequency of the cases as well as multitude of newer chemicals being used classical poisons like pesticides, new chemicals, biotoxins and hypano tranquiliser are replacing Arsenic and cyanide. The number of chemical substances encountered in narcotic drug abuse also have increased in number and potency. Combinations of chemicals are increasingly used in homicidal cases. The criminal use of natural/biological poisons such as microbial toxins, endotoxins, lectins etc. have also been increasing. In view of existing scenario and trends of poisoning in India it is obvious that there is need to make the country competent in the field of forensic toxicology, it is mandatory to strengthen hands of crime investigation agencies to reach the right conclusion based on substantial objective and scientific data [1-6].

There is old proverb that justice delayed is justice denied. The toxicology section of Forensic science

laboratories is the major section of the laboratory almost 2/3 cases of laboratory registered in this section and the number is going steadily increasing, in the scenario of quality conscious society ISO 9001 or NABL accreditation etc. to maintain the quality of results in staff starving situation we feel that we should make some necessary positive and healthy changes in existing system in such a way that the criminals get feared to do any criminal activity and innocent remains untouched and more over enhancement of trust of public in our law enforcement agencies. In our opinion there exist a communication gap between the investigating officer, autopsy surgeons and forensic laboratory scientist about what to preserve, how to preserve and when to send for chemical analysis, to fill this gap investigating officers and autopsy surgeons should be guided properly about Do's and Don'ts.

They must be given proper guidance at the time of their training. It seems that due to increasing work load i.e. number of crime spots inspection they may not take interest and are unable to devote much time for collection of evidences or guidance at the spot on the contrary the autopsy surgeons

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are not conducting postmortem on the regular basis they are doing autopsy as a part of duty and most of time they devote in OPD therefore some of them can not cope with the present changing newer situations and sometimes they skip the targeted portion of viscera or use improper embalming fluid for preservation for example in snake bite cases skin from bite site they preserve in formaline instead of saline solution. To eradicate these factors the important step should be to bridge the gap between the investigating officer, autopsy surgeon and forensic scientist for this more and more interactions, workshop and refresher courses may be arranged at scene of crime units for the investigating officers and autopsy surgeons, where direct interaction with the forensic scientist and practical demonstration through workshop is possible after a fixed period of time to enable them to analyze ultimate fate of their work.

The present study highlights the proper preservation and collection of biological, visceral material and consequences of irrelevant and improper preservation of these materials especially on quality of results and finally remedial steps to overcome quality and pendency related issues of cases in toxicology section of forensic science laboratory.

### Remedial Steps

On the basis of work done in toxicology section of laboratory it is very difficult sometime to maintain hygiene in the section due to high work load and number of exhibits although high standards of analysis is maintained by our esteemed and talented staff but it affect the health of working staff in toxicology division, so it is high time to take some remedial steps and we request higher authorities for following these remedial steps:

1. Requesting government for appointment of fully skilled and trained full timer autopsy surgeons in every district of the country, which will conduct only postmortems and medicolegal cases.
2. Training of each and every individual (investigating officer, autopsy surgeon and forensic personnel) which is involved in solving crime.
3. These factors will improve the exhibit quality, number of cases finally which will affect the good laboratory practice and high standards of quality which will overall raise the faith and confidence of public in investigating agencies.

### Conclusions

Despite the progress and the increased sensibility and sensitivity in laboratory technology and methods, more often the whole interpretative process of results relies only on autopsy surgeon and forensic toxicologist experience. The correct approach should include the analysis of the circumstantial data, the thoroughly analysis of medical history and, most of all, the close relationship to the medical examiner. A careful and proper sampling is mandatory, because it is the only way to obtain a lot of information as to complete the "puzzle" to solve the dilemma. So it is better to sample more than less, so it is better to collect different tissue samples and body fluids so forensic toxicologists will be able to get more information, even if they are otherwise well aware that correct results are to relate to pathologist's own experience and to clinical data.

The relevance of synergy between autopsy surgeon, crime scene investigator and forensic toxicologist emerges from the final discussion and evaluation of the case under study. Some cases are clear cut for the pathologist because the cause and manner of death is straight forward from a autopsy surgeon point of view. Other cases have no problems because the explanations reside in the work of the forensic toxicologist, who finds substances, who explains everything, and the autopsy findings are negative. On the basis of this study it can be very well understand that for the forensic toxicologists it is quite challenging to interpretation and analysis, of postmortem toxicological results without proper collection and preservation of biological fluids and visceral tissues.

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