Section: FMT

Original Research Article

PROSPECTIVE AUTOPSY AUDIT IN A TEACHING HOSPITAL AT KOLKATA

Biswanath Saren[1], Anupam Baske[2]

[1]Assistant Professor, Department of Forensic Medicine and Toxicology, IPGMER & SSKM Hospital, Kolkata West Bengal India
Associate Professor, Department of Anatomy, Bankura Sammilani Medical College, Bankura, West Bengal, India

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Corresponding Author:
Dr. Anupam Baske,
Email: dranupambaske@gmail.com

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ABSTRACT

Background: To identify deficiencies in autopsy reports and evaluate their overall quality with the objective of improving autopsy reporting standards in a teaching hospital at Kolkata. **Materials and Methods:** This prospective, cross-sectional, descriptive, morgue-based study was conducted at the Department of Forensic Medicine and Toxicology, Nilratan Sircar Medical College and Hospital, Kolkata, from July 2017 to June 2018. A total of 448 autopsy reports along with associated documents were systematically analyzed. The audit was carried out following the guidelines of the Royal College of Pathologists, UK. Reports were graded for various parameters such as identification features, description of wearing apparel, description of injuries, organ examination, specimen collection, and manner of death. Statistical analysis was performed using standard tools after data entry and verification in Excel sheets. **Result:** Of the 448 autopsy reports analyzed, identification features were adequately recorded in most cases, though 43.53% reports had poor description. Description of wearing apparel was poor in 61.38% of reports, moderate in 36.83%, and good in only 1.79%. Organ examination was documented in all cases except the endocrine system, which was universally omitted. Specimens were collected in 215 cases (47.99%) as required by case history, though in some poisoning and natural death cases, viscera and tissue preservation was lacking. Description of injuries was unsatisfactory in several homicidal and firearm cases. Out of 435 assessable reports, 371 (85.29%) were satisfactory while 64 (14.71%) were unsatisfactory. **Conclusion:** While the majority of autopsy reports were satisfactory and fulfilled legal requirements, significant deficiencies were observed in the description of wearing apparel, medical interventions, and injuries, as well as in specimen collection practices. Endocrine system examination was consistently neglected. Implementation of structured reporting formats, periodic audits, and adherence to quality assurance protocols are recommended to minimize errors and enhance the reliability of autopsy reporting.

INTRODUCTION

The term ‘Autopsy’ has originated from Greek term ‘Autopsia’ which means ‘to see for oneself’. Autopsia consists of two words, 'autos' which means ‘Self’ and ‘Opsis’ which means 'Eye'.[1] Though the term autopsy is used more commonly; but necropsy is the most accurate term for the investigative dissection of a dead body.[2] Medico-legal autopsy is done in cases of sudden, suspicious and unnatural death. evidence contributory to cause of death may be found in more than one organs. Partial autopsy has no place in forensic pathologic practice. A complete autopsy is necessary to substantiate the truth of the evidence of eye- witnesses. A poor autopsy is worse than no autopsy at all, as it is more likely to lead to miscarriage of justice.[4] The findings of autopsy are recorded in short, but precisely & in detail in an organized manner in autopsy report to come to a definite conclusion about the death.

Forensic medicine is defined as the application of medical knowledge to aid in the administration of justice",[5] and the proper recording of autopsy findings with application of medical knowledge in autopsy report helps judiciary to discharge proper justice. So, it is very important to have very clear, accurate or precise logical information in an autopsy report (post mortem report). The increased complexity of autopsy will potentially increase the tendency for errors. The consequences of such errors from autopsy can be highly significant as the forensic investigation involves the criminal justice system

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which may lead to failure of or wrongful conviction.[6]

So, this is very important for all forensic pathology departments to initiate some form of quality assurance process to reduce these errors. At first glance, it seems to be a difficult process. The autopsy process is a destructive one and in most instances, the body is no longer available for examination at a later date. Interpretation can be very subjective which is similar to that encountered in the closely related field of anatomical pathology.[7]

However, while it is not possible to reduce errors completely, with proper implementation of a quality assurance system, errors of catastrophic consequence can be prevented and minor errors can be reduced to a minimum with a few simple steps."[8] Audit means post event analysis of an event to judge the reality or truthfulness of that event. We have most commonly heard about the financial audit. But it has expanded its importance to other work fields also to lay down a stone of guidance for the theme of work in future. Autopsy audit is meant for the assessment of accuracy of the already performed autopsy examinations in fulfilling the importance of postmortem examinations.

So, this autopsy audit is being tried to observe the lacunae present in the autopsy report on the dead bodies performed in a teaching hospital, so that it can play as an eye opener. The autopsy audit can be done by examining the autopsy reports along with the relevant documents required for autopsy examination.

MATERIALS AND METHODS

It was a Prospective, cross-sectional, descriptive morgue based study conducted at Morgue of NRS Medical College and Hospital, Kolkata and department of Forensic & State Medicine of N.R.S Medical College. From the 1st. July, 2017 to the 30th. June, 2018. Sample size was Four hundred and forty eight (448) samples were taken.

Autopsy reports with associated papers of different categories of cases done by different autopsy surgeons at N.R.S Medical College & Hospital Morgue considering exclusion and inclusion criteria. The following materials for this research work were collected from the office of Nilratan Sircar Medical College Morgue over a period from the 1st. July, 2017 to the 30th. June, 2018. The research work was started after attaining the clearance from institutional ethical committee of Nilratan Sircar Medical College & Hospital. The cases and materials for this research work have been taken by systemic random selection regarding different dates, different type of cases, different autopsy surgeons etc. within the above mentioned period of time. The materials have been analyzed by checking the autopsy reports in comparison to the other available papers as mentioned above and following findings are noted. This autopsy audit has been done following the guidelines set by the Royal College of Pathologists, UK.

Inclusion criteria:

Reports of all kind of autopsy cases performed at the morgue of N.R.S Medical College & Hospital.

Exclusion criteria:

All kinds of Post mortem reports were considered, nothing excluded.

Statistical Analysis; Data collected on 'AUTOPSY AUDIT REPORT FORM' during the study were tabulated on 'EXCEL SHEET', verified and analyzed using standard statistical tool.

RESULTS

Table 1: Description of the identification features Total no. (n) of cases is 448
Grading: 1-POOR; 2-MODERATE; 3-GOOD

	(1)	(2)	(3)
Description of identification features with post mortem changes [n = 448]	195	227	26

Table 2: Description of wearing apparel. Total no. (n) 0f cases is 448. Grading: 1-POOR; 2-MODERATE; 3-GOOD

	(1)	(2)	(3)
Description of wearing apparel [n = 448]	275	165	08

Table 3- Description of injuries (where appropriate) [n = 448]
Grading: 1-POOR; 2-MODERATE; 3-GOOD, NA - Not Applicable.

	(1)	(2)	(3)	(NA)
Description of injuries (where appropriate) [n = 448]	171	182	36	59

Injury caused by chemical to stomach is included here.

Table 4: Examination of organs

Systems	Yes	No
1) CNS	448	0
2) CVS	448	0
3) RS	448	0
4) GIS (Intestines, stomach, liver)	448	0
5) GUS[Genitourinary System]	448	0
6) RES [Reticuloendothelial System]	448	0

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7) ES[Endocrine System]	0	448
8) MS[Musculoskeletal System]	448	0

Table 5: Specimen collected as required by case history (usual viscera, tissue for HPE, tissue for DNA).

	Yes	No	NA
Specimen collected as required by case history n = 448	215	13	220

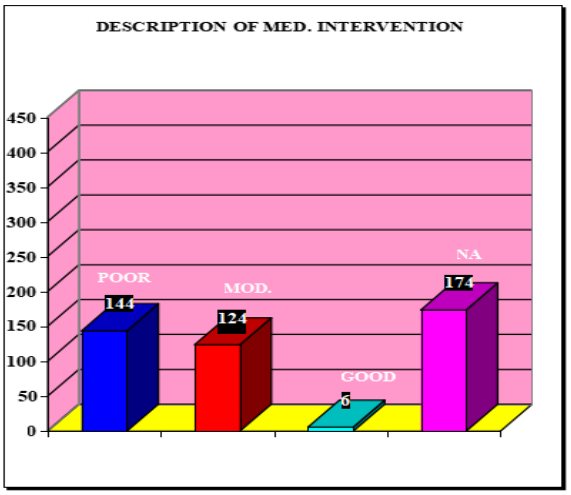

Figure 1: Description of the medical intervention (n =448)

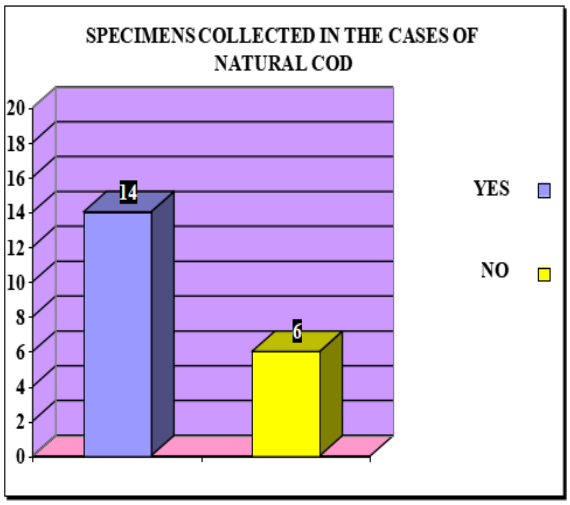

Figure 2: Specimens collected in natural COD cases (n = 20)

Table 6- Viscera Collected

Natural COD where specimens collected	Usual viscera collected	Tissue collected for HPE
n = 14	09	05

Total no. (n) of cases is 14. Specimen (usual viscera) collected – 09. Specimen collected for Histopathological Examination (HPE) – 05.

Table 7: DNA analysis
Total no.(n) of cases is 16. Yes - 05No - 11.

Tissue Taken For DNA Analysis	Yes	No
Total no. of unknown cases (n = 16)	05	11

Table 8: Total no. of homicide cases
Total no.(n) of homicidal cases is 12. Assault - 03. Stabbing - 06. Gun shot - 03.

Total no. of homicide cases	ASSAULT	STABBING	GUN SHOT
n = 12	3	6	3

Table 9: Factual Cases

Factual cases	No. Of cases
RTI	93
HANGING	49
THERMAL	55
ELECTROCUTION	8
POISONING	78
NATURAL	20
FALL	59
DROWNING	6
GUNSHOT	3
ASSAULT	3
STABBING	6
SNAKE BITE	15
RLY	49
UNCONSCIOUS	4

Table 10: Overall standard of the report

Total no. Of cases	Satisfactory	Unsatisfactory
n = 435	371	64

In 435 autopsy reports, 64 (14.71%) reports were unsatisfactory and 371(85.29%) reports were satisfactory in overall standard.

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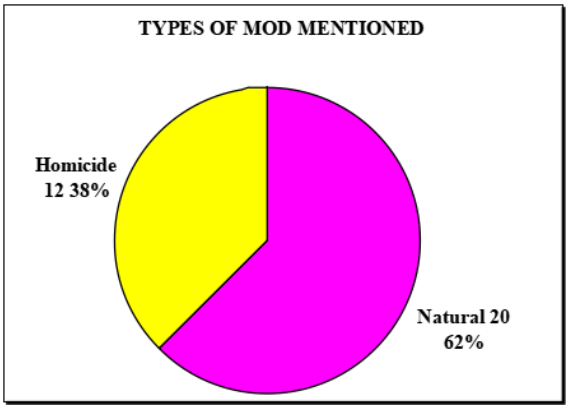

Figure 3: Types of manner of death (MOD) mentioned (n = 32)

DISCUSSION

It was observed that in the recording of preliminary data, in 1 report out of 448 reports (0.22%), case references were not correctly recorded in the report. The original case no. registered with primary police station was different in the autopsy report. This fault could lead to some confusion to relate the particular death to the original case as registered with the police station. In criminal cases, this kind of fault might favour the defence counsel in the court and in case of civil cases insurance claim may be denied. This might have occurred due to lack of attention during recording the data.

In an audit in East Anglia in 1994, in 70% cases the preliminary data were correctly recorded (30% not correctly recorded) and on a re- audit after 2 years at the same mortuary over different autopsy reports, it was 90% (10% not correctly recorded). Compared to both the audits in East Anglia, it is better at this centre in my study.[9]

Name, age and sex are correctly recorded in all the 448 reports (100%). There was no spelling disparity or a different name in the report as compared with the spelling or the name mentioned in the relevant documents supplied by police. Due care has been taken in recording the identity details. In the same audit in East Anglia, in 70% reports these data were correctly recorded (30% not correctly recorded) and on a re-audit after 2 years at the same mortuary it was 90% (10% not correctly recorded). Compared to both the audits, better reporting is observed in my study at this centre.[9]

In description of identification features with post mortem changes out of 448 cases, in 195 reports description was poor (43.53%), in 227 reports description was moderate (50.67%) and in 26 (5.80%) reports description was good.

In a report by NCEPOD in 2004, description of external examination was 'good' in 89% cases and 'poor' in 11% cases.[10] In another report by NCEPOD in 2006, description of external examination was 'good' in 98% cases and in 2% cases it was 'poor'. In the description of wearing apparel, out of 448 cases,275 were 'poor' (61.38%), 165 were 'moderate' (36.83%) and 8 (1.79%) were 'good'.[11]

In moderate description, it was observed that state of the wearing apparels or condition of the wearing apparels was not mentioned whether it was properly worn or torn, soiled or half sleeved or full sleeved. These were mainly observed in cases of 'brought dead', 'brought dead in drowning', homicidal cases etc. where condition of the wearing apparel is important in relation to the situation of death. Again in case of unknown dead bodies, tailor tag or manufacturer's tag was not mentioned; which could play an important role in identifying the decedent.

In the 215 cases it was solely autopsy surgeon's discretion to preserve the specimen as he thought on the basis of the case merit. It includes natural COD cases, thermal, snake bite, poisoning, unknown cases, death with H/O unconsciousness, death in railway injury cases, homicidal cases, drowning and hanging cases. Autopsy is a destructive procedure and bodies are either burnt or buried, so afterwards there is no scope for tissue or viscera collection.[12] In 'not applicable cases, it was autopsy surgeon's discretion not to preserve the specimens and it includes death due to RTI, Hanging, thermal, fall, railway injury, electrocution. This was usually observed with the cases where specific IPC section had not been imposed. Total no. of cases in death due to natural cause was 20. Out of 20, specimens were collected in 14 cases and in 6 cases specimens were not collected at all, though that was needed for HPE.

Among these 14 cases, in 9 cases usual viscera were preserved and in 5 cases tissue for HPE was preserved (35%). In these 14 cases, usual viscera were not required to be preserved; but only the tissue of the particular diseased organ for HPE was required. Total poisoning cases were 78. Among these 78 cases, in 76 cases usual viscera were collected for toxicological examination and in 2 cases, no viscera were preserved. Poisoning cases always have to be corroborated with the toxicological report from the toxicological chemical analyst for the identity and chemical nature of the poison. So, in these 2 cases it is very difficult to prove that COD was poisoning, since after disposal of the body, that will either be burnt where no viscera will be available or buried, where viscera will be decomposed and from decomposed viscera extraction of poison is much more difficult.

There is no disparity in any report between the observation recorded and the opinion given on cause of death. In almost all the cases, the description of the injury is not optimal. Injury description plays an important role in homicidal cases. Slight fault in describing the injury could be an advantage of defence counsel. In gunshot cases accurate location was not described and if described, that is absurd. In stab injury cases disposition of the wound was not mentioned. In 435 reports out of 448 reports lucidity of opinion is present. In the rest 13 cases it was not applicable since in this reports opinion was kept

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pending There is no ambiguity present in any report where opinion was given.

In poisoning cases, it was found either viscera was not preserved or injury to the stomach (corrosive poison) was not precisely mentioned; though in all the cases specific IPC section was imposed. In hanging cases having specific IPC section, few reports showed inappropriate injury description and in few reports 'dried stain of saliva' was mentioned on the same side of the ligature knot.[13]

In the reports on the unknown dead body, died due to lung disease, here is also tissue was not collected for HPE and DNA profiling. Furthermore age has not been determined from the ossification centres of bone. In the gun shot cases injury description, track of projectile or the direction, either was not mentioned or inappropriate. In the reports on the unknown dead bodies with railway injury, age was not determined from the ossification centres, tissue was not preserved for DNA analysis. In the reports of burn injury cases with specific IPC section, injury description was not corroborative with the time since injury production.[14]

CONCLUSION

In most of the reports, least attention is given on the description of the wearing apparel. Description of medical intervention is neglected in most of the reports. Description of the injuries is of average standard in most of the reports. All the organs are examined and weighed, except endocrine glands in all the reports. Usual viscera were preserved in most of the poisoning cases and in very few cases, it was not preserved. In all the reports, cause of death is consistent with the findings, recorded on the reports. Opinion is kept pending mostly in the cases where definite history prior to death was not available. Overall standard of the reports is mostly satisfactory since it fulfils the requirements of the courts of law.

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