

Pattern Of Autopsies Conducted At A Tertiary Care Centre Nainital

ARUN KUMAR¹ , SHIVAM DWIVEDI² , *SAHIL KHURANA^{3*}

1. Assistant Professor, Department of forensic medicine and toxicology, NIMS, Jaipur, Rajasthan.
2. Research scholar, Department of forensic science, Galgotias University, Greater Noida U.P.
- 3.* Assistant Professor, Department of forensic medicine and toxicology, Government medical college, Haldwani, Uttarakhand.

Abstract

Aim: An Autopsy (Post mortem examination, necropsy, autopsia cadeverum or section cadaveris) is a surgical procedure, used to determine time since death, manner of death and cause of death to evaluate the correlation with crime scene.

Materials and methodology: A retrospective study, duration between the January to December 2020 at the Department of Forensic Medicine & Toxicology, Susheel Tiwari hospital and government medical college, Haldwani, Nainital, Uttarakhand, India.

Results: Table1: Demographic data. Table 2: Number of male and female and non identified deceased. Table 3: Age of deceased from 0 year to more than 71 year was mentioned. Table 4: Different cause of death including pending histopathology report. Table 5: Different manner of death in total autopsy cases.

Discussion: In 537 cases, maximum number of 67 cases (12.48) recorded in July. Death of male 335 (62.38%) were noted more than female. Maximum number of cases were noted cause of death due to fall 63 (11.72%).

Conclusions: Autopsy is an important tool to determine time since death, cause of death and manner of death in all medico legal cases.

Keywords: Autopsy; Post mortem examination; time since death.

Introduction

An autopsy is a procedure that involves dissection and examination of a person's body after death. The term autopsy comes from the Greek word "autopsia" which means to see for oneself (1-3). The post mortem examination (Examination of person's body after death) and necropsy (to see after death) are commonly used as synonyms for autopsy. However "autopsy" correctly corresponds to the purpose of the process of studying and directly observing the body rather than relying on indicators of disease, such as clinical signs and symptoms (2). The Hammurabi's Code, which governed medico legal practise between 4000 and 3000 B.C., paved the way for the evolution of forensic medicine. Antistious, who

examined Julius Caesar's body in 100 B.C. and discovered twenty-three injuries, established the concept of autopsy examination. In India, firstly, Dr. Buckeley conducted a medico legal post-mortem investigation in Madras in August 1693, and Dr. Hamilton in Calcutta in 1725. (4). Commonly autopsy is preferred as medico legal autopsy in which consent from the family members is not required (5). The autopsy is performed to determine the ascertain region of cause of death, effect of prolonged diseases evidence collection and preservation to correlate the findings with death. It is required for all the medico legal cases like sudden death, death due to medical negligence, unexplained death, suspicious death etc. An autopsy includes external examination such as rigor mortis, post mortem staining, injuries etc., internal examination such as gross examination and histopathological examination (6, 7).

There are several types of autopsies are performed:

- **Medico-Legal Autopsy** – In medico legal autopsy is used to find the manner of death and cause to identify the deceased. In cases of violent, suspicious or sudden death, death without medical assistance or during surgical procedures, they are generally performed as prescribed by applicable law. (8, 9)
- **Clinical or Pathological autopsy** - Clinical or Pathological autopsies are conducted for diagnosis purpose of disease or for research work (10)
- **Academic or anatomical autopsy** - Anatomical or academic autopsies are conducted by medical students to study anatomy in medical institutions (11)
- **Virtual or medical imaging autopsy** –Virtual autopsy is conducted through imaging techniques such as Magnetic resonance imaging (MRI) and computed tomography scan (CT scan). [6] without opening body cavities by surgical procedure (12, 13)
- **Needle autopsies** – Needle autopsy is not complete autopsy and also less reliable for the medico-legal purposes having limited examination⁶¹. It is performed when deceased having serious infection or having less time for examination⁶². Histopathological examination such as biopsy is included in this study. Only soft tissues are preferred for examination. Less information and limited examination make this autopsy less suitable (14, 15)
- **Verbal autopsy** - Verbal autopsy is indirect methods to determine time of death. In this procedure trained examiners using questionnaire to collect the details about injury, disease, condition before death and demographic characteristics from the family members and others. This procedure is conducted to country where dissections of deceased are strongly restricted under religious means (16, 17).

Objectives of Medico-Legal Autopsy:

1. To establish deceased's identity
2. To determine post mortem interval.
3. To establish cause of death.
4. To determine the nature of disease and nature of injury related with cause of death.
5. Collection and preservation of trace evidences helps to reconstruct crime scene.

The objective of this paper is to observe the autopsy pattern of medico-legal cases and helps to understand the patterns of various causes of death and mode of death in our society.

Material and methods

This study is a retrospective study which was performed in Department of Forensic Medicine & Toxicology, Susheel Tiwari hospital and government medical college, Haldwani, Nainital, Uttarakhand, India. Total 537 cases, with all age group are registered for medico-legal autopsy for different cause of death. Autopsies were performed by medico legal experts of institute. Autopsy records were maintained by the mortuary supervisor with unique identification number and other details of deceased including arriving and clinical history. In autopsy, external examination and internal examination were conducted to reveal cause of death using ordinary methods like rigor mortis, livor mortis, decompositional changes etc. Viscera and other important specimens are also collected, preserved and send to lab for further toxicological as well as histopathology investigation.

Results

Total 537 deceased were mentioned in this study. Demographic data for the number of cases every month has been mentioned in **table 1**. Out of 537 deceased, 335 (62.38%) were males, 179 (33.33%) were females and 23 (4.29%) were non-identified mentioned in **table 2**. Number of cases in different age group was mentioned in **table 3**. In different cause of death, poisoning cases and multiple organ failure/septicaemia cases were maximum in number and mentioned in **table 4**. Maximum number of unknown manner of death were 210 (39.20%) mentioned in **5**.

Discussion

Total 537 medico legal cases were registered for autopsy between duration of January to December 2020 in hospital. In this study, we observed that majority of the deceased were male and 335 in number which was 62.38% of total deceased while total population of Haldwani is 156,078 according to census of 2011. It is caused due to higher male exposure on city streets and many other countries have discovered a comparable higher incidence of traffic accidents among males. We observed that most deaths were happened between the ages of 21–60 years (Table 3) where men are greater than women. This age group is most common age group which was also studied by other researchers in India as well as other countries (18-20) The one cause is that this age group is very active phase of life when people suffers from several mental, physical and social problems including searching for job and earning issues. We also observed that road traffic accident cases in numbers are more than other cases belong to traumatic brain injury caused by the vehicle collision (Table 4). Vehicle crash deaths can have a considerable economic impact when considering the maximum participation of individuals during economically productive years. Further observation included high accidental cases numbers show person's negligence and lack of awareness about the surroundings. Accidental poisoning cases of pesticides in children are more common in rural area than urban areas due to lack of attention, awareness and education. To lower the occurrence of severe RTA, preventive strategies aimed at these high-risk groups are critical.

Conclusion

Medico legal autopsy plays very important to determine identification, time of death and cause of death. It is conducted to determine the time since death as well as cause of death. The most important

characteristics of a medico-legal autopsy are that it must be thorough and accurate. In addition to determining the cause of death, the medico legal expert should be able to determine cause of death, nature of injuries, evidence collection and preservation in autopsy room.

Acknowledgement - The authors thank to staff members of record room for encouragement and support.

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Table 1: Demographic data duration Jan-Dec 2020

Month	No. of autopsy	Percentage (%)
Jan	49	9.12
Feb	41	7.64
March	40	7.44
April	25	4.66
May	43	8.00
June	44	8.20
July	67	12.48
August	51	9.50
Sept	53	9.86
Oct	41	7.63
Nov.	37	6.90
December	46	8.57
Total	537	100

Table 2: Sex of deceased

Sex of the deceased	Number of cases	Percentage (%)
Male	335	62.38
Female	179	33.33
Not identified	23	4.29
Total	537	100

Table3: Age of deceased

Age of the deceased (Year)	Number of cases	Percentage (%)
0-10	30	5.60
11-20	81	15.09
21-30	113	21.04
31-40	98	18.24
41-50	88	16.38
51-60	73	13.58

61-70	39	7.27
Above 70	15	2.80
Total	537	100

Table 4: Cause of death of deceased

Cause of death	Number of cases	Percentage
Road traffic accident	73	13.60
Murder/Assault	28	5.24
Burn	33	6.22
Poison	61	11.40
Hit by train	4	0.66
Drowning	9	1.64
Fall from height	63	11.74
Hanging	59	11.10
Snake bite	7	1.30
Assaulted by wild animal	21	3.90
Any/Multiple organ pathology/septicaemia	40	7.45
Not identified	138	25.75
Total	537	100

Table 5: Manner of death of deceased

Manner of death	Number of cases	Percentage
Natural	83	15.46
Suicidal	75	13.96
Homicidal	54	10.06
Accidental	115	21.42
Pending	210	39.10
Total	537	100