

Clinical Autopsy vs Medicolegal Autopsy

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Abstract

Post mortem examination of a dead body is carried out to gain insight into the disease process as well as for forensic application of medical knowledge. Although different specialists viz; pathologists and forensic medicine experts, carry out autopsy for these two purposes, on many occasions there may be overlap of these two fields of medicine. A comparative analysis of both these categories of autopsies, namely clinical autopsy and medico legal autopsy, is done in this article with the intention of equipping the specialists in these two fields of medicine with knowledge about the other.

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Introduction

Autopsy, literally meaning self study of a dead body, is carried out for clinical as well as medico-legal purposes. Clinical autopsy, loosely termed as pathological autopsy, is carried out to diagnose the disease which has caused the mortality when ante-mortem efforts have failed. Many a times clinical autopsy is done despite the cause of death having been established ante mortem, to study the disease process in situ, thus enriching medical knowledge. Medico-legal (ML) autopsy is performed with the aim of providing answers to questions about the identity, cause of death, time of death, circumstances of death, etc, thus helping the law enforcing agencies to solve the crime. Although the procedure of both the autopsies is same, they differ from each other in many aspects. Usually the clinical autopsy is performed by the pathologist and ML autopsy by a forensic expert. However on occasions, especially in Armed Forces Medical Services (AFMS) setup, the pathologist may have to perform a ML autopsy. On the other hand an autopsy started as ML autopsy by a forensic expert may turn out to be a purely clinical autopsy, e.g. cases of sudden death.

This article aims not only at creating awareness amongst medical officers of AFMS, especially pathologists and hospital administrators, about certain essential aspects of ML autopsy but also compares and highlights the differences, both administrative and technical, between the clinical autopsy and medico-legal autopsy.

Clinical Autopsy:

Aims and Objectives:

1. To establish the nature of the disease which has caused death, when ante-mortem efforts have failed.
2. To study pathology of the disease which has caused death, even when the diagnosis has been established before death.

Documentary pre-requisites:

1. Detailed clinical record (medical case sheet) of present and past illness.
2. Requisition from the concerned clinician mentioning specific dilemmas/doubts, so that better clinico-pathological correlation can be achieved.
3. Consent from the next of kin or near relative, mentioning the extent of autopsy and collection of material for any investigation. The present practice in Armed Forces of collecting material for investigations under the consent for autopsy is not legally tenable. The consent so obtained is provided to the prosecutor by the hospital administrator along with the letter ordering autopsy.
4. Official letter from the commanding officer of the military hospital to the prosecutor asking him to carry out the autopsy. The commanding officer is empowered to order a clinical autopsy [1]. It is mandatory that the order has to be in writing to avoid future legal complications for the prosecutor. The hospital administrative authority should ensure that the death is not medico-legal before ordering the clinical autopsy.

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Physical facilities

A well equipped autopsy room with efficient cold storage facility is the basic infrastructure required. The autopsy room should have good natural lighting, exhaust ventilation, fly proofing, running water supply, good drainage and an autopsy table with central drainage. Natural light is best as appreciation of different hues of colours is better. Hence as a rule, autopsy is not to be carried out at night under artificial lighting. However, some state governments (eg. Maharashtra) have permitted autopsy at night provided the lighting is near natural.

Prosector

Clinical autopsy is performed by a qualified pathologist holding at least a post graduate diploma. A medical graduate is not considered qualified to carry out a clinical autopsy. Although in AFMS, surgeons carry out clinical autopsies in the absence of a pathologist, it is not a correct practice as many gross findings are missed while performing the autopsy.

Procedure

After having studied the clinical records provided, a complete/partial/needle autopsy is carried out as per the consent given by the next of kin. Both external and internal examinations are carried out systematically, noting all the abnormalities as well as relevant negative findings. Throughout the autopsy, the findings which can account for the clinical signs and symptoms recorded by the clinician are specifically looked for so that complete clinico-pathological correlation is achieved. Meticulous recording of all abnormalities present will also help in detection of any other disease which may be present in addition to the cause of death. At the end of the autopsy, the cause of death as decided by gross examination of organs and tissues is intimated to the clinician, thus facilitating early completion of fatal documents. The same is subsequently confirmed by histopathological/microbiological examination of preserved tissues.

In a clinical autopsy the internal examination provides more information than the external examination. Hence the former is more meticulously done. In addition the relevant organs and tissues are always preserved for histopathological/microbiological examination as a routine. Thus the pathologist tends to rely more upon the gross and microscopic examination of internal organs and tissues to decide the cause of death, giving less importance to external examination.

Medico Legal Autopsy

Medico-legal autopsy is performed, as part of the inquest procedure, when ordered by the investigating

authority in ML deaths. The inquesting authority is usually civil (Police/Magistrate) but military inquest is carried out in areas where civil administrative set up is not available to carry out inquest (2). Under section 174, Cr PC the inquesting authority can order any registered medical practitioner or medical graduate to carry out ML autopsy. However a doctor employed in state govt health services from the primary health centre level to Forensic dept of a govt medical college is approached. Other govt medical officers like those employed by railways, defence services, municipal health services etc are usually not asked to carry out ML autopsy. But in places where a civil govt medical officer is not available the inquesting officer can ask the commanding officer of a military hospital to get the ML autopsy done by a military medical officer. Having considered the request, the commanding officer of a military hospital can order a military medical officer under him, usually the pathologist, to carry out the ML autopsy and give the post mortem report to the inquesting (police) authority [1,2]. The usual conception that a military medical officer (pathologist) is not supposed to carry out ML autopsy is wrong. The commanding officer of a military hospital is empowered to order a clinical as well as ML autopsy under paragraph 58 of RMSAF.

In situations where a military inquest is being carried out, the board of military officers will ask the service medical officer to carry out the autopsy.

A medico legal death is one which is not natural or doubtful. As a dictum, all unattended, undiagnosed, unidentified and un-natural deaths are considered as medico legal and the police are to be informed by the medical officer under section 39 of Cr PC. Since any death in the operation theatre, labour room, during post operative period during / following invasive procedure, and can give rise to doubts in the minds of relatives and public, all such deaths are to be considered as medico legal [3].

Aims and Objectives of Medico-Legal Autopsy:

1. To determine exact cause and manner of death,
2. To establish identity of the deceased,
3. To determine time since death,
4. To collect trace evidence,
5. Reconstruction of the crime scene

The medical officer carrying out the post mortem is solely responsible for establishing the exact cause of death. He plays a supportive but not less important role by collecting all possible information in fulfilling the remaining objectives, as the investigating officer (IO) is primarily responsible to answer those questions.

Documentary Pre-requisites

Before starting a medico-legal autopsy the medical officer must be in possession of the following documents:

1. A letter from the IO asking the medical officer to carry out the ML autopsy and authorising him to collect any material from the body for further investigations, if necessary. Although the wordings of the letter may be in the form of a request, it is an order. The concerned medical officer can be punished under law if he refuses to carry out the autopsy.
2. A copy of the "Panchanama" carried out by the IO at the site of death. This document pictures the scene of death for the prosector. Thus it can be considered equivalent to the clinical case sheet provided to the pathologist performing a clinical autopsy.
3. Dead Body Challan: Is a set of questions to be answered by the investigating officer pertaining to the death under investigation (4). This document provides background information to the prosector. A police constable accompanies the dead body along with these documents.
4. If the commanding officer of the military hospital is ordering the ML autopsy, a letter to that effect will be issued to the prosector accompanied by the above documents.
5. The clinical case sheet declaring the person dead initiated by the casualty medical officer/ward medical officer should be one of the accompaniments. Ideally, the IO while proceeding to the site of ML death should take the medical officer with him. This enables the medical officer to make his own observations at the scene of death. This will be of great help to him while conducting the autopsy, especially in recreating the scene of events. The "Panchanama" may be deficient in many aspects.

Physical facilities:

The same infrastructural facilities required for clinical autopsy are required for ML autopsy. In addition, facility for storing a large number of dead bodies (e.g. walk-in cool room) is required as multiple deaths are quite frequent in disasters and unidentified and unclaimed dead bodies accumulate.

Often ML postmortem has to be conducted in places where none or minimal facilities are available. On-site autopsies are common after exhumation for grossly decomposed dead bodies. Shifting such dead bodies to a mortuary is not only impractical but may be impossible. The prosector can not refuse carrying out a ML autopsy

for want of proper infrastructural facilities.

Provision of natural lighting and exhaust ventilation is essential for autopsy room of a Forensic Medicine department. Missing small finger tip contusions in cases of throttling and sexual assault due to poor lighting will lead to wrong diagnosis of cause of death or negative autopsy with disastrous consequences. Good exhaust ventilation will ensure that foul smelling gases from decomposing bodies do not accumulate in the autopsy room.

Prosector

Unlike clinical autopsy, minimum qualification sufficient to carry out ML autopsy is graduation in medicine. According to MCI curriculum, a MBBS student is supposed to witness ML autopsies during IInd MBBS so as to be capable of observing and interpreting ML autopsy findings. As an intern he is supposed to acquire skill of performing ML autopsy. Hence any medical graduate is presumed to be capable of carrying-out ML autopsy [5].

Autopsy Procedure

The autopsy procedure is essentially the same as for clinical autopsy. All medico-legal autopsies are complete autopsies. Hence a thorough external and internal examination of all organs is carried out in all cases. Exceptions are the vertebral column and spinal cord. Since their examination is cumbersome and time consuming, it is resorted to only when necessary, like in head injury, hanging, vertebral column injury, etc. On most occasions the cause of death is established by a thorough gross external and internal examination on the autopsy table itself. Hence the forensic expert rarely resorts to histo-pathological examination to establish cause of death. However he resorts to toxicological examination, by the State Forensic Science Laboratory, for qualitative and quantitative estimation of poisons in the body tissues. In such cases, opinion as to the cause of death is reserved till the results of post-mortem laboratory investigations are available for correlation and interpretation. Thus the prosector is dependant on other agencies on many occasions for giving opinion about the cause of death.

As soon as the autopsy is over, the cause of death is intimated to the investigating officer in a sealed envelope through the police constable who had come along with the body. If opinion has been reserved, the same is conveyed with reasons for doing so. On receipt of the note from the prosector, the investigating officer hands over the body to the relatives with permission for cremation stating that the body is not required for further investigations.

Procedure for Preservation and Forwarding of Viscera for Chemical Analysis:

Viscera and body fluids collected during post mortem examination for chemical analysis are sent to the concerned Forensic Science Laboratory (FSL) through the IO. Legally, the IO is the owner and the prosecutor is only the custodian of viscera collected. On conclusion of the autopsy the IO is intimated that viscera have been preserved for chemical analysis. If the IO feels that chemical analysis is likely to help in investigation, he arranges for forwarding the same to FSL. He is at liberty not to get the investigation done. The prosecutor is supposed to preserve the viscera till IO collects it or authorizes the prosecutor to destroy the material. If the prosecutor destroys the viscera without permission of IO, he is likely to be charged and punished under IPC section 201 for causing loss of evidence.

Since the prosecutor is the legal custodian of the material collected during autopsy, he will be held responsible if it is tampered with by anybody. Hence he should keep the sealed bottles containing the material under his personal custody.

The viscera are preserved in wide mouthed glass bottles of 1 to 1.5 ltr capacity having a screw cap lid. Containers made up of synthetic material like polyurethane, plastic etc are not to be used as the material is likely to react with the viscera preserved and alter their chemical composition. Saturated salt solution is the common preservative used to prevent putrefaction except in cases of corrosive mineral acid (H_2SO_4 , HCl, HNO_3) poisonings. Rectified spirit (not denatured spirit) is ideal preservative which can be used in all cases, except ethyl/methyl alcohol poisoning. Sodium fluoride is used as preservative for blood along with potassium oxalate as anticoagulant. 30 mg of potassium oxalate and 10 mg of sodium fluoride are required for 10 ml blood. For viscera the preservative solution is added in equal volume. As a rule 1/3 volume of the container is to be occupied by viscera, 1/3 by the preservative and 1/3 to be empty as room for any gases evolving. This also prevents spillage of the contents during transportation and thus avoids spoiling of the label on the bottle. The viscera should be fully immersed in the preservative. Large pieces should be partly sliced to ensure entry of the preservative to the inner portions.

Usually, whole of stomach, after having opened (along the greater curvature) and examined, and its contents; 6"- 8" (one loop) of small intestine tied at both ends with contents inside, are put into one bottle. This represents the unabsorbed, still in the gut, portion of the poison.

500 gm of liver along with intact gall bladder, one half

of each kidney, de-capsulated, and half of spleen are put into the second bottle. This represents the absorbed portion of poison. 50 ml of blood is preserved in a third small mouthed screw capped bottle. A small penicillin vial containing control sample of preservative used is also to be sent along with.

These bottles, sealed with a legible specific seal of the prosecutor and labeled legibly, are handed over to the authorised police constable, packed in the wooden viscera box. The receipt obtained from the constable to that effect is to be preserved as proof of chain of custody of evidence.

A sample of requisition form to be submitted to FSL along with preserved viscera is as in Fig. 1. It is to be noted that on the first page of the form, specimen of label and seal used on the bottles is to be provided. These will be tallied with the label and seal on the bottles while receiving the bottles at FSL. Any discrepancy, including illegibility, will result in non acceptance of the samples as tampering will be suspected.

Results of the chemical analysis will be conveyed to the IO as well as to the prosecutor by the chemical analyser. Since the FSLs are very few in number, one per state, considerable delay occurs in receipt of the report. On receipt of the report the results are evaluated in the light of autopsy findings by the prosecutor and the final cause of death is conveyed to the IO.

Conclusion:

The foregoing details about the clinical and ML autopsies bring out the following differences between the two:-

1. The criteria which decide whether, under the given circumstances, a clinical autopsy is to be conducted or a ML autopsy, are clear. But still on many occasions doubts may arise, e.g. an in-patient, admitted for a disease, in a hospital dies after a fall from the bed which had resulted in head injury. Only an autopsy can reveal the cause of death. In such cases, the death is declared medico legal and ML autopsy carried out. If head injury is ruled out as cause of death, it is better that the forensic expert calls in the pathologist and hands over the autopsy to him as he is the better person to carry out a clinical autopsy. The opposite too may happen. During a clinical autopsy, if the prosecutor (pathologist) gets some evidence/doubt of foul play e.g. fracture of laryngeal cartilages, he should call in the forensic expert, as he is the better person to face the cross examination in the court room. Thus both the forensic expert and the pathologist need to have reasonable knowledge of post mortem findings in natural and

Form in which to report post-mortem Examination to be used when forwarding viscera to the chemical analyzer-

From-
The

To-
THE CHEMICAL ANALYSER TO GOVERNMENT
OF MAHARASHTRA, BOMBAY

Dated _____ 200

Description of Viscera forwarded for Examination-

Mode of packing Copy of label attached to

Box No.	Bottle No	Bottle-
		Impression of seal

Weight of parcel _____

Mode of dispatch Date of dispatch _____

Date of receipt
In Chemical
Analyser's office

Information furnished by police or précis of case -

Name	Sex	Age	Caste
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Thana or Village _____

History of case _____ **Page 1**

Date and hour of dispatch of body	Date and hour of autopsy	Name of Officer by whom examination was actually made
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Date of receipt _____

Appearance of body- Muscularity	Stout	Emaciated
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Special marks- Scars	Tattooing	Amount of hairs, etc.
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Sign of decomposition-

Wounds and bruises		
a) Position	b) Character	c) Size

State of natural orifices-

Nostrils	Mouth	Vagina
Anus	Urethra	

State of limbs-

Rigor mortis	Position	Relaxed
Contents in fist, if clenched		feature
		Contracted

Eyelids	Pupils	Contents of mouth
Position of tongue	State of teeth	

Thorax

Ribs	Cartilages	Picura	Pericardium
Heart	Shape and appearance Cavity Clots ante or post-mortem Muscular structure		

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Vessels	Clots Aneurism Atheroma etc
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Lungs	Appearance Colour Consistence Adhesions Larynx, trachea and bronchi for foreign bodies or diseases
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Abdomen

Peritoneum
Peritoneal Cavity, contents
Liver and gal bladder- form and size, disease or injury

Pancreas disease or injury
Spleen disease or injury
Kidneys disease or injury

Stomach	Size and general appearance Appearance of coats Contents, appearance, odour and quantity
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Intestine	Size and general appearance Appearance of coats
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Genito- urinary system
Bladder and contents
Uterus appearance, size and contents
Vagina, contents

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Head-

Scalp

Bones, disease or injury

Membrane

Brain substances and ventricles

Base of skull fractures, carries, extravasation, etc.

The spinal canal need not be examined unless any indication of disease or injury exists.

Fractures and dislocation-

More detailed description of disease

Station: _____

Date: _____

Civil surgeon or Medical Officer in charge

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Figs. 1 - 4 Page form for post mortem examination while forwarding viscera for chemical analysis

un-natural deaths.

2. The aims of ML autopsy are multiple, unlike clinical autopsy. Hence a ML autopsy needs to be done more meticulously, the findings analysed more critically and opinion drafted carefully.
3. As regards documentary pre-requisites, the question of consent from relatives/next of kin does not arise for a ML autopsy. They have no say as the dead body is the property of the state under such circumstances.
4. The forensic expert carrying out ML autopsy is handicapped majority of the times by the absence/lack of adequate background information due to improperly conducted panchanama. In addition the facts provided in the panchanama may be intentionally distorted ones misleading him. This necessitates a thorough complete autopsy with an open mind and makes correlation of autopsy findings and background information difficult. On the other hand the job of the pathologist carrying out clinical autopsy is made easier by availability of detailed, reliable background information, in the form of clinical case sheet, provided by a highly trained professional (clinician).
5. A thorough external examination of the body and examination of clothing is the key to achieving the aims of ML autopsy - especially in cases like asphyxial deaths, sexual assaults, etc. These findings are lost once the body is disposed off. On the other hand the pathologist can fall back upon the histopathology slides of a clinical autopsy and review his diagnosis any time.
6. The complete dead body is available to the

pathologist for a clinical autopsy. On the other hand ML autopsy is many a times to be carried out on grossly decomposed bodies or mutilated body remnants. Even a completely skeletonized body or only some bones may be provided for post-mortem examination by IO.

7. The opinion expressed following a clinical autopsy is at most subjected to peer review. However the findings and opinion after a ML autopsy has to withstand the acid test of cross examination by the defence lawyer in the court, in the light of circumstantial evidence available.

Despite all that has been said above, clinical autopsy is no less important as it has contributed immensely to enrichment of medical knowledge since time immemorial. Thorough and in depth medical knowledge is the back bone of forensic medicine. Thus both clinical and forensic autopsies have a complimentary role towards each other.

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