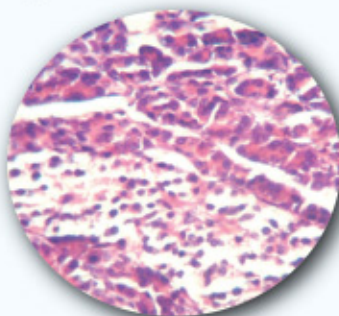




# **Practical Aspects of FORENSIC MEDICINE**

**A Manual for Undergraduates and General Practitioners**



**RK Gorea • TD Dogra • AD Aggarwal**

**JAYPEE**

# Contents

<b>1. Legal Aspects of General Medical Practice .....</b>	<b>1</b>
<b>2. Protocol for Medicolegal Cases .....</b>	<b>8</b>
<b>3. Guidelines for Preparing the Medicolegal Examination Report of the Living .....</b>	<b>17</b>
a. Sample reports .....	25
<b>4. Guidelines and Procedure for Postmortem Examination .....</b>	<b>51</b>
a. Sample reports .....	83
<b>5. Specimens .....</b>	<b>145</b>
a. Weapons .....	145
b. Forensic Radiology .....	152
c. Poisons/Toxicology .....	162
d. Slides/Pathology .....	176
e. Soft tissues/Museum specimens .....	181
f. Bones/Osteology .....	193
g. Instruments/Equipments .....	197
<b>6. Forensic Science Laboratory: A Setup .....</b>	<b>210</b>
<b>7. Forensic Science Laboratory: Practice and Procedures .....</b>	<b>218</b>
a. Blood and blood stains .....	218
b. Other body fluids .....	234
i. Semen and seminal stains	
ii. Vaginal fluid and stains of vaginal secretions	
iii. Saliva and stains of saliva	
iv. Vomit	
v. Urine stains	
vi. Fecal matter and fecal stains	
c. Hair and fiber .....	246
d. Diatoms .....	259
<b>8. DNA Profiling: Vital Evidence in Medicolegal Cases .....</b>	<b>261</b>
<b>9. Different Acts in Connection with Medical Profession .....</b>	<b>268</b>
<b>10. Court Evidence .....</b>	<b>291</b>
<i>Index .....</i>	<b>293</b>

# Guidelines and Procedure for Postmortem Examination

Postmortem examination is very sacred and important procedure as it gives the justice to the dead person only if performed correctly with honesty and integrity.

## Why Postmortem should be Conducted

Postmortem examination is carried out to determine the:

1. Identity of the dead body.
2. Cause of death.
3. Time since death or postmortem interval.
4. Time between injuries and death.
5. Antemortem or postmortem nature of injuries.
6. Type of weapon of offence.
7. Manner of death, natural or unnatural (suicidal, accidental or homicidal).
8. Find out or rule out poisoning.
9. Any concomitant disease present.
10. Trace evidences available, and their proper collection and preservation.
11. Intrauterine age of the fetus, in pregnant females.
12. Still-birth or Dead-birth or Live-birth and viability in case of newborn.
13. In cases of sexual assault, examine the private parts in detail, and collect and preserve required samples.
14. In the cases of skeletal remains, to determine whether human or animal, the probable cause of death and time since the death.
15. Answers to the queries of investigating officer, in view of the evidences present.

## Who can Conduct Postmortem Examination and Where can it be Carried out

Only authorized doctors can perform postmortem examination. Government has authorized Forensic Medicine departments in government medical colleges and civil surgeons in the other govt. Hospitals. Incharge of Forensic Medicine departments or the civil surgeons further authorize the doctors working under them to conduct the postmortem examination. Forensic medicine departments of some private medical colleges have also been authorized to do the postmortem examinations.

Postmortem examination is conducted in the mortuaries attached to the hospital. However, in situations like exhumations, it can be conducted at the burial ground.

### **Transfer of Dead Body to Mortuary**

The dead body requiring medicolegal postmortem examination should be accepted in the mortuary only if brought by a police official. The dead bodies are, usually brought after inquest. Entries of the name and number of the police official handing over the dead body, date and time of the receipt of the dead body and the police papers are made in the specified register. Any valuables present on the dead body are mentioned specifically to avoid complications later on.

In case of deaths in hospital, the bodies may be transferred to the mortuaries, to be handed over to the police for inquest. Enter the date and time of the receipt of the dead body in the mortuary register and when it was handed over to the police for inquest.

### **Police Papers**

The autopsy must be done only after obtaining requisition to conduct PM examination from police or magistrate. These include inquest report with the available history of the case and circumstance under which the body was recovered. It should also contain the opinion of police officer regarding injuries, cause of death and indication of suspected foul play, if any. In case any injury is not recorded in police papers, it may be pointed out to the investigating officer and got it entered. Investigating police officer will give –

1. Request/authorization letter along with
2. Inquest report including
  - a. Statements of witnesses,
  - b. Copy of DDR or FIR,
  - c. Proforma 25(35) duly filled.
    - i. A for natural deaths
    - ii. B for unnatural deaths
    - iii. C for poisoning cases (along with form B)

If the inquest is conducted by a magistrate, as in cases of custodial deaths, exhumation, police firing deaths, etc. then all the formalities are done by him.

### **Precautions while doing Postmortem Examination**

1. No unauthorized person should be present in the mortuary at the time of postmortem examination. Investigating police officer may remain present inside the mortuary when postmortem examination is being conducted. Except him no person other than hospital employee posted in the mortuary should be there.
2. When videography is required during the postmortem examination and facility of the same is not present with the hospital administration, then the police photographer or photographer brought by the police may remain present.

3. Before starting postmortem examination, care should be taken that all items required during postmortem examination are available so that no delay is caused due to lack of any one of these items.
4. All the precautions should be exercised to prevent the spread of infections. Wearing of gloves, masks, caps, protective eye shields, shoe covers and autopsy suits should be encouraged. Disposable material is preferred for such use. Ideally, postmortem examination rooms should be as clean as operation theaters so that persons working there do not acquire infections.
5. Postmortem examination is started with studying the police papers and hospital case file provided by the investigating police officer and checking the entries made in the registers. In the very beginning, identity of the dead body is established by calling the accompanying police official and two identifiers, who see the dead body and identify the dead body in front of the doctor. They sign or put their thumb impression at the column of identifiers in the postmortem proforma.
6. In case of unidentified dead bodies police official must take the photograph and is better if attested by the doctor. All the identifying features should be noted, e.g. scar marks, birthmarks, tattoo marks and any acquired abnormality. Recording of dental status will be helpful. Religion specific identification features like circumcision, religious threads, long scalp hair and beard should not be missed. Fingerprints if not already taken by the police official should be taken by the doctor. In case of any difficulty in taking fingerprints, bulbs of fingers and thumbs can be taken and sent to the finger print bureau.
7. In case of decomposed, mutilated or fragmented bodies showing putrefactive changes of varying degree depending upon the time passed since death, specially look for the information like source, whether human or animal, belong to the same individual, age, sex, stature, race, identity, special features, cause of death and time since death.
8. There should be no delay in conducting the autopsy. It is normally conducted during the day light but can be conducted at any time with the special orders of the deputy commissioner if proper lighting system is available in the mortuary.
9. Radiological examination may be carried out before starting autopsy in case of firearm injuries, if felt necessary.
10. Postmortem examination is conducted keeping in view the jurisdiction but with magistrate orders, this may be exempted.
11. Female doctors are not exempted from doing autopsy even during pregnancy.
12. Autopsy is conducted by a board of doctors in case of dowry deaths, custodial deaths, operation table deaths and other special circumstances.

### Steps for Conducting Postmortem Examination

The report of the postmortem examination is prepared on standard proforma, which is usually different from state to state, but mainly it consists of:

1. Preliminary part
2. External appearance

3. Thorax
4. Abdomen
5. Cranium, Neck and spinal cord
6. Muscles bone and joints
7. Reconstruction
8. Remarks or inferences
9. Things handed over to police
10. Pictorial diagram

## 1. Preliminary part

Start the postmortem report with its unique number along with date. Next mention the name, father's/husband's name, age, sex, and address including district. Mention the date and time of receipt of dead body and police papers for postmortem examination. Name of the police persons along with their numbers, designation and police station accompanying the dead body is noted. Name and address of two persons who identify the dead body is recorded. The place from where the dead body is brought is also mentioned.

Date and time of information of death to the police; or time of death, if hospital death, should be mentioned. Time and date of commencement of postmortem examination is written. Postmortem examination starts right from the time when doctor starts reading the police papers. The time of appearance of signs and symptoms of poison or disease is mentioned as per hospital record. Time of dispatch of material to the chemical examiner is mentioned in cases of suspected poisoning.

Important sign and symptoms of poisoning or disease are noted as in the available hospital record. Information furnished by police about the cause of death is also mentioned. All these facts are mentioned, as in the police papers (page 1 of form 25(35) A) and the hospital record, if any. In case of any discrepancy, it should be clarified from the police officer and the relatives. This helps the doctor to review the case before going for court evidence.

## 2. External appearance

- Length of body: It should be actually measured from head to the toe and written. This part is most often ignored. Usually neither the police officer nor the doctor measures the dead body and it remains a purely guess work which may create many problems later, particularly in unidentified bodies.
- Condition of subject, stout, emaciated, decomposed, etc. clothing: Here, general condition of the dead body is described. Everything which is relevant with the case and which does not fit in any other column can be noted here. Built of the body and condition of nourishment is described. Nourishment should not be described in decomposed bodies.

Clothing should be described in detail. All the clothes, any stains, cuts, tears, burns are mentioned. In case of firearm injuries, close distance phenomenon like singeing, burning, blackening and tattooing is mentioned along with directions of fibers. If clothes are showing some positive evidence, they must be preserved well. Clothes must be dried in





**Fig. 4.1:** Grease marks on the body



**Fig. 4.2:** Clothes and belongings of deceased

shade, labeled, packed, sealed and handed over to the police after completion of the post-mortem.

Bleeding from any body orifices is also mentioned here. Features by which we determine the postmortem interval is mentioned here, e.g.

- i. Temperature of the body.
- ii. Presence or absence of postmortem staining, its distribution on body, whether in patches or otherwise and whether fixed or not is noted along with its color. It should not be confused with bruises. Post-mortem staining over posterior surface of heart or lungs must not be mistaken for myocardial infarction changes or pneumonia, respectively.



**Fig. 4.3:** Froth in drowning

- iii. Absence or presence of rigor mortis along with its distribution on the various parts of the body is checked by moving the parts or joints, and described.
- iv. Describe features of decomposition like presence of greenish patch or discoloration on various body parts, marbling, foul smell, bloating, intact or ruptured blisters, denuded cuticle, loosening of hair, nails and teeth, presence of ova, larvae (maggots) and pupa of flies, colliquative putrefaction, and denuded bones. Any other feature helping in determining the postmortem interval is also described. Congestion of organs in early state of decomposition should not be described because all the internal tissues are discolored reddish-brown.



**Fig. 4.4:** Checking the back for any injuries





**Fig. 4.5:** Postmortem staining



**Fig. 4.6:** Checking for fixing of postmortem staining



**Fig. 4.7:** Rigor mortis in eyelids and mouth



**Fig. 4.8:** Rigor mortis in neck



**Fig. 4.9:** Rigor mortis in elbow and wrist



**Fig. 4.10:** Rigor mortis in wrist and fingers



**Fig. 4.11:** Rigor mortis in knee



**Fig. 4.12:** Rigor mortis in ankle and toes



**Fig. 4.13:** Postmortem blisters and skin slippage



**Fig. 4.14:** Bloating and swelling



**Fig. 4.15:** Fly eggs



**Fig. 4.16:** Bloating and maggots





**Fig. 4.17:** Liquefaction of brain



**Fig. 4.18:** Skeletonisation



**Fig. 4.19:** Mummification

# Practical Aspects of FORENSIC MEDICINE

A Manual for Undergraduates and General Practitioners

**RK Gorea** did his graduation from DMC, Ludhiana, and postgraduation from Government Medical College, Amritsar, Punjab, India. He did DNB and, later on, completed his PhD from Punjabi University, Patiala, Punjab (India). He has the distinction of being the member of Royal College of Physicians (London) in the faculty of Forensic and Legal Medicine. He has a teaching experience of 25 years to undergraduate and postgraduate students. Presently, he is working as Professor and Head, Forensic Medicine and Toxicology, Gian Sagar Medical College, Patiala, Punjab (India) and has also the experience of working in four other medical colleges; both in private and government sectors. He is in the guest faculty of Punjabi University, Patiala, Punjab (India) and University of Colorado, USA. He served the various scientific Academies. He is the founder President of Punjab Academy of Forensic Medicine and Toxicology. He served the Indian Academy of Forensic Medicine as President and served as Vice President to Indian Congress of Forensic Medicine and Toxicology and Indian Society of Toxicology. Currently, he is President of Indo-Pacific Academy of Forensic Odontology and Indo-Pacific Academy of Forensic Nursing Science. He was awarded with the Fellowship of ICFMT and IMSA. He was also awarded with the IAFN Vision award at Salt Lake City, USA in 2007 and Excellence Award in Forensic Medicine and Toxicology by South Asian Congress of Forensic Medicine, Forensic Science and Toxicology, Noida in 2008. He also served as Editor-in-Chief of Journal of Indian Academy of Forensic Medicine and Journal of Punjab Academy of Forensic Medicine and Toxicology. He has contributed chapters in various books and has published 71 scientific papers in various national and international journals. He has presented 111 research papers in various national and international conferences. His special areas of interest are Forensic Nursing and Forensic Odontology.



**TD Dogra** is currently the Professor and Head of Department of Forensic Medicine at All India Institute of Medical Sciences (AIIMS) New Delhi, India. He has served AIIMS in various capacities including Director, Deputy Director and Administrator, Hospital Managing Committee. He has also served the Indian Congress of Forensic Medicine and Toxicology as President since its inception. He has published more than 100 scientific papers and presented his research work at innumerable national and international conferences. He is editor of famous book of Lyon's Medical Jurisprudence and Toxicology. His special area of interest is Medical Ethics.



**AD Aggarwal** did his graduation and postgraduation from Government Medical College, Patiala, Punjab, India. He was awarded Diplomat of National Board by National Board of Examination. He has the distinction of completing his DFM from Victorian Institute of Forensic Medicine, Australia. He has served as Assistant Professor in private and government institutions for more than 4 years. At present, he is working at Postgraduate Institute of Medical Sciences, Rohtak, Haryana (India). He is in the executive committee of IAFM and PAFMAT. He is in the advisory board of Journal of Punjab Academy of Forensic Medicine and Toxicology and Joint Editor of official Journal of Indo-Pacific Academy of Forensic Odontology. He has presented 31 papers at national and international levels and has 21 national and international publications to his credit. His special areas of interest are Forensic Entomology and Traffic Medicine.



Available at all medical book stores  
or buy directly from Jaypee Brothers through online shopping  
at [www.jaypeebrothers.com](http://www.jaypeebrothers.com)

or call + 91-11-32558559

**JAYPEE BROTHERS**  
**Medical Publishers (P) Ltd.**  
[www.jaypeebrothers.com](http://www.jaypeebrothers.com)

ISBN 978-81-8448-994-1

