Review Article

MEMORANDUM OF THE POST MORTEM EXAMINATION IN INDIAN FRAMEWORK

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Abstract

In our country Post-mortem reports frequently meets with dilemma in the itinerary of justice. It is a fact that majority of the medicolegal autopsies carried out by medical officers who are not explicitly skilled in the pragmatic medicolegal work, afar what has been thought to than in their undergraduate curriculum and hence may mislead the justice. Furthermore due to lack of experience and knowledge many of the medical officers have irrational fear of post mortem examination. Higher authorities, especially legal establishment might be getting an erroneous idea that forensic medicine is a very important and vast subject, but in reality it is the most neglected subject in the medical curriculum. It is suggested that all doctors concerned with medicolegal work, especially autopsies should be well versed while preparing post mortem statement. This review article intended to highlight the concept and contents of the memorandum of post mortem examination not only by the medical point of view but also by lawyer intellect before the learned forensic medicine expert for constructive criticism, suggestion and valuable feedback.

Key words- Memorandum of the post mortem examination, medicolegal work, forensic medicine

Introduction

The objectives of medicolegal autopsy are to answer the following questions.
Who died? (Identification of the deceased)
Where died? (Place of death)
When died? (Time of death)
Why died? (Cause of death)
How died? (Manner & mechanism of death)
To attain these objectives and documentation of the findings at times, not only dissecting the body but also visiting the crime scene and getting the opinion from other specialists such as forensic scientists, radiologists, ballistic experts, and other medical and non medical experts may be obligatory [1]. By going through the list of objectives, post mortem surgeon can easily realize that performing a medicolegal autopsy must be very systematic and scientific exercise.

In practice under the pressure of the work load and the pressure from various sectors the autopsy surgeon may omit a step in the post mortem examination or may fail to appreciate a fact or he may fail to document it. This may lead to failure in achieving an objective in the long list which will result in miscarriage of justice as well as humiliation to the autopsy surgeon in the court room. This is especially so as most evidence found in or on the body are easily and rapidly lost before, during or after autopsy[1].

To achieve the said objectives and to prevent the omissions by the autopsy surgeon it is necessary to follow some form of strategies or modus operandi all the time with necessary modifications as and when necessary. In this attempt we have tried to highlight the concept and contents of the memorandum of post mortem examination not only by the medical point of view but also by a lawyer intellect.

Procedure & preparation for post mortem examination

Autopsy (post mortem examination, sectiocadaveris, and thanatopsy) means examination of a body after death[2]. In India, there is provision for a complete post mortem examination. In every case the autopsy must be complete, all the body cavities should be opened and every organ must be examined[3,4].

The autopsy surgeon commence autopsy only after receiving a written request for post mortem examination along with inquest papers by the investigating police officer. There are certain types of cases where the magistrate holds an inquest and the inquest come from the magistrate[5].

The autopsy report consists of: 1- **The preamble:**This should mention the authority ordering the examination, time of arrival of the body at the mortuary, the date, time and place of examination and the name, age and sex of the deceased and the means by which the body was identified.
2- **The body of the report:** This state a complete description of the external and internal examination of the deceased. It should contain a description of the nature, direction, exact situation and dimensions of the wounds. All negative findings should also be recorded.
3- **The conclusion** must be given based on the post mortem findings. The report should be honest, objective and scientific. This is followed by the signature and qualifications of the post mortem surgeon.

Identification of the deceased

Identification may be Initial (provisional):

• Visual (relatives, friends, police),
• Circumstantial (address, papers, cards, keys, clothes),
• Medical (scars, teeth, tattoo marks, x-rays, DNA).

Permanent record is the method of formal identification:

• Personal (name, title, address),
• Body tag (record all details),
• accompanying documentation.

The investigating officer and relatives whose names are written on inquest papers should identify the body. In case of unknown bodies, the investigating officer is directed to take the photographs and fingerprints of the body and doctor should note at least five identification marks on the report and collect sample for DNA testing.[3-5]

External examination

This is a detailed head to toe examination of the naked body, documenting stains and soiling, general and specific individualising characteristics, post-mortem changes (temperature, lividity, rigor mortis, and putrefaction). The location, extent and type of staining or soiling of the body are described e.g. dual flow pattern of blood from a wound, high velocity impact blood spatter from gunshot wound, coffee grounds vomits and.[3,4,5,6,7]

General body characteristics are recorded namely racial group, height, weight, head hair (colour,dyed, length, style, balding), eyes (colour, pupil size, conjunctival congestion or petechial haemorrhages,

jaundice, prosthesis), nose and ear canals (blood, pus), earlobes (piercing, earlobe creases), face (hirsute woman, clean shaven, beard, moustache), mouth (vomit, blood, tablet debris, teeth, dentures), breasts (normally developed, atrophic, hirsute), genitalia (pubic hair pattern, circumcised, palpable testes), feet (general hygiene, bunions, in growing nails). More specific identifying characteristics are described fully: tattoos (location, design, colour, and names), scars (surgical and non-surgical, needle tracks, striae), skin lesions (naevi, senile keratoses, and other skin diseases), prosthesis and pacemaker. Post-mortem changes are documented, that is body temperature to touch (alternatively state if the body has been refrigerated), rigor mortis (extent and degree), hypostatic lividity (distribution, dual pattern, colour, and contact pallor), and putrefactive changes.

All injuries are described systematically either by grouping them according to anatomical location, e.g. right arm, anterior chest, left leg (as in multiple injuries in vehicular collisions), or in numerical order (e.g. where the number of injuries is few or where each and every injury is particularly important as in multiple stab wounds). If numbered, it is stated that the order of numbering does not imply sequence of infliction or degree of severity. Injuries are described as to their type, e.g. bruise, abrasion, laceration, incised wound, puncture or stab wound, gunshot wound, burn, fracture.
Injuries should be described with regard to their location, size, shape and colour. The location of the wound is given by general description (e.g. on the left side of the face, or over the rib cage, immediately below the left breast) and by precise location in relation to fixed anatomical landmarks(analogous to latitude and longitude). Suitable vertical landmarks are the heel, superior margin of the pubic symphysis, superior anterior iliac crest, supra-sternal notch, orbital ridge, and crown. Suitable horizontal landmarks are any midline structures, e.g. umbilicus, midline of the sternum and glabella. The size of an injury is measured in two dimensions. The shape can be related to a geometric shape or common object, often supplemented with drawings, sketches or by tracing patterned injuries onto acetate sheets[6,7].
Internal injuries are described in continuity with the related externally apparent injuries, e.g. the bruising and abrasion to the chest, then the fractured ribs, then the lacerated lung and haemothorax. This organisation of the final report frequently does not correspond with the order of dissection and dictation of findings. In the final report remote injuries are segregated from recent injuries under separate subheadings.

Medical intervention is described under a separate heading. This includes all medical equipment attached to, or accompanying, the body, e.g. urinary catheter, endotracheal tube, oral airway, rods for external fixation of fractures, arterial and intravenous lines, intravenous solutions or blood (with details of contents). External surgical incisions are described in continuity with the internal evidence of surgery.

Internal examination

The internal examination is systematic description of natural disease and does not include recent injuries, all of which have been previously described under the appropriate heading. Evisceration is the process of organ removal, usually through a midline (or Y shaped) incision that runs from the top of the sternum to the pubis. It is possible to remove all of the organs and viscera in one block. where all the organs are attached to one another in roughly their anatomical position. It is also possible for the organs to be removed in three separate blocks of attached organ groups; cardiothoracic, gastrointestinal, and

urogenital. The intestines are removed separately, as is the brain. The organs and organ systems routinely dissected are[7, 8, 9].

Head

Scalp findings.

Skull

Meninges

Brain findings

Oropharynx and trachea

An external examination is carried out to look for obstructing lesions, foreign bodies, mucus colour, and type.

Parenchyma/opening of the larynx/trachea is sliced to identify tumours.

Lungs

Any effusions or collections in the pleural cavity are measured and their colour and consistency noted.

An examination of the external surfaces is carried out to look for infarction, masses, and adhesions.

Lungs are weighed before dissection.

Airways are opened to look for obstructing lesions, foreign bodies, or mucus/pus.

Vasculature is opened to look for pulmonary emboli.

After this, parenchyma are sliced to identify tumours, infarcts, oedema, and emphysematous changes.

Heart

Aortic root is examined for dissection.

Site and condition of the coronary artery ostia is assessed.

Serial transverse slicing of the major coronary arteries is performed to assess degree of atherosclerosis and presence of thrombi.

Dissection of the myocardium to identify ischemic changes, rupture and to examine the cardiac chambers.

Valves are examined and dissected to assess stenosis/incompetence and identify vegetations or tumours.

Heart is weighed after dissection.

Aorta and major branches including renal arteries

Major vessels are opened longitudinally along their entire length to assess for the degree of atherosclerotic plaque formation, aneurysmal change, intimal dissection, and the presence of thrombi or emboli.

Oesophagus, stomach, and duodenum

Oesophagus is opened longitudinally to examine the mucosa for evidence of tumours and varices.

Stomach contents are collected and then the stomach is opened along the greater curve to examine the mucosa for tumours and ulcers.

First part of the duodenum is opened to identify the ampulla of Vater and any associated masses. This is then used as a landmark for the dissection of the pancreatobiliary system.

Pancreatobiliary system and liver

External surfaces are examined for tumours and areas of infarction.

External biliary system is opened from the gallbladder to the ampulla of Vater, including dissection of the left and right hepatic duct.

Pancreas is serially sliced along its long axis. The liver is serially sliced from left to right. The cut surfaces are examined for tumours, abscesses, and infarcts.

Jejunum, ileum, and colon

External surface of the bowel and its mesentry is examined for evidence of tumours, diverticulae (sigmoid/rectum only), inflammation, or infarction.

Bowel is opened longitudinally from end to end to examine the contents and the mucosa for tumours, inflammation, and infarction.

Urological system

External surfaces are examined for tumours. The cortical surface of the kidney often shows thin walled, fluid filled cysts (benign simple cortical cysts).

Kidneys are “bi-valved” (cut longitudinally to bisect the hilum) and the cut surface examined for cortical thickness, scarring, and tumours.

Diameter of the ureters is noted and they are opened longitudinally from renal hilum to bladder. Mucosa is examined for inflammation and tumours.

The bladder is opened and the mucosa is examined for inflammation, muscular hypertrophy, and tumours.

Urethra is opened longitudinally—depending on the length of urethra taken and the presence of the prostate—and mucosa examined for inflammation and tumours.

Male genital organs

Prostate is serially sliced (distal to proximal) and the cut surface examined for nodular hypertrophy and tumours.

Testes are bisected longitudinally and examined for tumours.

Female genital organs and the breast

Cervix and uterus are bi-valved as one unit to examine the muscle wall and mucosa for tumours.

Ovaries are examined for cysts and tumours and are bisected to examine for tumours.

Breasts and axilla are examined for masses as in a clinical examination.

Some tissues and organs are only examined in specific circumstances, rather than as part of the standard autopsy. These include.[9,10]

Spinal cord

Eyes

Middle ear

Deep leg veins

The internal organs and viscera are examined in situ and checked for anatomical "normality" before they are removed. The external surfaces are then examined before systematic dissection. In systematic dissection positive as well as negative observation are noted. If the cause of death was not established than viscera preserved for histo-pathological examination, chemical analysis and other ancillary tests they can help in establishing the cause of death. After the samples have been collected and the dissection is complete, the body is reconstructed.[10]

Cause of death

The disease process or injury responsible for initiating the train of events brief or prolonged which produces the fatal end result[8,9].

Mechanism of death:

The physiological or biochemical derangement produced by the above cause, which is incompatible with life; i.e. how the disease or injury leads to death[8].

Manner of death:

The fashion in which the cause of death came into being; i.e. whether natural, accident, suicide, homicide, unclassified (alcohol/drug deaths) or undetermined 8.

Cause of death	Mechanism of death	Manner of death
Atherosclerotic coronary artery disease	Electrical arrhythmia or heart failure	Natural
Stab wounds	Internal or external blood loss	Homicide, suicide or accident
Hanging	Asphyxia	Suicide
Strangulation	Asphyxia	Homicide

Opinion

This section is interpretative and subjective, representing the opinion of the autopsy surgeon. It includes the cause of death as appearing on the death certificate. The commentary is in simple English and brings together all the relevant information obtained from examination of the body, the scene of death and the history of the decedent. Information obtained second-hand (hearsay) may be included e.g. from police reports, medical records, forensic science reports. The relevant issues are addresses i.e. what happened, to who, when, where, why and how. It may be as brief or as detailed as the need dictates it is directed to the law officer investigating the death and any other legally interested parties who may obtain access to the report subsequently.

Signature

All medico-legal reports require the original signature of the autopsy surgeon. Relevant degrees and other qualifications are given. Occupational titles, e.g. Lecturer in forensic medicine, may be included.

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