

Medico-Legal & Pathological Postmortem Examination

Objective

Perform postmortem examinations, record observations, formulate COD, carry out further investigations and draw conclusions & opinions

Aim

To enable students to gather adequate knowledge and skills to attend to their Medico-Legal duties efficiently when they practice as doctors

Postmortem examination/ Autopsy / Necropsy

- Examination of a person after the death
- This examination can be
 - External examination
 - External examination and internal examination
 - External examination, internal examination and investigations (histology, toxicology, biochemistry, microbiology, virology)
- Autopsy or necropsy is the investigative dissection of a dead body

Types of Postmortem Examinations or Autopsies

Clinical /Academic / Pathological autopsy

- Clinical/Academic/Pathological Postmortem Examination

Medico-Legal/ Forensic Autopsy

- Medico- Legal/Forensic Postmortem Examination

MEDICO-LEGAL AUTOPSY

Medico-Legal Postmortem Examination

- Is an examination of the dead that is done on a legal requirement of a country by a request from a legal authority
- Is done on sudden, suspicious, obscure, unnatural, litigious or criminal deaths

(The Forensic Autopsy in Knight's Forensic Autopsy eds. Pekka Saukko, Bernard Knight 3rd Ed 2004)

Medico-Legal Autopsy standards

- European countries have developed standards on medico-legal postmortem examinations which they have incorporated into their legislations (Recommendation No. R(99) 3 of the committee of the ministers to member states on the harmonisation of Medico-Legal Autopsy rules adopted by council of Europe on 2 February 1999 at 658th meeting of the Ministers' Deputies)
- Sri Lankan legislation does not have such specified standards on a medico-legal examination
- It only states who can hold a postmortem examination. (Government Medical Officer or any other Medical Practitioner) Section 373(1) of the Criminal Code Procedure
- Minimum standard of an Autopsy report should be Health 42 (Postmortem report)

Objectives of a Medico-Legal Autopsy

Identification of
the deceased

To find external
and internal
abnormalities

Help in finding
the
circumstance

Determine
Time since
death

To find COD

To offer expert
interpretation
of finding

Requirements for a Medico-Legal Autopsy



Judicial /Legal
requirement

A written order
from an authorized
Inquirer



Medical
requirement

A medical
practitioner
(SLMC
registration)



Physical
requirement

Mortuary,
instruments,
tools, adequate
drainage, water

Procedure for an ideal Medico-Legal autopsy(rule of 10)

1. History
2. Visit to the scene of death
3. Identification
4. Preliminary procedure
5. Examination of clothing
6. General external examination
7. Specific external examination
8. Internal examination
9. Laboratory investigations
10. Reporting and documentation

(L.B.L de Alwis lecture notes on forensic Medicine)

History

- As a clinician takes a detailed history regarding a clinical case a relevant history must be taken by a medical officer
- History may be taken from
 - Relatives/friends
 - Eye witness
 - Investigating police officers
 - Clinicians (BHT notes, diagnosis cards)
 - Interested parties(lawyers)
 - Any other volunteering information

Visit to the scene



Visit to the scene of death

Homicides/ or suspicious death Medico-legal expert should visit the scene



Soon as possible
Team work/team spirit

Scene visit: Role of the Police

Secure the scene

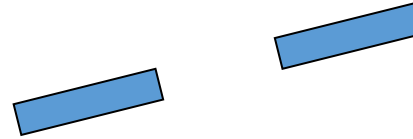
Coordinate the management of the scene

Photograph the body as it is found

Relevant scene notes- exhibits weapons

Identification

- Correct identification is important in the medical evidence at a criminal trial
- Should be done in front of the pathologist by two close relatives, in good light by facial features




Identification of the deceased

Identification according to Interpol guidelines



INTERNATIONAL CRIMINAL POLICE ORGANIZATION
INTERPOL

DISASTER VICTIM IDENTIFICATION
Ver. 2008



AM - FILE

Family name :
Forename(s) :
No. :

PM - FILE

No. :

A - M (green) **VICTIM IDENTIFICATION FORM** **A0**
MISSING PERSON

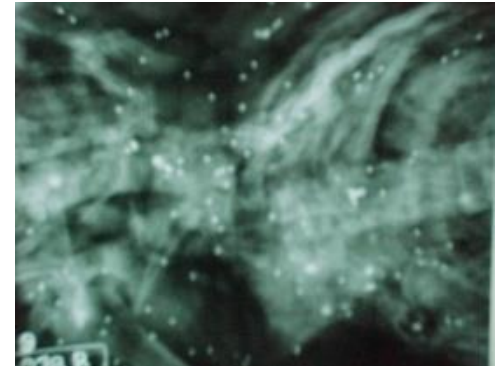
Family name :
Forename(s) :
Date of birth :
Place of birth :
Date of disaster :
Place of disaster :
Date of disaster :
Police force handling identification :
Reasons for assuming that person concerned is victim of disaster :
Police officers evaluation :
DNA :
CHECK LIST OF CONTENTS :
A1 Info relating to M.P.
A2 Info relating to M.P. family
C1 Copying and handling
C2 Personal effects
C3 Inventory
D1 Physical description
D2 Physical data, teeth
D3 Physical data, scars
D4 Body marks
D5 Fingerprint information
E1 Personal information
E2 Personal information, notes
E3 Data
F1 Dental information
F2 Dental findings, notes
G Further information

P - M (orange) **VICTIM IDENTIFICATION FORM** **B0**
DEAD BODY

Nature of disaster :
Place of disaster :
Date of disaster :
CHECKLIST OF OPERATIONS IN THE MORTUARY :
Photographic :
Fingerprint :
Autopsy :
Dental examination :
Samples :
CHECK LIST OF CONTENTS :
B Recovery from scene
C1 Body and front view
C2 Personal effects
C3 Inventory
D1 Physical description
D2 Physical data, teeth
D3 Physical data, scars
D4 Body marks
D5 Fingerprint information
E1 Personal information
E2 Personal information, notes
E3 Data
F1 Dental information
F2 Dental findings, notes
G Further information

Preliminary procedure

- Photography
 - Police photographic unit for chain of evidence
 - Colour photographs of dressed and undressed body
 - Injuries (with scale and without scale)
- X-rays- where necessary
 - Firearms, blasts, strangulation charred remains, battered child, battered in custody, air embolism
- Collection of trace material
 - Firearm residues, blasts, sexual abuse, poisoning



Clothing

- Important in identification, sexual offences, RTA, firearms, blasts, stabs, blood stains, for trace materials
- Findings clearly described-site related to injury
- Air dried and preserved and sent to the relevant authorities



General external Examination

- General description-Age, sex, build, height, ethnic group, weight, nutritional status, skin colour
- Distribution of hair, nasal skeleton, oral mucosa, dentition, tongue, auricular area, eyes colour, pupils, conjunctive, fluids or secretions from orifices
- Neck, thorax(shape, breast, nipples, pigmentation) abdomen(bulging, pigmentation, scars), anus and genitalia



Specific external examination

- Special characteristics of Identification
 - scars, marks, tattoos, amputations
- postmortem changes- temperature, rigor-mortis, hypostasis, putrefaction
- Injuries-healed, healing or recent
 - General nature (abrasion, contusion, laceration, cut, fracture) specific nature, size, anatomical site, site from two land mark, height from heel, shape, depth, direction.
- Medical and surgical interventions and resuscitation

Internal examination

- Open all three cavities
 - Head, thorax, abdomen
 - Where appropriate vertebral canal and joint cavities
- Eviscerate all organs
- Different techniques for different situations
 - Face, neck- special pelvic dissections
 - Rape/ abortion/pregnancy/delivery- pelvic dissection
 - Embolism
 - Pneumothorax
 - Muscular skeletal dissection
- Dissect all organs following established guidelines of pathological anatomy



Laboratory Investigations

- Sampling procedure depends on each case
 - All autopsies basic sampling schemes from main organs for histology and blood urine for alcohol
 - Additional specimens blood, urine, vitreous humor, CSF, bile, hair, for toxicology
 - Samples from injuries- wound age, histochemistry
 - Microbiology, virology
 - Femur- diatom
 - Bones for reconstructions
- Samples collected into special jars, containers, properly placed, stored and transported to lab

Autopsy Report

- Autopsy report is as important as the autopsy itself
- Full, detailed, comprehensive and objective
- Written in logical sequence, well structured and easy to refer
- Legible(typed or computer formatted)
- Should contain
 - Legal preface to fulfill statutory requirements
 - Serial numbers and coding
 - Personal details
 - Name and qualifications of the person conducting postmortem
 - External examination
 - Internal examination by anatomic systems
 - List of samples retained
 - Cause of death and relevant opinions
 - Checked signed and dated

Autopsy Report

- Cause of death should be given in triplicate on the cause of death form(in Sri Lanka) in other countries it is given in the certificate of death by the pathologist
- Provisional report should be given within 2-3 days
- In Sri Lanka H 42 may be used
- In special cases free style reports
- A copy of the report should be kept with the doctor
- final report when investigations are over

PATHOLOGICAL AUTOPSY

Pathological Autopsy

- Pathological autopsy or Clinical postmortem offers to study mortality in detail
- The basis is that much can be learned about the living from the study of the dead. “ The dead teach the living”

Nelson S. The autopsy: A ‘new’ means for proving quality. Hospitals 1987;61:59-60

Pathological Autopsy

- At times the clinicians wants to know the
 - Pathological state of the condition they are suspecting and to see retrospectively what they thought was correct
 - Effectiveness of the treatment they gave for the diseased condition
- This is the basis why pathological autopsies provide a good index of the quality of patient care in clinical audits. (The autopsy and audit. Report of the Joint Working Party of the Royal College of Pathologists, The Royal College of Physicians of London and the Royal College of Surgeons of England 1991)

The basics of Pathological autopsy

- Pathological autopsy cannot be carried out on deaths where cause of death is not known
- Pathological autopsy is carried out **only in natural deaths**
- The **cause of death** or a **probable cause of death** should be known

- In a Pathological autopsy the medical officer certifying the death **must fill the declaration of death form(certificate of medical cause of death)** and hand over to the relatives before requesting for a pathological postmortem investigation.
- Pathological autopsy **cannot be performed without the permission of the deceased relatives.**

- The consent of the relatives for pathological autopsy is obtained in writing on the BHT or special consent forms.
- The consent has to be obtained after a good explanation to the next of kin regarding
 - Benefits of the autopsy in providing information for them and the medical people
 - The type of the postmortem examination (full autopsy or limited autopsy) and the dissection
 - Provision of tissues for further investigations, teaching, or research

- The relatives should be given the opportunity to select the type of the postmortem examination (full autopsy or limited autopsy)
- Obtaining the consent is the responsibility of the consultant in charge of the case
- However he can delegate the duty to another person but he should be trained in a sympathetic and informative approach

- The postmortem examination should be strictly limited to the consent given (full autopsy or limited autopsy)
- If the autopsy requires additional dissection, further consent should be taken.
- The approval of the head of the institution also should be taken after relative's consent.(in the BHT or the consent form)
- The autopsy is carried out by hospital pathologist.

How to do a Pathological Autopsy

- A proper request to perform a pathological autopsy should come to the hospital Pathologist on a prior date.
- A request form for a pathological autopsy should include
 - Summary of the clinical illness
 - Particular problems which pathologist should address
 - Potential hazards (HIV, Hep B) should be mentioned
 - The staff in the clinical department who wish to be contacted at the time of autopsy

How to do a Pathological Autopsy

- The pathologist should be provided with all clinical notes made on the deceased during life (medical, surgical, gynecological) including relevant investigations during the autopsy (original BHT)
- A prior convenient date to all the medical personnel who wish to be present at the autopsy should be arranged with the pathologist.

How to do a Pathological autopsy

- When date and time is set consideration should be given to relatives convenience too. Especially religious and cultural sensitivities
- Where necessary bereavement officers may be employed (The autopsy and audit. Report of the Joint Working Party of the Royal College of Pathologists, The Royal College of Physicians of London and the Royal College of Surgeons of England 1991)

How to do a pathological autopsy

- Role of other experts - Paediatric pathologist, Neuro-pathologist
- Attendance of clinicians involved in management of the patient (surgery)
- Planning of other investigations
eg. Biochemistry, microbiology, virology
- Recording of findings- photography and video

How to do a Pathological autopsy- Who is in-charge?

- Hospital Consultant pathologist is in-charge of the postmortem examination.
- He should be a specialists in pathology
- If a post-graduate trainee or a medical-officer in the pathology department carries out the autopsy, overall responsibility is in the hand of the consultant pathologist

Pathological autopsy- dissections

- Routine
- Limited
- conformation with histology

Pathological autopsy- Reports and records

- High priority to the report
- Interim report based on macroscopic examination and frozen sections within 2-3 days
- Final report based on histology (3 weeks)
- The opinion should address the issues questioned

Autopsy- Health and safety

- Autopsy room procedures
- Clean and dirty areas
- Clean and dirty man (recoding/photos/observers)
- Clothing, boots, gloves, eye protections
- Disposal of biological hazards

Virtopsy (Virtual Autopsy)

- Virtopsy is a virtual alternative to a traditional autopsy, conducted with scanning and imaging technology.
- Use computed tomography (CT), magnetic resonance imaging (MRI).
- 3D surface scanning and 3D imaging guided biopsy systems and post mortem angiography.



Summary

- Medico-legal Autopsy is done as a legal requirement of the county
- Medico-legal autopsies are done on sudden, suspicious, obscure, unnatural, litigious or criminal deaths
- Pathological autopsy can be done only on cases where COD is known.
- Involves History taking, examination of the body, investigations, and report writing.



**THANK
YOU**