**UNIVERSITY OF NAIROBI**

**SCHOOL OF MEDICINE**

**DEPARTMENT OF PATHOLOGY**

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**Introduction to Autopsy in Clinical and Forensic Practice: Procedure, Technique, Reports and Death Certification**

**Objectives**

* Understand relevant terminologies referring to post mortem
* Understand the Statutory requirements
* Describe the Techniques and procedure
* Classify the types of cases encountered in clinical autopsies
* Understand the death notification procedures, the cause, manner and mechanism of death
* Describe autopsy procedure following exhumation

**Introduction**

**Autopsy:** This is the term used to refer to opening up of a dead body to find out the cause of death and circumstances surrounding the death. This term can be used interchangeably with the term **Necropsy**

**Categories**

Post mortem examinations can be placed in the following categories;

* **View and grant**: This involves just viewing the physical presentation of the body and drawing a conclusion based on just physical examination without any surgical procedure
* **Complete Dissection**: This involves the complete opening up of the body surgically to view internal organs for analysis of death and circumstances surrounding the death
* **Limited dissection**: In this type of post mortem, only a section of the body is examined for example opening up only the right upper quadrant to access the liver only or opening up the skull for purposes of brain post mortem only

**Types of Autopsies**

* **Clinical**: This is a case in which someone was undergoing treatment for a period of time but succumb to the disease
* **Medico-legal**: This occurs in a situation where somebody dies unexpectedly for example just complaining of chest pain and within 20 minutes one dies. It has a legal aspect to it coz at times such cases include poisoning or other criminal plots

**Requirements**

**Consent**

For some autopsies to be done, the next of kin must give consent i.e. a go ahead for the post mortem to be done. This mainly follows the clinical autopsy cases and some families may not see the necessity of such a procedure

**No consent**

In other cases especially the ones surrounding criminal matters (forensic pathology), an autopsy is done whether or not the next of kin has authorized. However, for the sake of courtesy, the next of kin are informed and they come to identify the body lest an autopsy is done on a wrong body

**Rationale**

This refers to the importance of the postmortem in each case

**Clinical**

* To demonstrate the pathology and the extentat which fatality occurred
* Research and teaching: It is only easier to prevent death by finding out how somebody died (research) and by teaching others on how to avoid such occurrences

**Medical Legal Autopsies**

* **Mandatory**; There is no option of deciding, the law specifies that an autopsy has to be done
* It is in accordance with the Criminal procedure act
* The autopsy is carried out by a medical officer as per the act
* One is expected to know their limits; consult and refer where you are not sure because somebody may end up facing judgment over something he/she never did due to wrong autopsy conclusions

*“A botched autopsy and misleading conclusions is worse than no autopsy at all”- Prof. Bernard Knight*

**Statutes Governing Autopsies**

* **Criminal procedure act**: Attempts to define the act of causing death
* **Evidence act**: Defines the expert witness in matters of professional fact finding, meaning weighing out the results of say two pathologists having different findings
* **Photography** as a form of evidence is provided for but the photographer must be certified and accredited by the Attorney General before any photographic evidence is arraigned in court as a piece of evidence

**Categories of Forensic Autopsy Cases**

A list may not be exhaustive as many life situations can warrant the need of an autopsy. However, the following are the most common examples;

* Sudden unexpected death
* Road traffic accidents and other accidents
* Fire deaths
* Drowning
* Suicide
* Anesthetic deaths and medical misadventures
* Homicide/infanticide
* Death in custody hence formulation of the prisons act

**Categories of Clinical Autopsies**

* Coronary atherosclerosis with myocardial infarction
* Cerebral vascular accident
* Hypertensive heart disease
* Sudden infant death syndrome (common in the Western Countries)
* Pulmonary arteriole thrombo-embolism
* Heart failure
* Anaemia

**Objectives of Conducting a Postmortem**

* Identification; To know the individual
* To determine the time of death
* To determine the cause of death
* Nature of injuries in the body
* Presence or absence of poisons
* Estimated duration of life- soon after injury. For example, couples who have wills and get a road traffic accident. The husband declares that if he dies the wife inherits and the wife says all she has be inherited by the brother so if the husband dies first, then the brother to the wife will inherit everything but if the husband wife dies first, the brother will only inherit the wealth of the wife exclusive of the husband
* Presence of natural disease and its contribution to the death, particularly following trauma- culpability is minimized by natural disease
* Interpretation of the injuries and their significance, bruising in alcoholics, young boys; tentative wounds in suicide
* Interpret the effects of medical procedure eg defribrillator marks, CVP, other iv lines

**Procedure of Postmortems**

* Must be standard to avoid missing out on details. Absence of information may be used to discredit ones evidence
* I/D-physical, dental records, Xrays, DNA etc are used to ascertain a victim
* Understand the circumstances that led to death hence; history of the victim, scene of death and availability of photographs
* Clothing-in-situ, for gun shot wounds, Stab wounds, tears and loss of buttons; one by one and bag in brown bags; avoid plastic bags
* Photography- according to evidence act-Attorney General appoints the scenes of crime photography; as an expert your photographic evidence is admissible
* Guide the collection of trace evidence concurrently during the procedure
* Detailed external examination with documentation is required
* Site of physical wounds, describe and measure with relation to the fixed anatomical landmarks where the physical marks that may have caused death are situated
* Sampling-blood; stomach contents, liver, urine, vitreous humour, kidney etc for laboratory procedures to ascertain any toxicity
* Internal examination are important to be sure of results

**Autopsy Techniques**

* Modified from case to case
* Clinical autopsy
* Medico-legal
  + Y-incision
  + Midline incision
  + Avoid surgical scars and injuries
  + Examine organs and cavities in-situ prior to en-block or piecemeal dissection
  + Thoracic block; GIT block; pelvic block;
  + Brain
  + Layer by layer Neck dissection
  + Retain all important organs

**Requirements and Samples**

* Natural light
* Dissection kit
* Running tap water and dissection tables
* Toxicology, histology, microbiology, virology etc

**Special Autopsies**

* Sudden infant death syndrome
* Spinal pathology
* Sexual violence
* Vertebral artery injury like a blow to the face or injury to the middle meningeal artery causing sub-dural hematoma

**Report Writing and Classification**

* Only certify that which you are certain or can defend
* I/D: Make sure the identity of the person in the case study is clearly stated
* Declaration- your qualification, experience, employment status, contract
* Those present in the post mortem room
* Post mortem changes
* Recent injuries
* Remote injuries
* External findings
* Signs of medical intervention
* Internal examination-systematic
* Summary/commentary; conclusion
* Auxilliary tests

**Death Notification**

* DI Form
* Cause of death
* Manner/mode of death
* Mechanism of death
* WHO- ICD- two parts (4-digit code for registry)

**Condition directly leading to death**

Antecedent condition

II-contributing or non-contributing factors

5-10%- unascertained even after autopsy