

APPLIED PATHOLOGY & FORENSIC PATHOLOGY

TYBSc Paper II

APPLIED PATHOLOGY

Pathology: Study of suffering
In Greek Pathos= suffering, Logos= study

Study of disease
processes

Structural and functional changes in the
cells, tissues, organs or the entire organism

APPLIED PATHOLOGY

Aspects of disease process

Etiology

Cause

Genetic
Inherited

Pathogenesis

Mechanism of its
development

Morphologic
changes

Structural changes
in the cells & organs

Gross
Microscopic

Clinical significance

Functional consequences
of morphological changes

Signs &
Symptoms
Prognosis

APPLIED PATHOLOGY

Classification

General Pathology

General reaction of the cells and tissues to insults or injury that are basic to all disease processes

Systemic Pathology

Study of specific disease processes

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Classification

Anatomic
Pathology

Making diagnosis by examining tissue

Clinical
Pathology

Analysis of various specimens---Blood, Urine,
Stools, CSF, Sputum

Molecular
Pathology

Analysis of nucleic acids, gene, gene
products, receptors, signaling pathways

Forensic
Pathology

Subspeciality dealing with medicolegal
aspects of death

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Anatomic Pathology

Necropsy Pathology

Study of cadavers to elucidate the cause of death

Surgical Pathology

Examination of tissues excised from living patients

Cytopathology

Study of individual cells → method to detect malignant cells

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Different methods used in Pathology

Biopsy

Examination of the tissues from the living body to determine or existence or cause of disease

Closed Biopsy

Open Biopsy

Excisional Biopsy

FNAC

Fine needle aspiration Cytology

FORENSIC PATHOLOGY

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graph TD; A[FORENSIC PATHOLOGY] --> B[Identifying the cause of death by examining a corpse.]; B --> C[Criminal investigation]; C --> D[Examination of DNA, bones and blood samples, etc.]; D --> E[Autopsy];
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Identifying the cause of death by examining a corpse.

Criminal investigation

Examination of DNA, bones and blood samples, etc.

Autopsy

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Autopsy

Post-mortem examination or necropsy

Performed primarily to determine the cause of death

To identify or characterize the extent of disease states that the person may have had

To determine the cause or failure of a particular medical or surgical treatment

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Who can perform Autopsy?

Pathologists

In academic institutions, for teaching and research purposes

Forensic autopsies have legal implications and are performed to determine if death was an accident, homicide, suicide, or a natural event

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When is autopsy performed?

Suspicious deaths

Deaths of persons not being treated by a physician for a known medical condition

Deaths of those who have been under medical care for less than 24 hours

Deaths that occurred during operations or other medical procedures

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Autopsy

Consent must be obtained from the next-of-kin before an autopsy is performed

The next-of-kin also has the right to limit the scope of the autopsy (for example, excluding the brain from evaluation or limiting the procedure to examination of the abdomen).

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Steps involved in Autopsy

Begins with a complete external examination

Weight and height of the body is recorded

Identification marks such as scars and tattoos also are recorded

Internal examination

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Organs are first examined by the pathologist to note any changes visible with the naked eye

Histopathology

Incisions made in the body are sewn closed

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After death, a sequence of changes naturally occurs in the human body

Variety of external factors and intrinsic characteristics may accelerate or retard decomposition

Understanding common postmortem changes and the variables that affect them allows the forensic pathologist to more accurately estimate:

Postmortem interval (PMI)

Time frame during which death occurred

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Post-mortem changes in the body

Algor Mortis

Process by which body cools after death

Rigor mortis

Process by which body stiffens 1-2 hours after death and passes away in 24 hours

Livor mortis

purple-red coloration that appears on dependent portions of the body due to gravitation of blood after death

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Tardieu spots

When capillaries rupture due to increased gravitational pressure (e.g. in the legs of a hanged person).

Tache noire

Dark, red-brown stripe that develops horizontally across the eyes when the eyelids are not closed after death

Purge fluid

Decomposition fluid that may exude from the oral and nasal passages as well as other body cavities

Decomposition

Decay. Endogenous process (Autolysis)-→ Putrefaction

