

Partie N°01

WHAT IS A PATHOLOGY ?

Pathology is a branch of medical science that involves the study and diagnosis of disease through the examination of surgically removed organs, tissues (biopsy samples), bodily fluids, and in some cases the whole body (autopsy). Aspects of a bodily specimen that may be considered include its gross anatomical make up, appearance of the cells using immunological markers and chemical signatures the cells.

The word "pathology" means the study of diseases processes. Pathology involves examining the cause of illness, how it develops, the effect of the illness on cells and the outcome of the illness.

Branches of pathology:

Some important branches and sub-branches of pathology include:

1. Anatomical pathology

This area of pathology involves the examination of surgical specimens removed from the body or sometimes the examination of the whole body (autopsy) to investigate and diagnose disease. On examining a biopsy, the following aspects are considered:

- Gross anatomical make up of the sample
- Microscopic appearance of cells
- Chemical signatures in the sample
- Immunological markers present in the cells
- Molecular biology of the cells, organs, tissues and sometimes whole body

Anatomical pathology is further classified into sub specialties, examples of which include:

- Surgical pathology - This involves the examination of specimens obtained during surgery such as a breast lump biopsy obtained during mastectomy
- Histopathology - This refers to the examination of cells under a microscope after they have been stained with appropriate dyes.
- Cytopathology - In cytopathology, cells that have been shed into bodily fluids or have been obtained by scraping or aspirating tissue are examined. Typical examples include cervical smear, sputum and gastric washings.

- Forensic pathology involves the post mortem examination of a corpse for cause of death using a process called autopsy.
- Dermatopathology concerns the study of skin diseases.

2. Clinical pathology

This branch of pathology involves the laboratory analysis of body fluids (such as blood, urine or cerebrospinal fluid) and bodily tissue for the diagnosis of disease. Some of the main subspecialities of clinical pathology include:

- Chemical pathology, also called clinical chemistry, involves the assessment of various components in bodily fluids such as the blood or urine, although for the main part it concerns the analysis of blood serum and plasma.
- Immunology or immunopathology refers to the study of immune system disorders such as immunodeficiency's, organ-transplant rejection and allergies.
- Hematology or hematopathology concerns the investigation and diagnosis of blood diseases.

3. Molecular pathology

Molecular pathology is a multi-disciplinary field that focuses on disease at the sub microscopic, molecular level. Aspects studied may include a mixture of anatomical pathology, clinical pathology, genetics, molecular biology and biochemistry.