

Chapter 1

General Pathology

Chapter Outline:

Introduction	Metaplasia
General Objectives	Cells on disease
Type and calcification of the disease	Necrosis
Etiology of disease	Apoptosis
Methods and diagnosis of treatment	Inflamed
Specific objectives	Etiology
Blood	Pathogenesis
Respiratory system	Morphologies changes
Cardiovascular system	Functional derangements and clinical significance
GIT system	Distribution of lesions
Urinary system	Local
Endocrine system	Focal
Locomotors system	Diffuse
CNS system	Diagnosis
The core aspect of disease in pathology	Therapy
Environmental factor	Prognosis
Genetic factor	Causes of disease
Cellar reaction to injury	Environmental
Types of cellular Adaptations	Genetic factor
Hypertrophy	Cellular reaction to injury
Atrophy	Hyper atrophy
Hyperplasia	

Atrophy	Loss of function
Hyperplasia	Events of acute inflammation
Metaplasia	Vascular change
Cells on disease	Cellular event
Necrosis	Causes of acute inflammation
Apoptosis	Resolution
Causes of inflammation	Healing by fibrosis
Physical agent	Abscess formation
Chemical agent	Sinus formation
Biological agent	Fistula formation
Immunological disorder	Causes of chronic inflammation
Genetic and metabolic disorder	Persistent infection
Cardinal sign of inflammation	Prolonged exposure
Redness	Progression from acute inflammation
Swelling	Autoimmunity
Pain	

1.1. Introduction

Pathology (from the Greek roots of pathos, meaning “experience” or “suffering”, and -logia, “study of”) is a significant component of the causal study of disease and a major field in modern medicine and diagnosis.

The term pathology itself may be used broadly to refer to the study of disease in general, incorporating a wide range of bioscience research fields and medical practices (including plant pathology and veterinary pathology), or more narrowly to describe work within the contemporary medical field of “general pathology”, which includes a number of distinct but inter-related medical specialties that diagnose disease—mostly through analysis of tissue, cell, and body fluid samples. Used as a count noun, “a pathology” (plural, “pathologies”) can also refer to the predicted or actual progression of particular diseases (as in the statement “the many different forms of cancer have diverse pathologies”), and the affix path is sometimes used to

indicate a state of disease in cases of both physical ailment (as in cardiomyopathy) and psychological conditions (such as psychopathy). Similarly, a pathological condition is one caused by disease, rather than occurring physiologically. A physician practicing pathology is called a pathologist.

As a field of general inquiry and research, pathology addresses four components of disease: cause/etiology, mechanisms of development (pathogenesis), structural alterations of cells (morphologic changes), and the consequences of changes (clinical manifestations). In common medical practice, general pathology is mostly concerned with analyzing known clinical abnormalities that are markers or precursors for both infectious and non-infectious disease and is conducted by experts in one of two major specialties, anatomical pathology and clinical pathology. Further divisions in specialty exist on the basis of the involved sample types (comparing, for example, cytopathology, hematopathology, and histopathology), organs (as in renal pathology), and physiological systems (oral pathology), as well as on the basis of the focus of the examination (as with forensic pathology).

The sense of the word pathology as a synonym of disease or pathosis is very common in health care. The persistence of this usage despite attempted proscription is discussed elsewhere.

1.1.1. General Medical Pathology

The modern practice of pathology is divided into a number of subdisciplines within the discrete but deeply interconnected aims of biological research and medical practice. Biomedical research into disease incorporates the work of vast variety of life science specialists, whereas, in most parts of the world, to be licensed to practice pathology as medical specialty, one has to complete medical school and secure a license to practice medicine. Structurally, the study of disease is divided into many different fields that study or diagnose markers for disease using methods and technologies particular to specific scales, organs, and tissue types. The information in this section mostly concerns pathology as it regards common medical practice in these systems, but each of these specialties is also the subject of voluminous pathology research as regards the disease pathways of specific pathogens and disorders

that affect the tissues of these discrete organs or structures.

1.1.2. Anatomical Pathology

Anatomical pathology (Commonwealth) or anatomic pathology (United States) is a medical specialty that is concerned with the diagnosis of disease based on the gross, microscopic, chemical, immunologic and molecular examination of organs, tissues, and whole bodies (as in a general examination or an autopsy). Anatomical pathology is itself divided into subfields, the main divisions being surgical pathology, cytopathology, and forensic pathology. Anatomical pathology is one of two main divisions of the medical practice of pathology, the other being clinical pathology, the diagnosis of disease through the laboratory analysis of bodily fluids and tissues. Sometimes, pathologists practice both anatomical and clinical pathology, a combination known as general pathology.

1.1.3. Pathophysiology or Physiopathology

Is a convergence of pathology with physiology. Pathology is the medical discipline that describes conditions typically observed during a disease state, whereas physiology is the biological discipline that describes processes or mechanisms operating within an organism. Pathology describes the abnormal or undesired condition, whereas pathophysiology seeks to explain the physiological processes or mechanisms whereby such condition develops and progresses.

Pathophysiology can also mean the functional changes associated with or resulting from disease or injury. Another definition is the functional changes that accompany a particular disease.

1.2. General Objectives

This book is designed to enable the student to understand the disease, Its types, classifications, etiology, signs and symptoms, methods of diagnosis and treatment as well as the role of conventional radiography, Computed Tomography CT. Magnetic Resonance Imaging MRI. Ultrasound US, Nuclear Medicine MN Imaging in the