**Lecture 1**

**INTRODUCTION TO HUMAN PATHOLOGY**

**CONCEPTS IN GENERAL PATHOLOGY**

**PATHOLOGY** derives from the words **pathos** *(suffering)* and **logos** *(study)* that when literally translated means the study of suffering. But more specifically, it is the scientific study of the structural and functional changes in cells, tissues and organs arising as a result of the various disease processes.

IT IS THE STUDY OF THE CAUSE AND EFFECTS OF A DISEASE OR INJURY

Pathology is traditionally classified into general and systemic pathology.

***General Pathology*** looks at the basic reactions of cells and tissues to abnormal stimuli that underlie all disease processes.

***Systemic pathology***, on the other hand, examines the specific responses of specialized organs and tissues to more or less well defined stimuli.

There are several aspects of a disease process that form the core of pathology:

* **Etiology**. Refers to the cause of a disease. Some disease conditions may have a single etiologic agent as is the case with many infectious diseases. On the other hand, some diseases have a wider range of factors associated with the causation of the disease, risk factors. Examples of diseases with multiple risk factors include atherosclerosis and malignant disease among others.
* **Pathogenesis**. Refers to the sequence of events in the response of cells or tissues to the etiologic agent, from the initial stimulus to the ultimate expression of disease. This forms the main domain of pathology.
* **Morphologic changes**. Refers to the structural alterations in cells and tissues that are either characteristic of the disease or diagnostic of the etiologic process.
* **Functional derangements and clinical manifestations**. The nature of the morphologic changes and their distribution in diferrent organs or tissues influence normal function and determine the clinical features (symptoms and signs), course and the prognosis of the disease.

Therefore, for any disease process, pathology seeks to explain its etiology, pathogenesis, clinical manifestations, diagnostic features (at the laboratory level and imaging features), possible complications and *prognosis*.

**HISTORIC ASPECTS**

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The history of [pathology](http://en.wikipedia.org/wiki/Pathology) can be traced to the earliest application of the [scientific method](http://en.wikipedia.org/wiki/Scientific_method) to the field of [medicine](http://en.wikipedia.org/wiki/Medicine), a development which occurred in the [Middle East](http://en.wikipedia.org/wiki/Middle_East) during the [Islamic Golden Age](http://en.wikipedia.org/wiki/Islamic_Golden_Age) and in [Western Europe](http://en.wikipedia.org/wiki/Western_Europe) during the [Italian Renaissance](http://en.wikipedia.org/wiki/Italian_Renaissance).

Early systematic human [dissections](http://en.wikipedia.org/wiki/Dissection) were carried out by the [Ancient Greek](http://en.wikipedia.org/wiki/Ancient_Greece) physicians [Herophilus of Chalcedon](http://en.wikipedia.org/wiki/Herophilos) and [Erasistratus of Chios](http://en.wikipedia.org/wiki/Erasistratus_of_Chios) in the early part of the third century BC.

The first physician known to have made [postmortem](http://en.wikipedia.org/wiki/Autopsy) [dissections](http://en.wikipedia.org/wiki/Dissection) was the [Arabian](http://en.wikipedia.org/wiki/Arab) physician [Avenzoar](http://en.wikipedia.org/wiki/Ibn_Zuhr) (1091–1161).

[Rudolf Virchow](http://en.wikipedia.org/wiki/Rudolf_Virchow) (1821–1902) is generally recognized to be the father of microscopic pathology. Most early pathologists were also practicing [physicians](http://en.wikipedia.org/wiki/Physician) or [surgeons](http://en.wikipedia.org/wiki/Surgeon).

**There Are Three Main Subtypes Of Pathology:-**

1. Anatomical,Pathology
2. clinical pathology
3. molecular pathology

***(1)Anatomical pathology;-*** concerned with diagnosis of a disease based on the gross examinaton, microscopic exam, chemical,immunologic and molecular examination of organs,tissues,and whole bodies(like in autopsy)

It is divided into:-

1. ***Surgical Pathology***

There are two types of specimens;-

*Biopsy:-a* small piece of tissue removed primarily for definitive diagnosis. e.g. core biopsy by use of large-bore needles

*Surgical/incisional resections:-*obtained through surgical procedure. Eg.skin lesions,polyps

1. ***Forensic Pathology-*** focus on determining the cause of death by post-mortem exams/can be used to give an identification, determination of death through examination of tissue specimens to identify the presence or absence of natural dses and other microscopic findings, interpretetion of toxicology of body tissues or fluids, poisonings, physical trauma pathology,cytopathology*(study at cellular level esp in cancer, thyroid, csf, peritoneal-also known as smear test)*
2. ***Histopathology***---reffers to microscopic exam of various forms of human tissue. The tissue is removed from the body of the organism then paced in a fixative such as formalin that stabilizes and prevent it from decay to examine under microscope. The sections are stained with one or more pigments.
3. Histochemistry refers to use of chemical rxns
4. Neouropathology
5. Pulmonary pathology
6. Renal pathology

**(2). Clinical pathology;-** medical specialty that make diagnosis of a disease based on the lab analysis of body fluids, tissue by use of chemistry, clinical microbiology, hematology and medical pathology

Hematopathology---study on diseases of blood cells

**(3). Molecular pathology;-**focussed upon the study and diagnosis of disease through examination of molecules within organs, tissues, or body fluids. Eg. genetics, biochemistry.

Commonly used in study of cancer,

***-------------------------END OF LECTURE 1-----------------------***