



Practical Pathophysiology
Stage 3
Collage of Pharmacy / AL
Mustansiriyah
University
(Introduction)

Lab 1

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INTRODUCTION TO PATHOPHYSIOLOGY

- **Pathology:** the word pathology comes from the Latin words “patho” & “logy”.
- • ‘**Patho**’ means disease
- • ‘logy’ means study or science,
- therefore pathology is the study of disease by scientific methods.
- **Diseases:** defined as an abnormal variation in structure or function of any part of the body.
- physiology
- **Physio:** mean function or activity or mechanism, logy’ means study or science,

Pathophysiology

- is the science that studying the four aspects of the disease:
 - 1. Etiology,
 - 2. Pathogenesis
 - 3. Morphologic changes
 - 4. Functional derangements and clinical significance

1. Etiology means the cause of the disease.

The etiology of diseases could be:

- genetic
- acquired (infectious, nutritional, chemical ,physical, etc).
- ❖ If the cause of the disease is unknown it is called **idiopathic** and the disease usually preceded by ‘essential’ or ‘primary’ word

e.g primary billiary cirrhosis or essential HT.

- ❖ If the disease caused by genetic and acquired factors called **multifactorial**.
- ❖ If the disease caused by health care staff (doctors, pharmacists, nurses, lab staff...) it called **iatrogenic**

2. Pathogenesis: Pathogenesis means the mechanism through which the causative agent produce the pathological and clinical manifestations.

The pathogenetic mechanisms take place in the incubation period. Pathogenesis leads to morphologic changes and clinical manifestation.

Other special terms can be included here:

Pathogen: any disease-producing agent

Pathogenicity: refers to the ability of an organism to cause disease

pathogenic: causing or capable of causing disease.

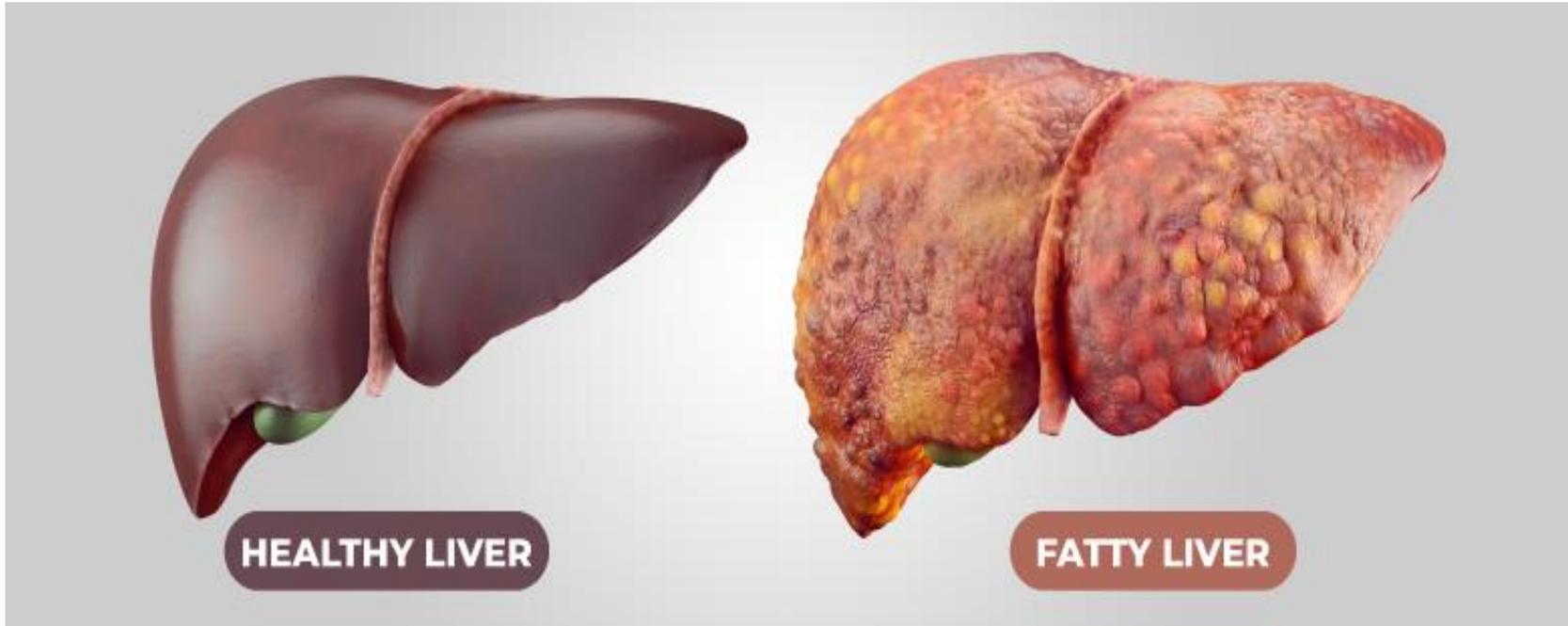
Virulent: highly pathogenic pathogen.

3. Morphologic changes: The morphologic changes refer to the structural alterations in cells or tissues that occur following the pathogenetic mechanisms.

The morphologic changes are:

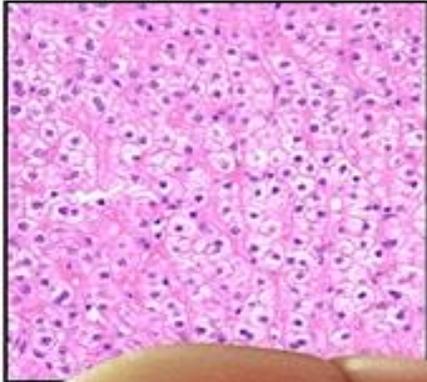
- ❖ gross morphologic changes (macroscopic changes): occur in the involved organ and can be seen with the naked eye
- ❖ microscopic changes: they are only seen under microscope.

Both the gross & the microscopic morphologic changes are specific to that disease. So morphologic changes are very important to diagnosis

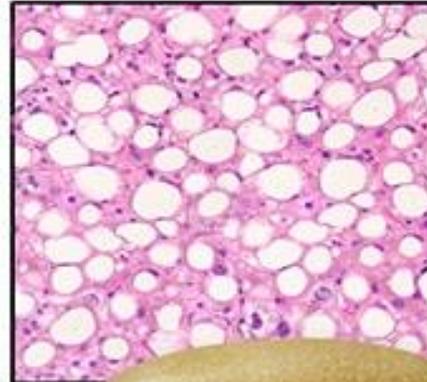


Non-Alcoholic Fatty Liver Disease (NAFLD)

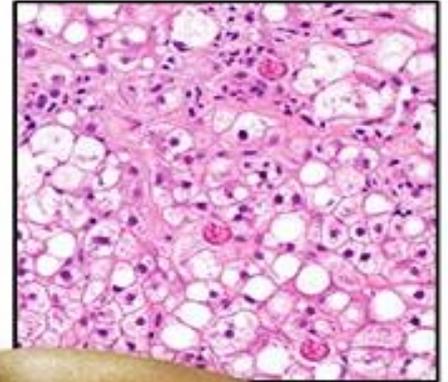
Normal liver



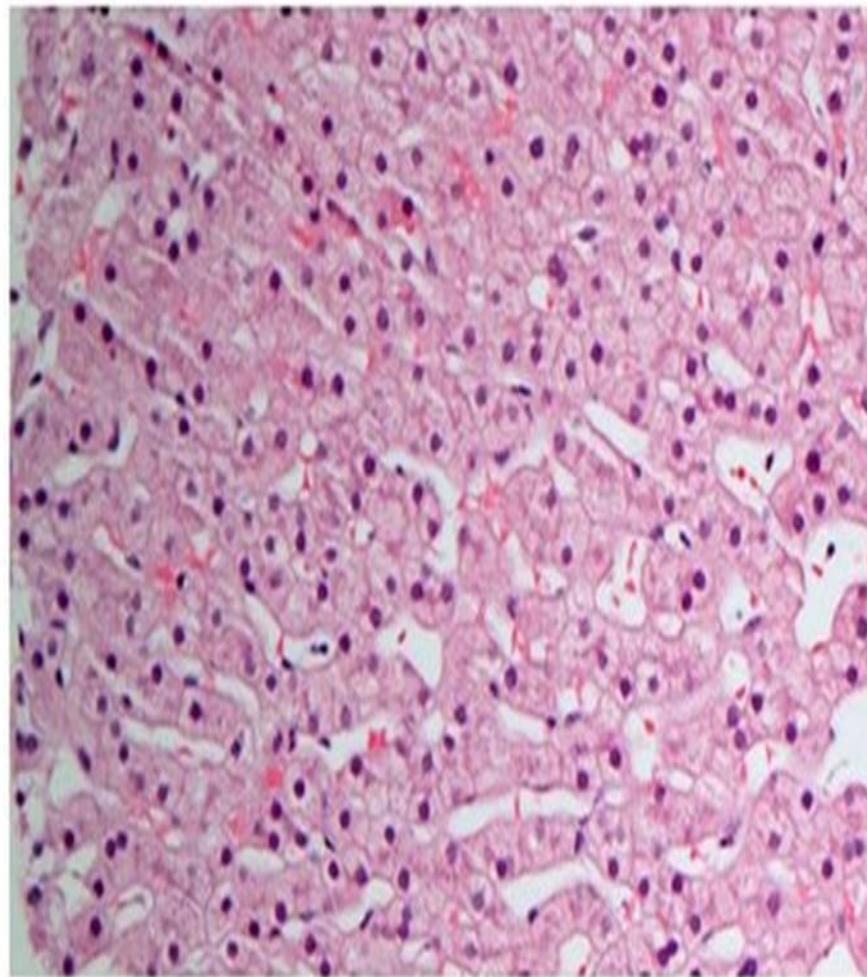
Nonalcoholic fatty liver disease



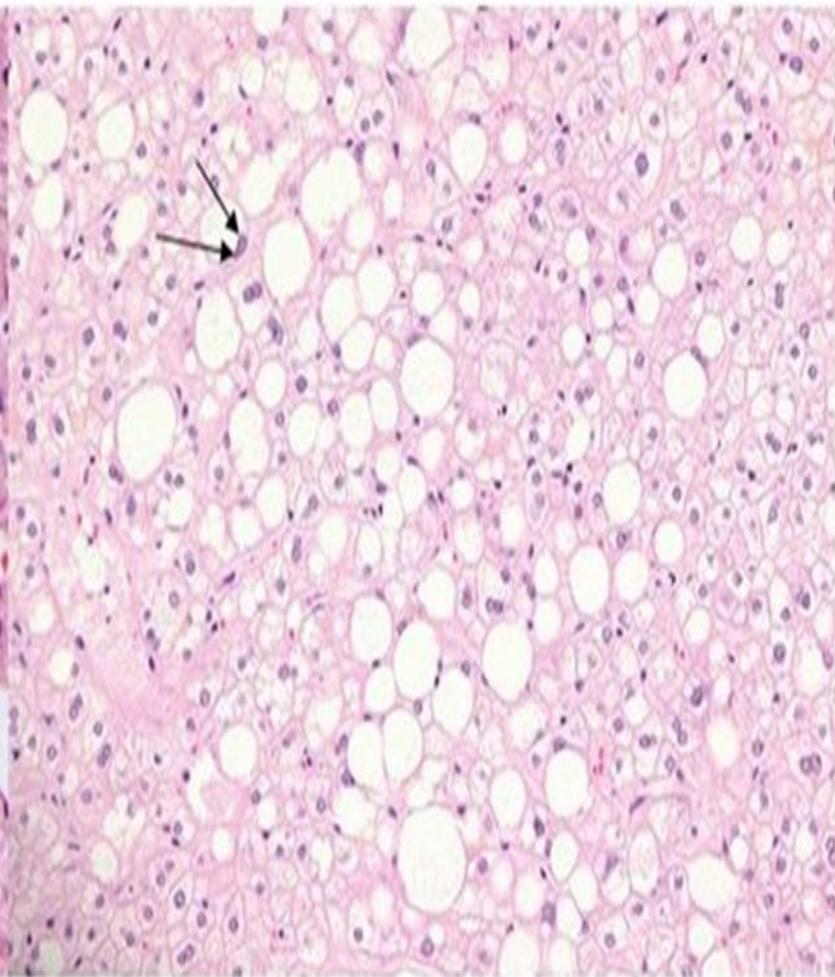
Nonalcoholic steatohepatitis



A



B



4. Functional derangements and clinical significance including signs and symptoms

Symptoms: what the patient feels Signs: what the doctor sees

- In summary, pathology studies:-

- Etiology  Pathogenesis  Morphologic changes  clinical features (due to functional dearangement)

BRANCHES OF PATHOLOGY

- **Histopathology:** Histopathological examination studies tissues under the microscope. During this study, the pathologist looks for abnormal structures in the tissue.
- **Hematopathology** This is a method by which abnormalities of the cells of the blood and their precursors in the bone marrow are investigated to diagnose the different kinds of diseases eg: anemia & leukemia
- **Autopsy:** Autopsy is examination of the dead body to identify the cause of death. This can be for forensic or clinical purposes

Outcome and consequences of disease

- Following clinical onset, disease may follow any of the following trends:
 - a) Resolution : cure leaving no effect,
 - b) healing: the disease can settle down, but effects are left, or
 - c) changed from acute to chronic: the disease taking prolonged course with periods of exacerbation (acute on chronic)
 - d) death