# Introduction to PATHOLOGY

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**18th February 2023**

# Introduction to pathology

## What is pathology??

- ***Pathology*** is the science concerned with studying of diseases.
- ***Studying of diseases*** includes identification of causes and effects of diseases, and also structural and functional changes of organs due to this disease.
- ***Practically:*** pathology is essential for diagnosis of diseases through examination of tissues or examination of different body fluids.
- ***Disease*** is feeling of illness and loss of comfort.
- ***Patient*** is the person affected by a disease.

# Introduction to pathology

## Branches of pathology:

A. **Surgical (anatomical) pathology**:

- Concerns diagnosis of a disease based on gross and microscopic changes of an organs affected by this disease.

B. **Clinical pathology:**

- Concerned diagnosis of a disease based on the laboratory analysis of body fluids (such as blood, urine or other fluids) using chemistry, microbiology and hematology

# Introduction to pathology

## Branches of pathology:

Surgical pathology

Clinical pathology

# Introduction to pathology

## Important definitions

1. **Etiology:** causes that induce the disease (may be one ore more than one etiology)
2. **Predisposing factors**: factors that help development of a disease
3. **Pathogenesis**: mechanism of disease development
5. **Symptoms:** means complain of the patient such as fever, pain, colic, swelling ….. etc.
6. **Signs:** findings that are detected by physician such as tenderness, high temperature, mass ….. etc.

# Introduction to pathology

## Important definitions

7. **<u>Pathological features (morphology)</u>** of the disease include:

   a. ***Gross changes***: changes induced by the disease and can be detected by naked eye examination

   b. ***Microscopic changes*** (Histopathology): changes induced by the disease can be identified by microscopic examination.

# Introduction to pathology

## Important definitions

**8. Course of the disease:**

- Means how the disease progress.
- Course of a disease can be:

1. Progressive: indicate that the disease become more aggressive
2. Regressive: indicate that the patients recovers and returns to normal
3. Stationary: not progressive or regressive

# Introduction to pathology

## Important definitions

9. **Prognosis of a disease:** means the expected outcome of a disease based on nature of the disease as well as symptoms and signs of the patient.

10. **Complications:** A term used to describe additional medical problems that develop due to the disease itself, due to surgical procedure or due to certain treatment.

11. **Fate:** means end result of the disease either by cure or by death of the patient.

# Introduction to pathology

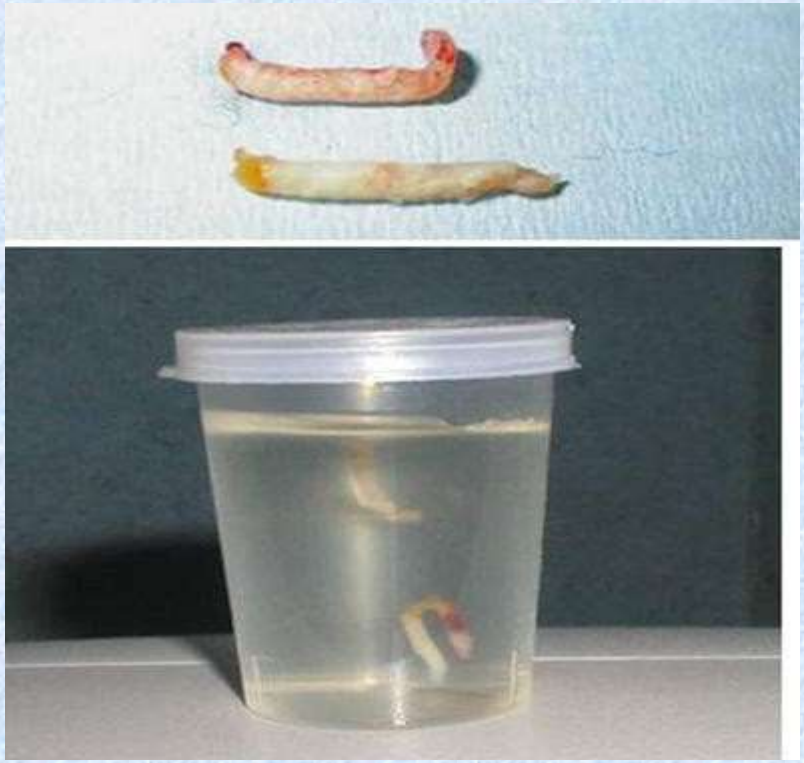
## Samples referred to surgical pathology laboratory:

1. **Biopsy**: Tissue obtained from diseases site or organ for histo-pathological diagnosis. It can be:
   a. ***Punch biopsy, core biopsy*** or ***incisional*** biopsy:
      - Obtaining a small part of diseases tissue.
      - Example: endoscopic biopsy
   b. ***Excision biopsy***:
      - Total excision of the diseased tissue or organ by surgery.
      - Example: appendectomy or cholecystectomy
   c. ***Radical specimen:***
      - Removal of whole organ and related adnexa and lymph nodes
      - Example: radical mastectomy in which the whole breast with axillary lymph nodes are removed and radical hysterectomy in which the uterus, cervix, ovaries and tubes are removed.

# Introduction to pathology

## Samples referred to surgical pathology laboratory:

1. **Biopsy**: Tissue obtained from diseases site or organ for histo-pathological diagnosis



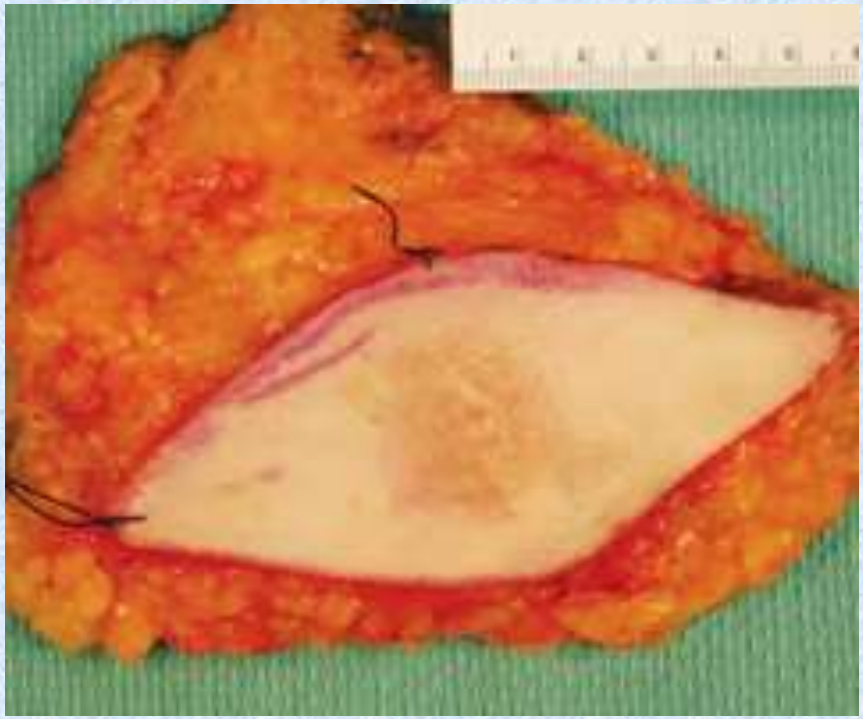
Core biopsy

Punch biopsy

# Introduction to pathology

## Samples referred to surgical pathology laboratory:

1. **Biopsy**: Tissue obtained from diseases site or organ for histo-pathological diagnosis



**Excision biopsy**
(Excision of skin ulcer)


**Radical biopsy**
(Radical hystrectomy)

# Introduction to pathology

**Samples referred to surgical pathology laboratory:**

2. **Cytology samples**:
   - Obtaining body fluids for evaluation of cells floating in this fluid.
   - Examples: obtaining pleural fluid, obtaining ascites, discharge from nipple, smears of uterine cervix, bronchial wash, or obtaining of fluid from a thyroid cyst or breast cyst.

2. **Autopsy:** Obtaining a cadaver or organ to identify cause of death

# Introduction to pathology

**Main aims or objectives of pathology course:**

***By the end of this course; you should be able to:***

1. Gain basic knowledge of general pathology.
2. Identify etiology, predisposing factors, pathogenesis, pathological features (gross & microscopic), fate and complications of common diseases.
3. Correlate the pathological changes in a disease with clinical manifestation presentation
4. Predict the course and outcome of the disease.
5. Realize the role of histopathology and cytology in the diagnosis of diseases.

# Introduction to pathology

❑ **Homework:**

- *Define the subject Pathology*
- *What are the main branches of Pathology?*
- *What are the main items to study pathology of any disease?*
- *Mention types of samples referred to pathology laboratory.*

# Cell injury

GOOD LUCK