المحاضرات العملي

المادة: التحضيرات المجهرية microscopic technique

المحاضرة : الثانية

المرحلة : الأولى. **الدراسة : الصباحية**

اعداد الست : بنين جواد عبد الكاظم

1_Obtaining the specimen: We obtain the biopsy sample from the sick person during the surgical procedure and from the animal immediately after killing it.

The killing process is carried out by several means (slaughter – dismemberment – hitting the back of the head – anesthesia).

2_Fixation:The first step in preparing tissues for augmentation for histological and histochemical examination.

The purpose of the Fixation:

1_coagulation of proteins and the conversion of soluble tissue components into materials insoluble.

2_Maintaining cell integrity from deformation, shrinkage and swelling.

3_Giving the tissue a degree of rigidity required to prepare it for cutting.

4_Preparing the tissue so that it becomes easily permeable and dyeable, and its parts can be distinguished from each other when Examination under a microscope.

Fixative: It is a liquid medium that contains chemicals, some of which work to stabilize the chemical content of cells and intercellular materials by coagulation and sedimentation, and some work to counteract the solvent medium on tissue cells from deformation.

Factors affecting the Fixation process:

•The pH of the Fixative

•Venue temperature

•The concentration and quantity of the fixative

•Duration of Fixation.

Installer fixative:

•Simple fixatings

•Composite fixatings

•Microdissection fixatings

•Cell stabilizers (nuclear and cytoplasmic)

Preparing of solution that used in fixation:

1. 10% formal saline:- Which contains

A. 40 % formaldehyde. 100 ml.

B. Sodium chloride. 9 gm.

C. Tap water. 900 ml.

Advantages:-

1. Well penetration.
2. Blood and fatty tissue are preserver.
3. Causes little shrinkage.
4. Permit a large variety of staining Method.

Disadvantages:-

Store the specimen for many months – formic acid produced which destroys the staining properties.

2. 10 % formalin:- (solution – fluid – fixative)

Preparation:-

A.40 % formaldehyde. 100 ml.

B. Tap water 900 ml. , 40% = saturated

Advantages:-

1. Produce very little shrinkage.
2. Fixation the sample with it can Be followed by most staining technique.

- **Disadvantages:-**

1. Formalin has irritant vapor which may affect the nasal mucus.

2. Dermatitis may be produced by

3_Zinger fixative (orange solution) Preparation:-

1. Mercuric chloride 5gm.
2. Potassium dichromate 2.5 gm.
3. Sodium sulfate 1 gm.
4. Distilled water 100 ml Add 5 ml Glacial acetic acid before use.

- **Disadvantages:-**

1. Poor in penetration.

2. Prolonged exposure of tissue. (**24**h) become brittle. **3**. Mercury precipitate.

4. Tissue fixed in zinger cutting badly when using frozen sections.

4. Boun's fixative (yellow solution) Preparation:-

1. Picric acid 75 ml.

2. 40% formaldehyde 25 ml.
3. Classical acetic acid 5 ml.

Advantages:-

1. Penetrate rapidly.
2. Permit very good staining of nuclei And connective tissue fiber.
3. Tissue doesn't need washing with water.

- **Disadvantages:-**

1. Tissue becomes brittle.
2. Kidney tissue should never be presence in it.

5_Carnoy's fixative Preparation:-

1_Absolute alcohol 60 ml.

2_Chloroform 30 ml.

3_A cetic acid 10 m

Advantages:-

1. Quickly penetrate and acting.
2. Tissue transferred directly to absolute alcohol.
3. Good fixative for chromosomes.