Pre-Test

The Most Common Dye in Histology is ……..

Introduction

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Definition

Oral pathology: A branch of Dentistry and Pathology

- ✓ identification
- ✓ Diagnosis
- ✓ Management

} oral and maxillofacial regions

It involves the study of:

- ✓ Causes
- ✓ Processes
- ✓ effects of these diseases.

Slide Preparation

To prepare oral tissues for microscopic examination, there are several methods to choose from, depending on the **type of analysis required**. The most common methods:

- ✓ **Embedding specimens in paraffin** and sectioning them (4-10 µm in thickness) is the most common method for preparing soft tissue for histological examination.

- ✓ **Fresh frozen** soft sections: the specimen of soft tissue may be frozen and sectioned with out following the same procedures above because that will destroy the tissue. This technique allows a **stained slide to be examined within 10** minutes of taking the specimen

Slide Preparation

- ✓ **Decalcified sections** (removal of mineral structure):

  Specimens containing bone and teeth need to be **softened** by decalcifying in **acid** so they can be processed using standard paraffin embedding techniques for routine microscopy.

- ✓ **A ground** (undecalcified) sections: is prepared by sawing and grinding to make a paper thin slice. To examine the original, mineralized bone structure

Slide Preparation

Why tissue specimen should be prepared ???

Types of microscopy

- ✓ a microscope is an optical instrument which is used in the laboratory for examining the small objects which we can't see in the naked eye
- ✓ microscopes are mainly classified into simple microscope (consists of a single lens) and compound microscope (consists of more than one lens)

Light microscope is classified into four categories:

- Bright field microscope: (specimen appears as dark against the bright background)
- dark field microscope: (The specimen appears as bright against a dark background)
- phase contrast microscope: (to distinguish unpigmented living cells from water)
- fluorescent microscope: (specimen is stained with fluorescent dyes and then exposed to ultraviolet rays)

Electron microscope is classified into three categories:

- scanning microscope
- transmission microscope
- confocal microscope

Biopsy

Biopsy: is the removal and examination of a part or the whole of a lesion.

Types of biopsy:

1. Surgical biopsy: may be incisional or excisional. Incisional biopsy is the removal of part of the lesion for diagnosis only. In excisional biopsy, the whole lesion is removed, and then usually performed to confirm the clinical diagnosis.
   Surgical biopsy has many types:
   - Fixed specimen for routine diagnosis
   - Frozen sections for rapid diagnosis
   - Fresh tissue for immunofluorescence, microbiological culture or molecular analysis
2. Fine needle aspiration biopsy: Removing very small numbers of cells or fluid by aspiration using a fine needle, the sample is processed for diagnosis
3. Wide needle/core biopsy: Needle up to 2 mm diameter is used to remove a core of tissue which is larger than in fine needle biopsy, then processed for diagnosis
4. Brush biopsy and exfoliative cytology: it is limited to the surface cells provide no information on deeper tissue

Biopsy

✓ **Technique:**

1. Anesthesia and incision done around the site of the lesion .
2. Biobsy provide tissue lesion and 2mm around from normal tissue .
3. Fix the tissue immediately in 10% formalin .

✓ **Indication of biopsy**:

1. Any lesion persist for more than 2 week .
2. Any inflammatory lesion that not respond to local treatment .
3. Persist hyperkeratotic changes .
4. Any lesion that has the characteristic of malignancy .