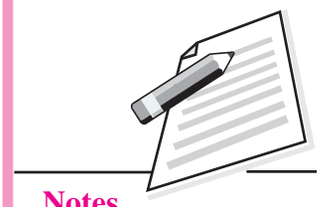


22

CYTOLOGY : SPECIMEN COLLECTION & STORAGE

22.1 INTRODUCTION

Cytology is the field of diagnostic medicine which deals with study of individual cells and/or tissue fragments spread on glass slides and stained. The final quality of cytodiagnosis depends to a large extent on quality of preparation of the material. It has an advantage of providing a rapid diagnosis. Cytological study can be done on various discharges from body (urine, nipple, sputum, vaginal, sinus, etc), scrapings obtained (buccal mucosa, gastric, respiratory), tap done from fluid collected in body (pleural, peritoneal, pericardial) or aspiration from palpable lumps.

OBJECTIVES

After reading this lesson, you will be able to:

- describe the principle of cytology
- explain the methods of sample collection & receiving
- learn how to store the specimen for examination.

22.2 HEALTH AND SAFETY

There are potential hazards in handling fluid specimens like unfixed sputum, urine and other body fluids. All employees should be aware of all health and safety aspects of laboratory, including fire drills, storage and disposal of chemicals, use of electrical equipment, storage and disposal of biological infectious material.

Notes

Modern approach is to use 'Universal Precautions' to treat all unfixed specimens with care and to handle them in biological safety cabinets. Centrifuges should use sealed buckets.

Main aspects of safety in cytology laboratory

1. Specimen reception- suitable container (disinfectant, autoclave proof); availability of suitable disinfectant (hypochlorite); protocol for leakage/ spillage
2. Specimen preparation- Protective clothes, coats, gloves, eye protection etc; Safety cabinet, Disposal pots with disinfectant, Refrigerator for specimen storage
3. Specimen disposal- Disposal protocol, Autoclave, clinical waste collection
4. Fire hazards and evacuation procedure
5. Storage of chemicals- Inflammables, Poisons, Toxic substances
6. First aid

22.3 SPECIMEN COLLECTION

Most specimens are received in the laboratory either as direct cell spreads (on slides) or as cell suspensions (fluids). Most of Hospitals have FNA (fine needle aspiration) clinic where FNA is done by cytopathologist. Medical technologist is required in the clinic to spread the sample on glass slides and fix the slides appropriately. Some clinics also perform rapid staining to check adequacy of material.

22.4 TRANSPORT AND INFORMATION

Specimens should be sent to the laboratory as early as possible in suitable containers. Lids should be properly secured to prevent any leakage and specimens should be sealed in plastic bags. Glass slides should be kept in suitable slide boxes. All specimens and slides should be properly labeled with patient's name and number. Fixed smears should be submitted in containers that protect against breakage. Slide containers are available in a variety of shapes, volumes and material. Optimal design features include easily opened containers which stay closed during transport, shock resistant material, and enough room to prevent slides from adhering to one another or the container. The slides should be marked clearly with the patient's name, as well as other identifiers if possible. If more than one site is sampled, the slides must be clearly marked as to their

site. Slides in fixative should be submitted in leak proof containers that protect against breakage and are clearly labeled with the patient's name and specimen site(s).

Each fluid specimen should be placed in a clearly labeled container that is leak proof. Enclosure in a transport bag indicating biohazardous contents is careful if a courier system or manual delivery is planned. Paper requisitions that accompany slides in fixative should be placed in an outside pocket to avoid exposure to any leakage of fixative. Needles should never be transported with fluid specimens. Large glass collection containers should be avoided.

Specimen should be accompanied by properly filled requisition form. The requisition must also provide space for the date the sample was collected, the test to be performed, the source of the material, and the name and address or other suitable identifiers of the authorized person requesting the test. The request form should contain essential patient identification data- name, age, sex, ward/OPD, hospital number, any previous sample number. Precise information should be given regarding type of specimen, any fixative used, relevant clinical information and any previous treatment. A written procedure must be in place to handle specimens that are received without adequate information on the request form.

High risk specimens should be clearly marked with biohazard stickers or labels.

The specimen after checking all labels should be given a lab identification number. The laboratory identifier may be generated manually or electronically and may be numeric or alphanumeric and may also be bar coded.

Criteria for the rejection of specimens:

- Unlabeled slides, slides labeled with nonpermanent writing utensils or paper labels and broken slides.
- Mismatched specimens and requisition forms
- Specimen without accompanying requisition form

22.5 STORAGE OF SPECIMENS

Samples should be immediately prepared from the specimen. Record the date of preparation on the specimen container and refrigerate any remaining specimen. Specimen can be stored for one week before disposal. Ideally, samples need to be kept until the specimen is reported by the cytopathologist. The extra sample maybe required for any special tests to aid in the diagnosis.

Notes

INTEXT QUESTIONS 22.1

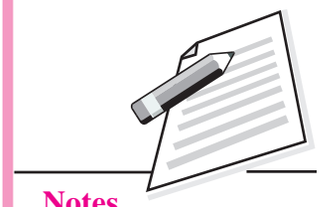
1. The field of diagnostic medicine that deals with individual cells is .....
2. ..... must be used while treating unfixed specimens to prevent transmission of infection.
3. Specimens should be transported to the laboratory as early as possible in ..... containers
4. All patients slides and samples should be labeled with ..... & .....
5. ..... should never be transported with fluid specimens
6. High risk specimens should be clearly marked with .....
7. Specimens can be stored for ..... before disposal
8. Samples should be stored until they are .....

WHAT HAVE YOU LEARNT

- Cytology deals with the study of individual cells or tissue fragments
- Quality of cytodiagnosis depends on quality of preparation of the material
- Universal precautions must be followed while handling specimens
- Specimens should be sent to laboratory as early as possible in suitable container that prevent breakage
- Lids should be properly secured to prevent leakages
- All specimens should be properly labeled with patients name and number
- Needles should never be transported with fluid specimens
- Specimen should be accompanied by filled requisition form
- High risk specimens should be clearly marked with biohazards stickers or labels
- Samples should be stored until it is reported by pathologists

TERMINAL QUESTIONS

1. Define cytology.



2. Give examples of samples on which cytology can be performed.
3. Enumerate few precautions to be taken while handling cytology specimens.
4. Enumerate the points to be kept in mind while transporting and receiving cytology specimens.

ANSWERS TO INTEXT QUESTIONS

22.1

1. Cytology
2. Universal precautions
3. Suitable
4. Patients name and Number
5. Needles
6. Biohazard stickers or labels
7. One week
8. Reported