Gynecological cytology course

Fixation in cytology

Sudanese Cytology Society

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Subtitles

Fixation in cytology:

- Fixation defention
- The role of fixation
- The type of fixatives
- Special purpose fixatives
- Fixatives that used in gynecological cytology
- Technics for fixation
- Precautions

Subtitles

Fixation defenetion:

- Fixation is the basis or foundation of cytological techniques and the results of all subsequent procedures depend on the correct selection and use of the fixative.

Subtitles

Fixation defenetion:

- Fixation is the complex series of chemical events and differs for the different groups of chemical substances that found in tissues and cells.

Subtitles

- Do not excessively shrink or swell cells.
- Do not distort or dissolve cellular component.
- Inactivate enzymes and preserve nuclear details.
- Kill microbes.
- Improve optical differentiation and enhance staining properties of the tissues and cell

Special purpose fixatives:

●10%Neutral formal saline: suitable for fixation of serous clots and cell blocks.
●Formal vapor: preferred for lipid demonstration.
●Glutaraldehyde fixative:It is used for transmitted electron microscope.
● Saccomanno's fixative: Agreen colour fixative for the collection of sputum.
● Epositi's fixative:It is used for urine fixation.

The type of fixatives:

There are several types of fixatives that used for cytological specimens include:
●95% alcohol: used for pap smears, FNA specimens and endoscopic brushing specimens.
●Spray fixatives:Suitable for Pap smears,FNA specimens,nipple secretions and endoscopic brushing specimens.
●%50 Alcohol: Aclear fixative used for the collection of fluid specimens.
● Coating fixative: used for cervical smears.

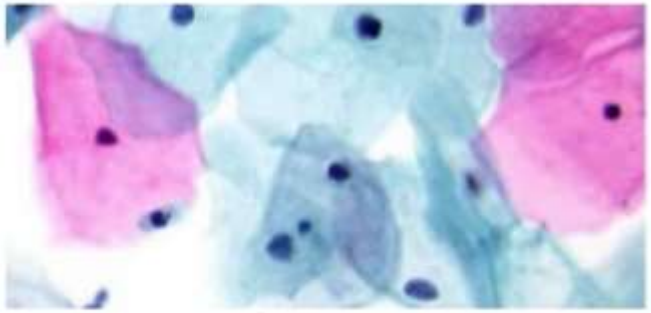
Techniques for fixation of gynaecological specimens:

There are several fixation techniques available depending on the type and volume of the specimen:

●95% Alcohol :

The smears must be wet -fixed rapidly before any air drying occurs .

Papanicolaou's original fixative of equal part of 95% ethyl alcohol and ether has been largely abandoned, because of the fire hazards associated with ether. Most laboratories now use 95%ethyl alcohol for most routine preparation need fixation. The smear should be immersed in acoplin jar contain 95%Alcohol for aminimum of 15 minutes. Alternatively , the fixative may be pippeted on to a slide until the smear is totally saturated and then allowed to dry.



Techniques for fixation of gynaecological specimens:

●Coating fixative:
●Are widely used for cervical smears specially transported specimens.
●Spray or liquid base.
●Alcohol base: fix the cells.
and wax like substance (polyethylene glycol): form a thin protective coating which protect smear from damage.
●To fix smear using dropper bottle or spray.

Techniques for fixation of gynaecological specimens:

●Spray fixative:
It is designed for slide based cytology specimens for cellular preservation and transport.
It combines a convenient fine mist spray dispenser with polyethylene glycol formulation with a water and alcohol solution to enable the rapid , high quality fixation of cells and reduce air drying of the material.
To fix hold the bottle of spray fixative 3-4 inches from the slide and disperse an even layer of fixative over the slide. preferred method for Pap smears.

Subtitles

Fixatives that used in gynecological cytology include:

- 95% Alcohol.
- Spray fixatives
- Coating fixatives.

Quick Reference Guide to Fixation Techniques

Specimen Type	Recommended Fixation Technique	Comments
Large Volume Specimens: Abdominal and Pelvic washings Body Cavity Fluids (pleural, peritoneal) Urine Gastric/Esophageal washings	Mix with equal amounts of: CytoLyt Solution Fix and submit no more than 50 ml of specimen	
Small Volume Specimens: FNA (fluid – not slides) Breast fluid CSF Cyst fluid Synovial fluid Bronchial washing	Mix with equal amounts of: CytoLyt Solution Use 10 ml of fixative if specimen volume is under 10 ml.	With very small amounts of fluid it may be easier to transfer the fixative into the collection device (syringe, suction collection tubes) first. Then into a suitable container to submit the specimen.
Direct Smears: Pap Smears FNA specimens Brushings Nipple Secretions	95% alcohol: The slides should be immersed in the alcohol for a minimum of 15 minutes. Alternatively, the fixative may be pipetted onto a slide until the smear is totally saturated and then allowed to dry. or Spray fix: Hold the bottle of spray fix 3-4 inches from the slide and disperse an even layer of fixative over the slide. Preferred method for Paps.	Pap smears should be completely dry before placing them into cardboard containers. The endoscopic brush may be submitted in CytoLyt after the slides have been prepared.

Precautions:

- Specimens should be fixed quickly and for adequate time.
- Pap smears should not be air dried before fixation ,but if air drying occur can be treated by Rehydration method.
- If smears are fixed over along period of time in alcohol, it is better to store them in capped containers in the refrigerator.
- To preserve some specimens for days without deterioration before fixation ,there are some solutions used for this purpose such as:
  - ethyel alcohol 50%
  - saccomanno's fixative (50% alcohol with 2%carbowax).
  - Mucolexx presevative (for the collection of mucoid and fluid specimens).


Thank
You