SPECIMEN COLLECTION IN HISTPATHOLOGY

1. *Introduction*

Histopathology is a powerful and inexpensive diagnostic method. Submission of the right specimen in the right fixative is crucial for microscopic evaluation of biopsy specimens and organ or tissue samples from necropsies. Properly selected, appropriately collected and preserved specimens are very helpful in establishing an accurate diagnosis. Use fresh, non-autolyzed samples for best results. Place in fixative immediately before sending to the laboratory.

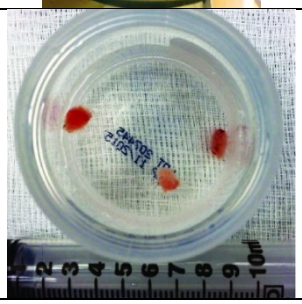
2. *Procedure*

Prepare sterile, wide-mouthed, screw-capped, clear container using 10% formal saline or 10% neutral buffered formalin. The ratio of fixative and tissue must be 50-100 volume of fixative for that of tissue. Patient's name, age, sex, hospital registration number, bed & ward number must be contained in the request form. The specimen should be labelled as either biopsy (from living tissue) or autopsy (from dead tissue).

Generally, 3 types of specimens send to the laboratory for further processing.

a) Specimen collection for microscopic examination (by staining the tissue)
b) Specimen collection for museum mounting
c) Specimen collection for cytological study

a) Specimen collection for microscopic examination of Autopsy & Biopsy Specimens

• Small pieces of tissue: in screw-capped bottle containing a sufficient volume of suitable fixative together with label and request form.	
• Large biopsy: collected in a large container or biohazard bag with label & request form. The tissue is immersed in 10% formal saline, covered with cotton wool soaked in 10% formal saline to prevent dryness of the uppermost of the tissue.	
• Whole organs : preserved in Wentworth's solution or 10% formal saline.	
• Tissue cutting: one or more sections (3-5 mm thick) fixed in 10% formal saline overnight. • Needle biopsy, gastroscopic biopsy, laryngioscopic biopsy must be fixed in formal saline.	

b) Specimen collection for museum mounting

- For museum mounting autopsy specimen must not be washed with water.
- Whole brain must be washed first with normal saline, then fixative is injected into the bacillary artery by a syringe and then the artery is tied off. It must be transferred to a container in which the specimen is suspended in the fixative by means of a thread from a glass or wooden rod laid over the bucket. Lung, liver, kidney, and whole brain must be fixed in this.
- Specimen containing blood must never be washed with water. Always use saline before and after fixation.
- Soft specimen must be fixed individually since contact with other specimen may change their shape.
- Specimen (with any attached structure) must be fixed in the position in which it is finally to be displayed. This is done by pinning the specimen on cork boards which are then float upside down in the fluid.
- Cystic cavities - if they are unopened, they may be inflated with fixative and if they are opened, they may be packed with cotton wool soaked in fixative to maintain their original shape.
- Bile-stained specimens must be fixed or stored individually, or they may stain other specimens.

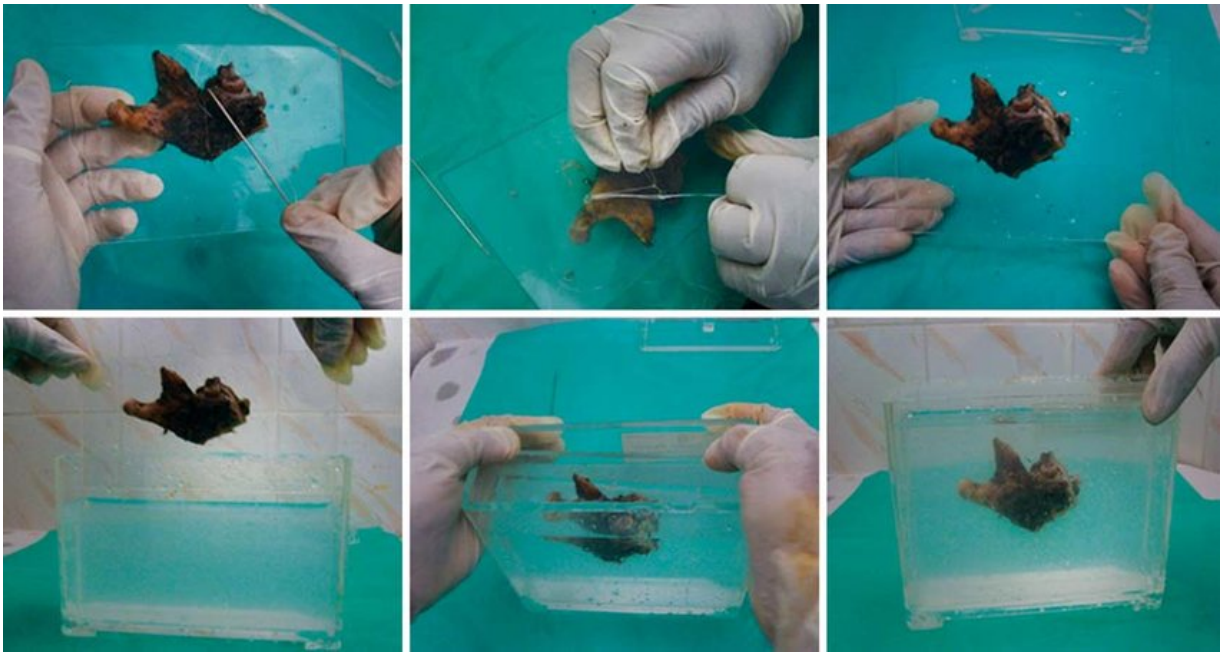
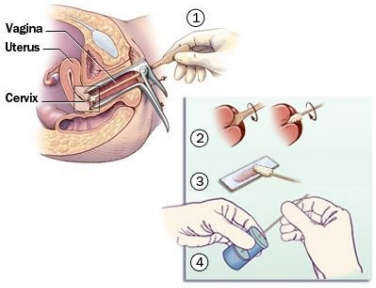
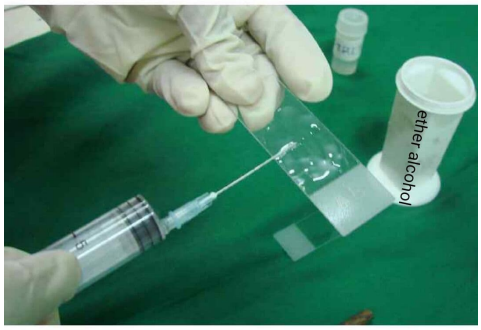


Figure 1 Procedures in mounting of oral specimen

c) Specimen collection for cytological study

• Body fluid - Collect fresh specimen (or) if delay, the clot will form. Therefore, heparin 5ml/10ml of fluid should be used. Then the fluid is centrifuged, and the deposit is smeared on the slide and fixed in equal volume of ether and alcohol.	
• Sputum - Collect fresh sputum and if delay 10-20 cc of 70% alcohol is added to the sputum cup. Then sputum for cytology is smeared on the slide and fixed in alcohol and ether mixture.	
• Cervical smear - The cervical smear is obtained by Ayre's spatula and then the scrapping is transferred to a slide by a simple smearing motion. Then the slide is immediately fixed with ether alcohol mixture.	 
• FNAC (Fine Needle Aspiration Cytology) is fixed in ether-alcohol.	

Reference

- https://vet.uga.edu/selection-collection-submission-of-samples-for-histopathology/
- University of Medical Technology, Department of Medical Technology, Histopathology Practical Manual Handbook
- https://vmdl.missouri.edu/sample-collection-histopathology/
- https://histologylab.ctl.columbia.edu/HistologyLabManual.pdf