SOP
Tissue Specimen Handling & Fixation for Histopathological Examination

Department of Pathology
Faculty of Medicine
UWUSL
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Standard Operating Procedure (SOP) on Tissue Specimen Handling & Fixation For Histopathological Examination

(1) Title:
Tissue Specimen Handling & Fixation for Histopathological Examination

(2) Issued By:
Faculty of Medicine, Uva Wellassa University, Sri Lanka

(3) Purpose
To describe the correct method of fixing tissue specimens before histopathological examination, in order to preserve the tissue structure and prevent autolysis, decomposition and artefacts.

(4) Scope
This procedure applies to all tissue specimens collected for routine histopathological examination. It covers the collection, immediate fixation, labelling, handling and transport of surgical biopsies to the histopathology laboratory.

(5) Responsibilities

(5.1) Medical Officer / Surgeon
(5.1.1) Collect the tissue specimen correctly.
(5.1.2) Place the specimen in the appropriate fixative as soon as possible.
(5.1.3) Provide correct patient and clinical information on the request form.
(5.1.4) Ensure the specimen container is correctly labelled.

(5.2) Nursing / Theatre Staff
(5.2.1) Assist with proper handling and fixation of the specimen.
(5.2.2) Ensure the specimen is placed in a suitable, leak-proof container with adequate fixative.
(5.2.3) Ensure the specimen is sent to the histopathology laboratory promptly.

(5.3) Histopathology Laboratory Staff
(5.3.1) Check the patient identification, specimen label and request form.
(5.3.2) Check the type and adequacy of the fixative.
(5.3.3) Ensure the specimen is properly fixed before processing.
(5.3.4) Record and report any problems with specimen fixation or identification

(6) Safety Considerations

When handling formalin:

(6.1) Wear gloves and other appropriate Personal Protective Equipment.
(6.2) Avoid contact with skin and eyes.
(6.3) Avoid inhaling formalin vapour.
(6.4) Work in a well-ventilated area.
(6.5) Keep the container closed when not in use.
(6.6) Follow the laboratory chemical safety and waste-disposal procedures

(7) Materials Required

(7.1) 10% neutral buffered formalin



(7.2) Suitable, clean, wide-mouthed, non breakable, preferably plastic container
(7.3) Proper specimen label

SPECIMEN CONTAINER

PATIENT NAME: _____

AGE: _____ **SEX: M/F**

BHT: _____ **WARD/CLINIC NO:** _____

SITE: _____

DATE & TIME COLLECTED: _____

FIXATIVE: _____

OTHER: _____

Sample for specimen label

(7.4) Histopathology request form

Uva Wellassa University

HISTOPATHOLOGICAL REQUEST FORM

DEPARTMENT OF PATHOLOGY, FOM, UWU SL

LABORATORARY NO:

HOSPITAL / CLINIC NAME: .....

PATIENT DETAILS (In Block Letters)		**REQUESTING OFFICERS DETAILS**
FULL NAME:		NAME OF THE REQUESTING MEDICAL OFFICER: .....
NIC NO:		DESIGNATION: .....
AGE:	SEX: (M/F)	CONTACT NO: .....
BHT NO:	WARD/UNIT:	SIGNATURE & STAMP OF THE SURGEON:
CONTACT NO:		.....
		DATE: .....

SPECIMEN INFORMATION

ANATOMICAL SITE OF BIOPSY / EXCISION .....
ORIENTATION SUTURES (e.g.: Short superior/ Long lateral) .....
NATURE OF SPECIMEN (e.g.: Skin punch, Endoscopic biopsy, Organ resection, etc.) .....
DATE & TIME COLLECTED: .....
CLINICAL HISTORY & FINDINGS (Duration, Symptoms, Relevant Investigations, etc.): .....
.....
Specific surgical findings: .....
Tentative Diagnosis: .....
Radiological findings: .....
Endoscopic findings (Reports need to be attached): .....
Previous biopsy details (Reports need to be attached): .....

LABORATORY USE ONLY

DATE RECEIVED:	RECEIVED BY: .....
CUT UP DATE:	SLIDES GIVEN DATE: .....
REPORTING DATE:	REPORT ISSUEING DATE: .....
OTHER ESPECIALLY INVESTIGATIONS:	

Sample for histopathology request form

(7.5) Personal protective equipment (PPE)



(8) Principles

After tissue is removed from the body, the cells start to undergo autolysis and the tissue begins to deteriorate. Fixation preserves the tissue by stopping or slowing these changes and maintains the normal cellular and tissue architecture for microscopic examination. The commonly used fixative is 10% neutral buffered formalin (10% NBF).

(9) Procedure

(9.1) Patient Identification

(9.1.1) Confirm the patient's identity.

(9.1.2) Confirm the anatomical site of the specimen.

(9.1.3) Complete the histopathology request form.

- Complete the request form using clear hand writing.
- Write the patient's name in block letters.
- Write the patient's NIC number clearly. (Especially for patients with a diagnosed malignancy)
- Write all numbers using clear digits.
- Provide the contact details of the medical officer or surgeon completing the form.
- Attach the endoscopy and previous biopsy reports to the request form.
- Clearly indicate the orientation represented by each suture on the histopathology request form. (E.g. Short Superior, Long Lateral)

(9.2) Collect the specimen

(9.2.1) Remove the tissue carefully.

(9.2.2) Use sutures to show the orientation of the specimen when necessary.

(9.2.3) Avoid unnecessary handling or crushing of the tissue. (Especially with core biopsy & endoscopic biopsy)

(9.2.4) Avoid damaging the tumour or surgical margins.

(9.2.5) Avoid cutting and opening the specimen or cut through the tumour.



(9.3) Fix the specimen immediately

(9.3.1) Place the specimen into formalin as soon as possible after removal.
(9.3.2) Do not allow the tissue to dry.
(9.3.3) Do not leave the specimen exposed on gauze or the operating table



(9.4) Use adequate formalin and appropriate container

(9.4.1) The specimen should be completely immersed in formalin.

- Ideally, use approximately 10 times the volume of formalin compared with the tissue.

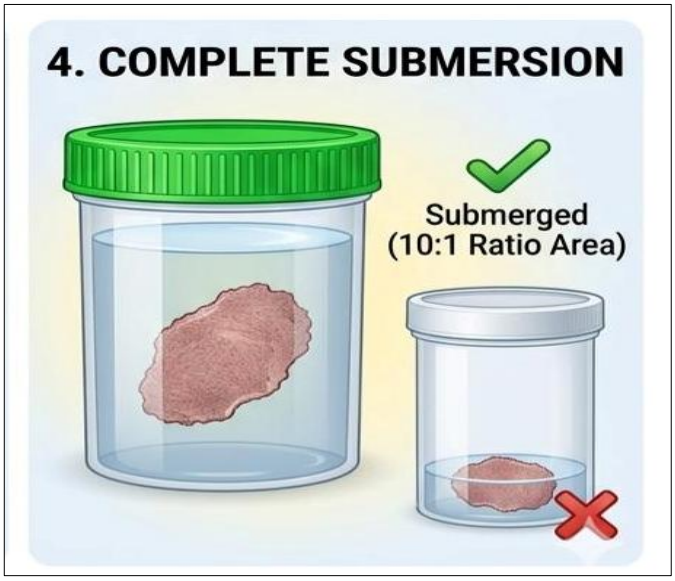
(9.4.2) The container should:

- Be large enough for the specimen.
- Have a wide mouth.
- Be leak-proof.
- Non-breakable & preferably plastic.
- Allow the specimen to be completely covered by formalin.


1. LARGE ENOUGH
Too Small
Properly Sized


2. WIDE MOUTH
Allows Intact Removal After Fixation
Avoid Damage to Specimen
Hardened Specimen
Avoid Damage to Specimen


3. LEAK-PROOF
Secure Lock
Safe Transit
Safe Transit


4. COMPLETE SUBMERSION
Submerged (10:1 Ratio Area)

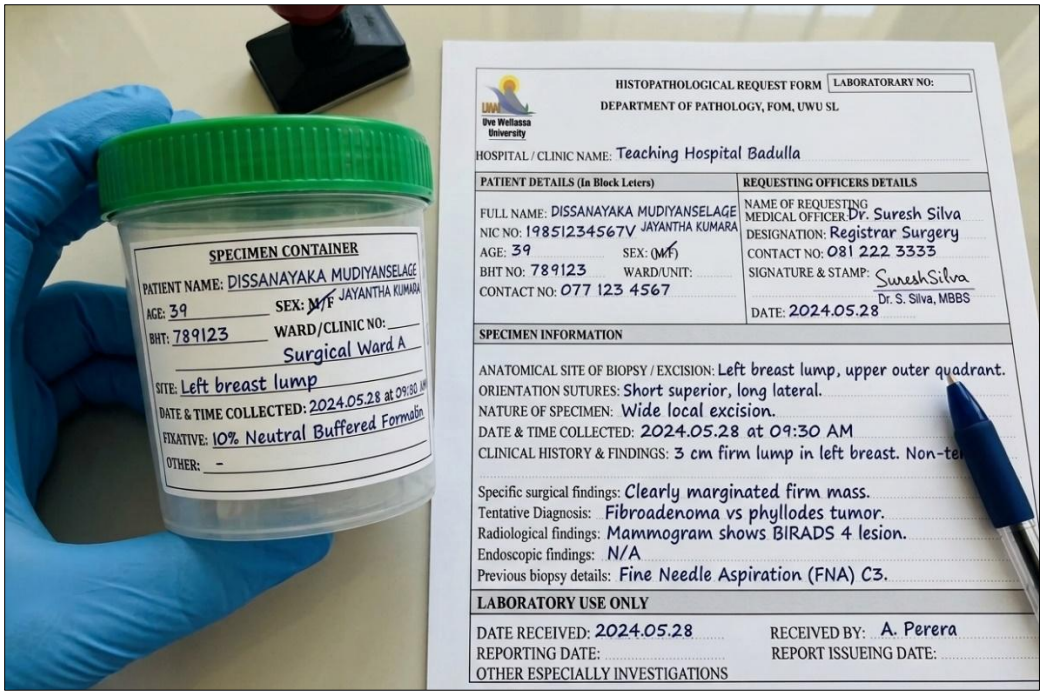
(9.5) Label the container

(9.5.1) The label should include appropriate patient identification details, such as:

- Patient's name
- Unique identification number
- Specimen/anatomical site
- Date and time of collecting
- Other identifiers required by the institution

(9.5.2) Label the container clearly using a waterproof pen.

(9.5.3) The information on the container must match the request form.



(9.6) Transport to the laboratory

(9.6.1) Close the container securely.
(9.6.2) Send the specimen to the histopathology laboratory as soon as possible.
(9.6.3) Avoid excessive heat, mechanical damage and leakage during transport.



(10) References

Ministry of Health, Sri Lanka & College of Pathologists of Sri Lanka. National Guidelines in Histopathology – Collection, Handling and Transport of Surgical Specimens. 2nd Edition, 2021.

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