SOP

Fine-Needle Aspiration Cytology (FNAC)

Department of Pathology
Faculty of Medicine
UWUSL
2026

Standard Operating Procedure (SOP) on Fine-Needle Aspiration Cytology (FNAC)

(1) Title:

Standard Operating Procedure on Fine-Needle Aspiration Cytology (FNAC)

(2) Issued By:

Faculty of Medicine, Uva Wellassa University, Sri Lanka

(3) Purpose

To obtain an adequate cellular sample from a clinically or radiologically detected lesion using a fine needle and prepare it correctly for cytological examination. FNAC is an important component of triple assessment, which includes clinical examination, radiological imaging and pathological assessment. FNAC should be performed after an appropriate clinical and radiological assessment. FNAC can help diagnose benign lesions, inflammatory conditions and malignant lesions, and can guide further management.

(4) Scope

This SOP applies to FNAC of accessible lesions, including:

- Thyroid nodules
- Breast lumps
- Lymph nodes
- Salivary gland lesions
- Other superficial palpable masses
- Selected deep or non-palpable lesions under imaging guidance

(5) Responsibilities

(5.1) Medical officer / clinician performing FNAC

(5.1.1) Assess the patient and lesion.
(5.1.2) Obtain informed consent.
(5.1.3) Select the appropriate site and technique.
(5.1.4) Perform the aspiration safely.
(5.1.5) Assist with adequacy assessment where applicable (Rapid On-site Evaluation [ROSE]).
(5.1.6) Prepare and correctly label the smears/specimen.
(5.1.7) Provide adequate clinical information to the laboratory.

(5.2) Nursing / assisting staff

(5.2.1) Prepare the patient and equipment.
(5.2.2) Assist with the procedure.
(5.2.3) Maintain infection-control precautions.
(5.2.4) Ensure specimens are correctly labelled and transported.

(5.3) Medical laboratory staff / cytology staff

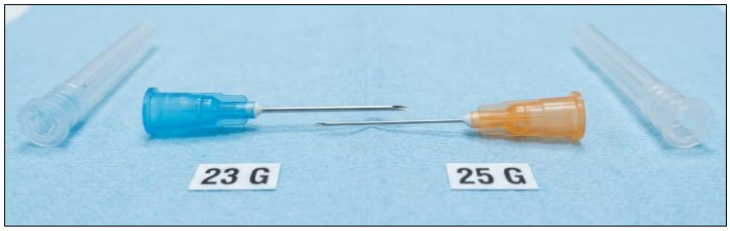
(5.3.1) Receive and check the specimen.
(5.3.2) Process and stain the slides/specimen according to laboratory protocols.
(5.3.3) Maintain specimen identification and quality.

(5.4) Pathologist

(5.4.1) Assist with adequacy assessment where applicable (ROSE).
(5.4.2) Examine and report the cytological material.
(5.4.3) Correlate the findings with clinical and radiological information.
(5.4.4) Recommend further investigation when the sample is inadequate or the findings require confirmation.

(6) Equipment and Materials

(6.1) Fine needles, usually 23–25 G for many superficial lesions



(6.2) Appropriate syringe, e.g. 10 mL



(6.3) Syringe holder, if required



(6.4) Sterile gloves



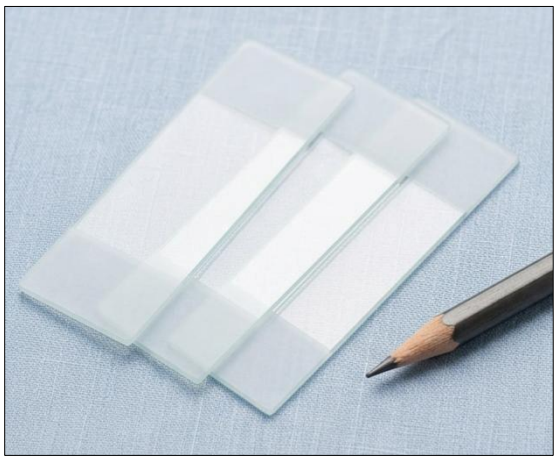
(6.5) Antiseptic solution



(6.6) Sterile gauze/cotton



(6.7) Clean glass slides and a pencil or diamond pencil for slide labelling





(Diamond Pencil)

(6.8) 95% ethanol or other appropriate fixative for wet-fixed smears
(6.9) Appropriate containers for residual material

(6.10) Biohazard/sharps disposal container



(6.11) Request form

(6.12) Labels

(6.13) PPE



(6.14) Additional equipment when required
(6.15) Ultrasound machine and appropriate sterile accessories
(6.16) Local anaesthetic, when clinically indicated (EMLA local anaesthetic cream)



(6.17) Sterile tube with alcohol or Normal Saline for cell block preparation.
(6.18) Materials for ancillary tests, such as microbiology or flow cytometry, when indicated (obtain specific recommendations on collection and transportation)
(6.19) On-site emergency tray

(7) Principles

(7.1) FNAC is a minimally invasive procedure used to collect cells from a lesion using a fine needle for cytological examination.
(7.2) The patient's identity and lesion site should be confirmed before the procedure.
(7.3) Aseptic technique should be maintained to prevent infection.
(7.4) Ultrasound guidance should be used, when necessary, especially for deep or non-palpable lesions.
(7.5) An adequate and representative sample should be obtained, and the smears should be prepared and fixed immediately to preserve the cells.
(7.6) Check the adequacy of the sample.
(7.7) All slides and specimens should be correctly labelled and sent with adequate clinical information.
(7.8) Specimens should be handled and transported carefully and promptly, and used needles should be disposed of safely.
(7.9) The FNAC findings should be interpreted together with the clinical and imaging findings.

(8) Infection Prevention and Safety

(8.1) Perform hand hygiene before and after the procedure.
(8.2) Use appropriate PPE.
(8.3) Use sterile/single-use needles.
(8.4) Do not reuse needles or syringes.
(8.5) Dispose of used needles immediately into a sharp container.
(8.6) Do not recap used needles.
(8.7) Treat all specimens as potentially infectious.
(8.8) Clean the working area according to institutional infection-control procedures.
(8.9) Follow the hospital's biomedical waste-management policy.

(9) Procedure

(9.1) Patient Registration

(9.1.1) Confirm the patient's identity using at least two identifiers, such as the patient's name and BHT/clinic number.
(9.1.2) Register the patient in the FNAC register or laboratory information system.
(9.1.3) Assign a unique laboratory registration or accession number to the specimen.

(9.2) Patient Preparation

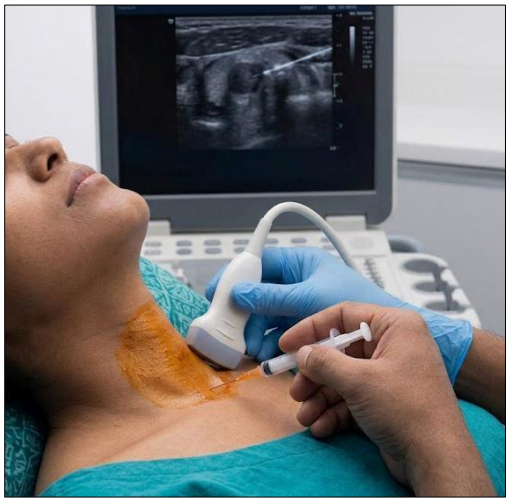
(9.2.1) Explain the procedure to the patient.
(9.2.2) Obtain informed consent according to institutional practice.
(9.2.3) Take relevant clinical history.
(9.2.4) Examine and identify the lesion.
(9.2.5) Review relevant imaging, particularly when the lesion is deep, small or non-palpable.
(9.2.6) Ask about relevant bleeding risks/anticoagulant or antiplatelet therapy and manage according to local clinical policy.
(9.2.7) Position the patient comfortably and expose only the required area.
(9.2.8) Clean the skin with an appropriate antiseptic solution.
(9.2.9) Administer local anaesthesia if required.



(9.3) Sample Collection Procedure

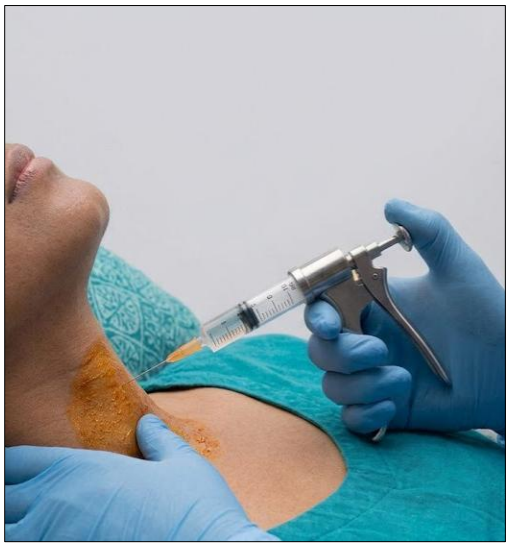
(9.3.1) Identify the lesion

- Confirm the exact anatomical site.
- For multiple lesions, identify each lesion separately.
- For non-palpable or difficult-to-access lesions, use ultrasound or other appropriate image guidance.

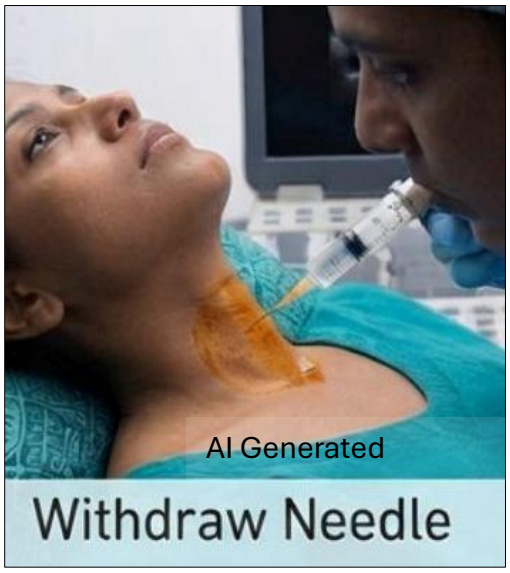


(9.3.2) Needle insertion

- Attach the fine needle to the syringe.
- Stabilize the lesion.
- Insert the needle into the lesion using an appropriate approach.



- Apply gentle negative pressure when using an aspiration technique.
- Move the needle back and forth within the lesion using short controlled movements.
- Avoid excessive suction, which may produce excessive blood contamination.
- Release the suction before withdrawing the needle.
- Withdraw the needle carefully.



(9.3.3) Expel the material

- Disconnect the needle if required.
- Draw air into the syringe.
- Reconnect the needle.
- Gently expel the aspirated material onto a clean, correctly labelled glass slide



(9.3.4) After aspirating fluid from a cyst

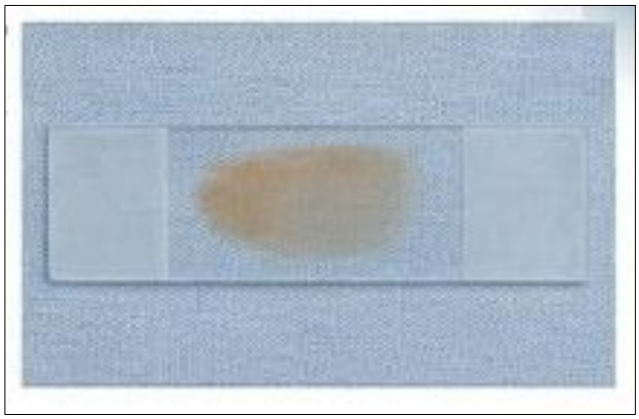
- Disconnect the needle.
- Use a separate syringe to expel the remaining material onto a clean glass slide for smear preparation.
- Send the remaining cyst fluid to the cytology laboratory in the aspiration syringe or another suitable test tube.
- Do not allow the fluid to spill.
- Before sending the specimen to the laboratory, label the syringe or test tube properly.
- Record the clinical information.

(9.4) Smear Preparation

(9.3.1) The aspirated material should be spread promptly to avoid drying artefacts.

(9.3.2) For a conventional smear:

- Place a second clean slide over the material.
- Allow the material to spread gently between the slides.
- Pull the slides apart smoothly without applying excessive pressure.



(9.3.3) Prepare several smears when sufficient material is available.

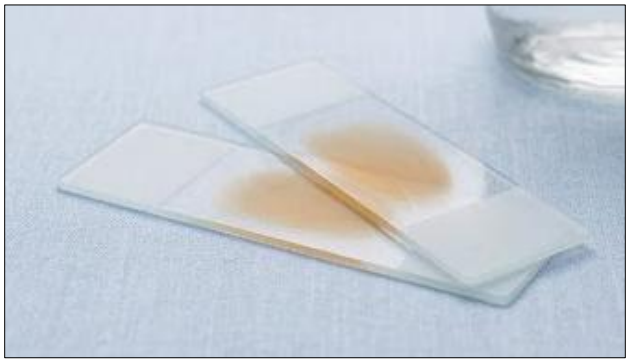
(9.3.4) Fixation

- Use the appropriate fixation method according to the intended stain:
- Wet fixation: Immediately place the smear in an appropriate alcohol-based fixative, commonly 95% ethanol, for H&E or Papanicolaou staining.
- Do not allow a smear intended for wet fixation to dry before fixation, as this can produce drying artefacts.



(Coplin jar)

- Air-dried smear: Allow the smear to dry immediately in air when a Romanowsky-type stain is intended.



(9.5) Labelling of Slides

(9.4.1) Label the slide clearly and permanently.

(9.4.2) Include the accession number in the label

or

(9.4.3) Label the Coplin jar with appropriate patient identifiers, such as:

- Patient name
- Hospital/BHT/clinic number or other unique identification number
- Specimen/site where necessary
- Do not rely only on the patient's name.
- The label on the slide must correspond with the FNAC request form.

FNAC LABEL

PATIENT NAME: _____

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

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

SITE: _____

DATE & TIME COLLECTED: _____

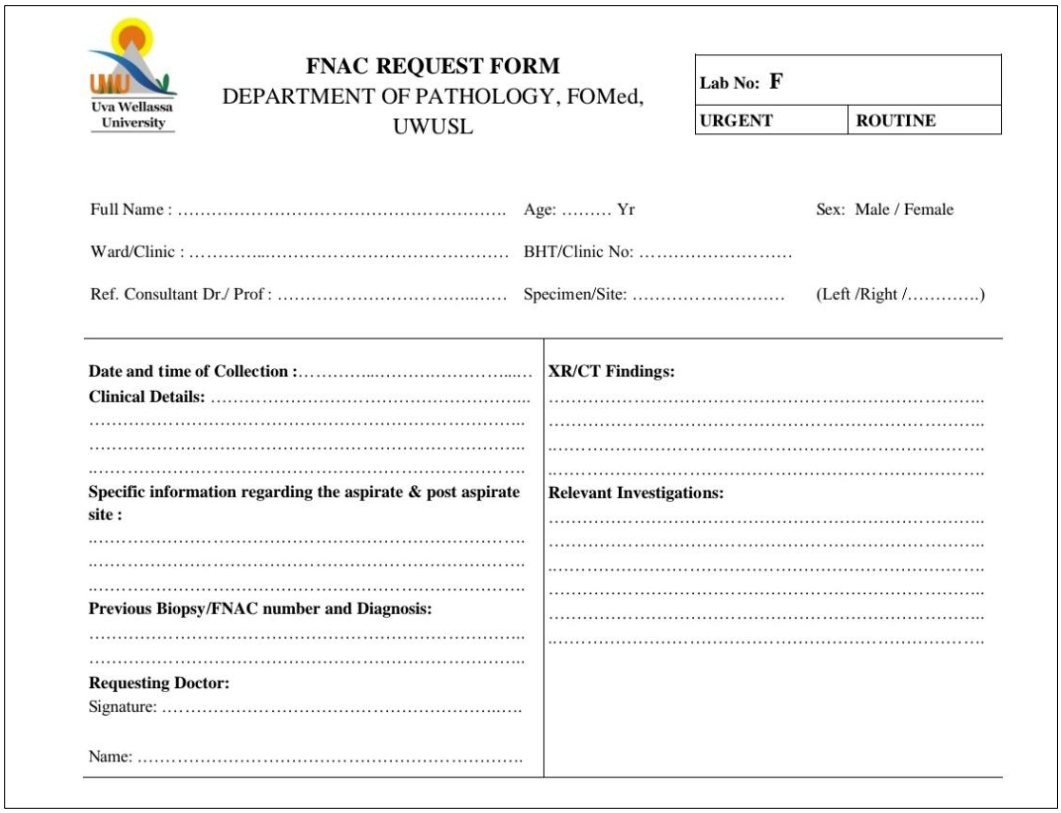
OTHER: _____

(Sample for Label)

(9.6) FNAC Request Form

(9.5.1) The request form should contain sufficient information for accurate cytological interpretation. Include:

- Patient's full name
- Unique patient identification number
- Age and sex
- Ward/clinic/hospital
- Date of collection
- Anatomical site of the lesion
- Side, e.g. right/left
- Clinical findings
- Duration of lesion
- Relevant previous investigations
- Relevant imaging findings
- Previous FNAC/biopsy results, if available
- Relevant treatment history
- Provisional clinical diagnosis
- Name/signature of the requesting clinician
- For multiple lesions, identify each anatomical site separately.



FNAC REQUEST FORM
DEPARTMENT OF PATHOLOGY, FOMed, UWUSL

Uva Wellassa University

Lab No: F	
URGENT	ROUTINE

Full Name : ..... Age: ..... Yr Sex: Male / Female

Ward/Clinic : ..... BHT/Clinic No: .....

Ref. Consultant Dr./ Prof : ..... Specimen/Site: ..... (Left /Right /.....)

Date and time of Collection :.....

Clinical Details: .....

.....

.....

.....

Specific information regarding the aspirate & post aspirate site :

.....

.....

.....

Previous Biopsy/FNAC number and Diagnosis:

.....

.....

Requesting Doctor:

Signature: .....

Name: .....

XR/CT Findings:

.....

.....

.....

.....

Relevant Investigations:

.....

.....

.....

.....

.....

.....

(Sample request form)

(9.7) Specimen Transport

(9.6.1) Ensure all slides and containers are correctly labelled.
(9.6.2) Place slides in a suitable protective slide box.
(9.6.3) Place other specimens in appropriate leak-proof containers.
(9.6.4) Send the specimen to the cytology laboratory as soon as possible.
(9.6.5) Follow the laboratory's requirements for specimens requiring special studies.

(9.8) Adequacy of the Sample

(9.7.1) An adequate sample should contain sufficient, well-preserved cellular material to allow reliable cytological interpretation.

(9.7.2) An inadequate sample may result from:

- Insufficient cellular material
- Excessive blood
- Poor smear preparation
- Drying artefacts
- Incorrect sampling of the lesion
- Poor fixation
- Incorrect specimen handling

(9.7.3) If the sample is inadequate, repeat FNAC or image-guided sampling may be required, depending on the clinical situation.

(9.9) Reporting

(9.8.1) The pathologist should interpret the cytological findings together with:

- Clinical findings
- Imaging findings
- Previous cytology/histology
- Relevant laboratory investigations

(9.8.2) The reporting system should follow the appropriate site-specific Sri Lankan national guideline.

- For example, thyroid FNAC reporting in Sri Lanka follows the national guideline based on the Bethesda System for Reporting Thyroid Cytopathology.

(10) References

(10.1) Guidelines for reporting fine needle aspiration cytology in Sri Lanka. Colombo: Ministry of Healthcare and Nutrition, Sri Lanka; 2007.

(10.2) Thyroid cytology reporting: national guidelines for Sri Lanka. Colombo: Ministry of Health, Nutrition and Indigenous Medicine, Sri Lanka; 2016.

(10.3) National guideline on cancer early detection and referral pathways. Colombo: Ministry of Health, Sri Lanka.

(10.4) National guidelines in histopathology: collection, handling and transport of surgical specimens. 2nd ed. Colombo: Ministry of Health, Sri Lanka; 2021.

(10.5) National guidelines for the management of breast cancers in Sri Lanka. Colombo: Ministry of Health, Sri Lanka.

(11) Prepared by:

Dr. Carmalita Senarath
Consultant Histopathologist
General Hospital
Negombo

Dr. Lakmal Hewage
Head of the Department (Acting)
Department of Pathology
Faculty of Medicine
Uva Wellassa University of Sri Lanka

Dr. Waruni Wathsala Priyadarshani
Lecturer (Probationary)
Department of Pathology
Faculty of Medicine
Uva Wellassa University of Sri Lanka

Dr. Navoda Gunarathna
Temporary Demonstrator
Department of Pathology
Faculty of Medicine
Uva Wellassa University of Sri Lanka

Snr. Prof. M. Vidanapathirana
Dean
Faculty of Medicine
Uva Wellassa University of Sri Lanka

(12) Date of implementation: 17/11/2026