



Heartland
Pathology
Consultants, PC

3509 French Park Drive, Suite D
Edmond, OK 73034

Phone: 405.715.4500
Fax: 405.715.4519

NONGYNECOLOGICAL CYTOLOGY FINE NEEDLE ASPIRATION SPECIMENS

I. Purpose

Fine needle aspiration of mass lesions is commonly utilized in the detection and characterization of a variety of malignant diseases. Obtaining an adequate specimen requires attention to good aspiration technique as well as to processing of material obtained.

II. Specimen

General Information for all Specimens

For Specimens Processed for Cytology (Non-Gynecological Specimens):

Add 70% alcohol, as soon as possible, in a volume equal to the specimen collected. Label each container with the patient name, site source and the requisition peel-off number. Submit the specimen along with the completed Heartland Pathology Consultants requisition at room temperature.

For Specimens Processed for Microbiology or Clinical Analysis:

Specimens intended for culture must be collected in a sterile container or in sterile saline (*without 70% alcohol or 10% neutral buffered formalin*) and *split* from the main Non-Gynecological specimen prior to transport with the proper requisition for microbiology culture or clinical testing. Consult the clinical lab test catalog for specific specimen requirements.

III. Supplies

A. Supplies to be assembled on-site:

3, 5, 10 or 20 mL syringe.

Syringe pistol (optional).

22- to 25-gauge needle of appropriate length.

Appropriate ultrasonographic or radiographic imaging instrumentation and specialized aspirating equipment (for deep aspirates).

B. HPC supplies Fine Needle Aspiration Kits upon request

5 Single end frosted glass slides (for preparation of direct smears).

5 Paper Clips

70% alcohol container (labeled "slides")

IV. Procedure

1. Assemble aspirating equipment.

2. Patient Preparation

For superficial aspirates, clean technique suffices for cleansing the skin surface. Local anesthetic is recommended if more than two or three attempts are anticipated. Do not contaminate the lesion with a large volume of anesthetic or interfere with the ability to palpate and localize the lesion. For deep aspirates, sterile technique is required for cleansing of the skin, and local anesthetic is usually required.

3. Slide Preparation

- a. **FOR FIXED SLIDES:** Label frosted end of glass slide with patient's last name and "fixed." Attach a paper clip to each frosted end of the slide. Open jar containing 70% alcohol (labeled "slides") and place near slides.
- b. **FOR AIR-DRIED SLIDES:** Label frosted end of the glass slide with patient's last name and "Air dried."

4. Aspiration of Palpable Mass

a. Superficial Masses

Assemble the aspirating equipment. If direct smears are to be made, label the slides prior to the aspiration. With the target of aspiration fixed with the nondominant hand between the thumb and index finger, and the syringe pistol in the dominant hand, the needle is placed against the skin. If the lesion is very superficial, the needle should approach the skin at approximately a 30-degree angle. If the mass is deep, it should approach the skin perpendicularly.

A quick motion should be used in passing the needle through the skin. The needle is then advanced through the subcutaneous tissue into the mass. If the mass is small, the needle should be aimed toward the center (**see Diagram 1**); if it is large, the needle should be aimed toward the periphery, as the center of larger

masses may be necrotic. A noticeable difference in the consistency of the tissue should be noted when the needle penetrates the mass.

With the needle in the mass, the needle tip should be moved in short motions initially to loosen cells within the mass. Negative pressure is then applied by pulling back on the plunger of the syringe (**see Diagram 2**). Without releasing pressure, the needle within the target is withdrawn slightly but not out of the lesion, and then reinserted at a slightly different angle. This maneuver should be repeated several times before complete withdrawal (**see Diagram 3**). While redirecting the needle, a corkscrew action may be used. If blood or material appears in the hub of the needle, the aspiration should be stopped.

Prior to withdrawal of the needle, negative pressure must be released to prevent suction of the material into the barrel of the syringe when the needle exits the skin (**see Diagram 4**).

b. **Deep Lesions**

While the basic aspiration procedure is similar for deep lesions, specialized needles and set-ups for aspiration and emergency equipment for handling major complications are required. Avoid aspirating material from the needle into the syringe. Prior to withdrawal of the needle, negative pressure must be released to prevent suction of the material into the barrel of the syringe when the needle exits the skin (**see Diagram 4**).

5. **Transfer aspirate material to the glass slides.**

- a. The needle containing the sample is detached from the syringe.
- b. The syringe is filled with air by retracting the piston (**see Diagram 5**).
- c. The needle is reattached to the syringe.
- d. The aspirate is then expressed onto a glass slide (**see Diagram 6**).

6. **Making Slides of Aspirate Material**

- a. Push down on plunger and deposit a drop of specimen near the frosted end of glass slide.

- b. A second slide is used as a spreader by placing it at a right angle to the slide on which the sample has been placed (**see Diagram 7**).
 - c. Gently pull the top slide across the bottom slide to thinly smear the sample. Do not press down with the top slide; let the weight of the top slide distribute the sample. Both the top and bottom slides will contain cells and can be submitted for cytologic evaluation.
 - c. Place "fixed" smear immediately into 70% alcohol.
 - d. Allow other slides to air dry.
 - e. Repeat procedure for additional slides.
7. The availability of both air-dried and fixed slides on thyroid aspirations and other body sites is complementary and heightens the diagnostic accuracy.
 8. Any fragments of tissue or excess aspirate after smears have been prepared should be placed in a plastic jar of 70% alcohol (labeled "specimen") and submitted with the smears for processing.
 9. Place air-dried smears in plastic slide holder.
 10. Label the 70% alcohol containers and plastic slide holder with patient's name and site of aspirate.
 11. Discard needle and syringe in sharps container.
 12. Cyst fluids should be added to red-top Vacutainer tubes.
 13. **STORAGE:** Submit all materials at room temperature.
 14. Use a blue Heartland Pathology Consultants requisition form and complete the patient's history to submit all specimens.
 15. Fine needle aspiration specimens will be picked up by courier along with other routine pathology specimens. To call for additional FNA kits, please dial 405.705.1770.

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Aspiration of Palpable Masses

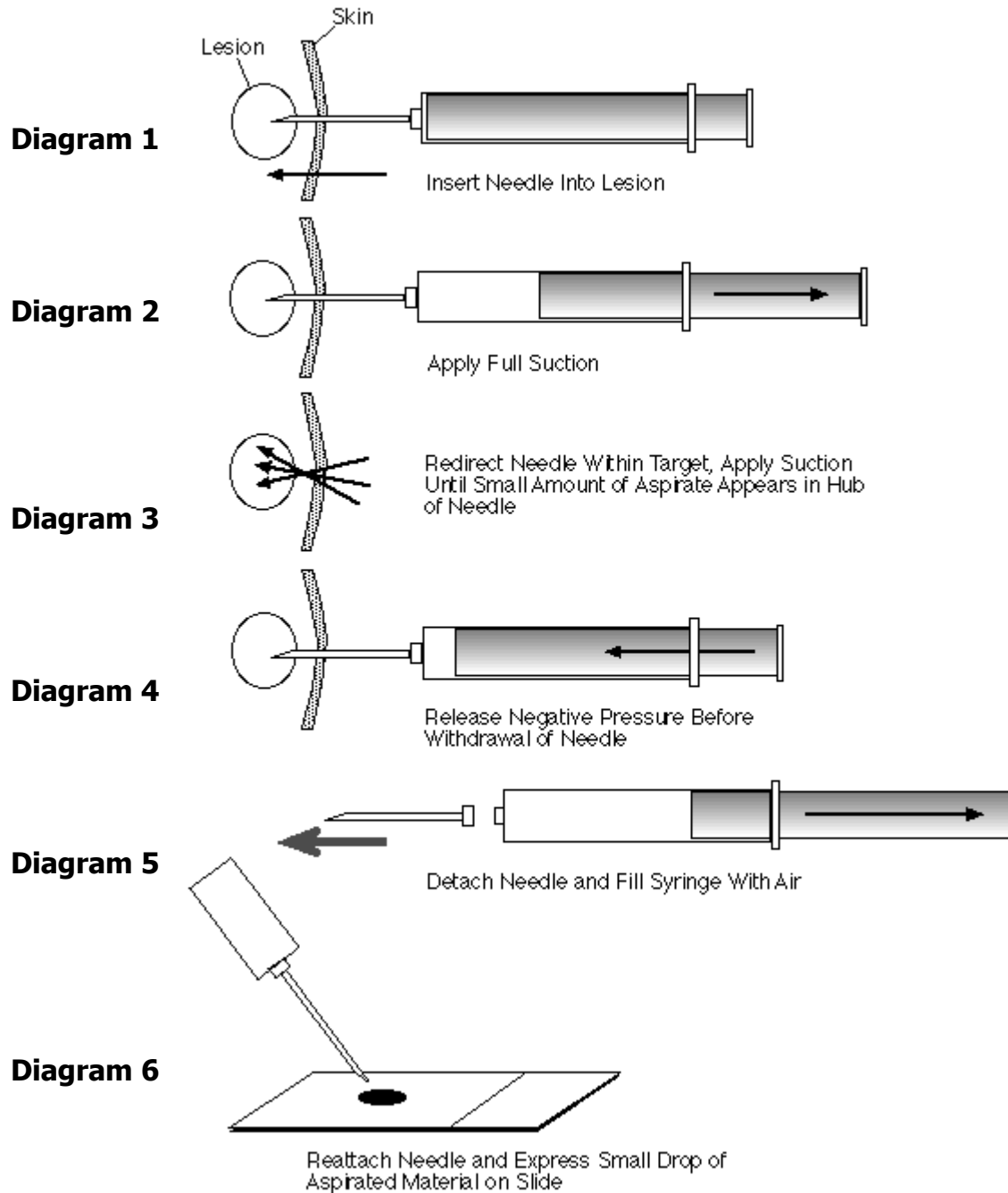
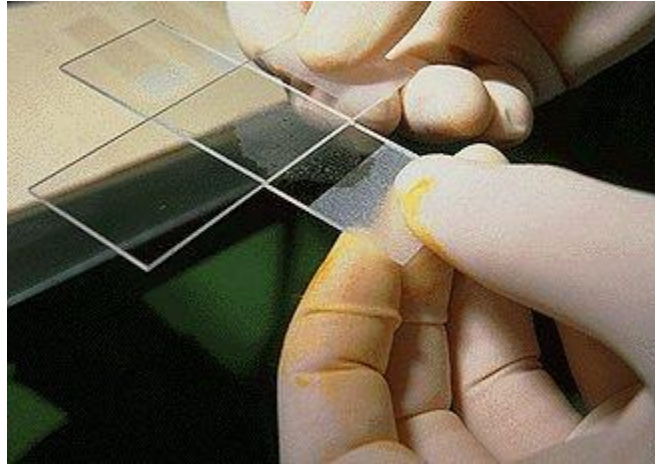


Diagram 7**References**

- A. Koss, Leopold G MD: *Diagnostic Cytology and its Histopathologic Basis*, Volume 2, JB Lippincott Company, 1992
- B. Lester, Susan C MD, PhD: *Manual of Surgical Pathology*, Churchill Livingstone, Philadelphia, 2001.