Fine Needle Aspiration Training Module

Oncura Partners Holdings, Inc.
Diagnostics Division
1-866-233-9100

TRAINING MODULE
ULTRASOUND GUIDED
FINE NEEDLE ASPIRATIONS (FNA)

Ultrasound guided fine needle aspirations provide a very efficient, inexpensive and minimally invasive procedure that will provide the appropriate diagnosis of disease conditions in the vast majority of cases. US guided FNA's is a vastly underutilized tool in veterinary practices.

CASE SELECTION:
ANY mass or disease condition is a potential for use of US guided FNA.
Examples: Specific mass/lesions noted of internal organs, Liver, Spleen, GI tract (intramural gastric and intestinal lesions), Pancreas, Bladder, Prostate, Lymph nodes. Lung Lesions along periphery of the lobes (hence can be detected by Ultrasound), Soft tissue masses on the outside of the body.
Also used for Pericardiocentesis, Thoracocentesis and Abdominocentesis procedures

Key Points:

US guided FNA's are offered to our clients FIRST for the following reasons: Minimally invasive, requires a heavy sedation or very light anesthesia (sometimes NO sedation). A relatively quick tool to gain the microscopic diagnosis we need to diagnosis the disease condition and formulate proper treatment plans.

LIVER: If there are signs of neoplastic changes on Ultrasound – FNA will almost always provide the proper diagnosis. In inflammatory liver disease (enzyme elevations) – we still start with FNA and always tell the owner that larger liver biopsies might be indicated. But this first step may provide the appropriate information to move forward with therapy and other diagnostic considerations.

IF you are concerned about a FUNCTIONAL liver issue (elevated Bile Acids) – particularly if Microvascular Dysplasia vs. PSS, is a consideration – then we do tell the owner that a larger hepatic biopsy is in order.
We can also provide US guided Core Biopsies with any other form of Larger Bore biopsy needle (once appropriate Clotting tests have been established).

SPLEEN: The very nature of this organ will often have excessive blood dilution – but we will recommend US guided FNA of the spleen in specific nodular lesions. You should always let the client know that hemodilution can be a challenge with this organ and any form of biopsy. The most difficult cytological diagnosis is differentiating between hematoma and hemangiosarcoma (this usually requires splenectomy and histopathology

Preparation:

The hair should be clipped in the area of approach. The skin should have a quick aseptic cleaning by applying alcohol to wet the skin for transducer to skin contact.

Activate the Biopsy Guide on the SonixTab by selecting the mode button on the left of your screen and then selecting Biopsy Guide. The Biopsy Guide will only appear when using the linear transducer.

Move the depth indicator to the area of interest and measure from skin surface to area of interest to get an idea how deep you will be going for adequate need length.

Use your dominant hand to perform the needle biopsy procedure, thus the Marker on the transducer and screen may need to be reversed for ease of use during the FNA procedure. Accessing the patient from different sides of the table may increase the comfort of the Doctor performing the procedure.

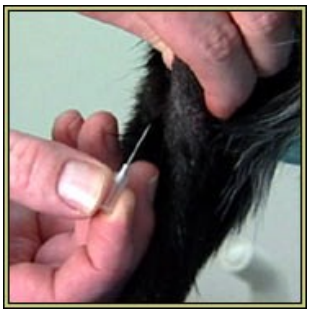
Activate the sonix shine if desired to amplify the needle on ultrasound.

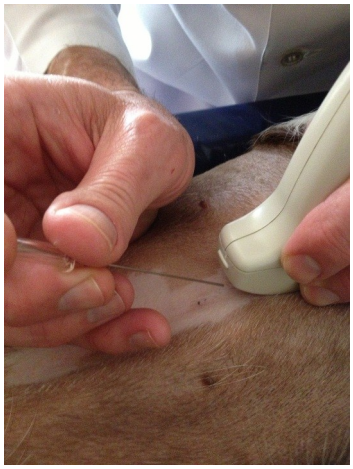
Supplies:

The most commonly used needle is the 1 ½" to 2" 22 gauge needle or the stylet of an IV Catheter. Any larger gauge needle will often increase potential for hemodilution of your sample.

6 to 8 glass slides

12 cc syringe

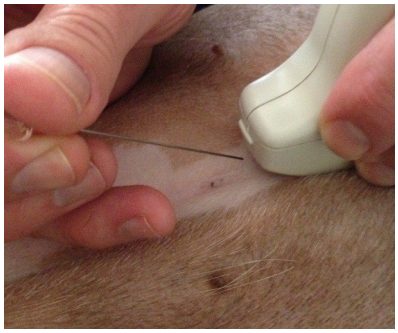


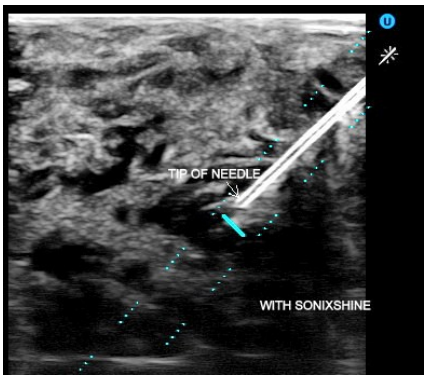


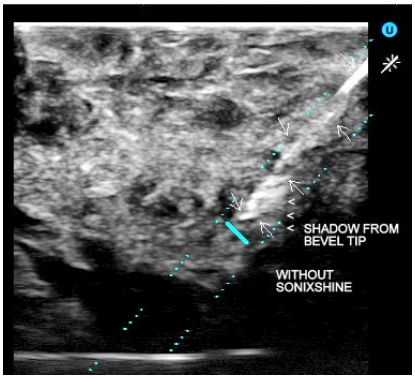
Technique:

Identify the specific lesion under Ultrasound. If palpable stabilize the mass or lymph node between the fingers and thumb. If not palpable, Find the lesion with ultrasound and place the Needle at 45 degrees at the end of the transducer In the middle of the notch.

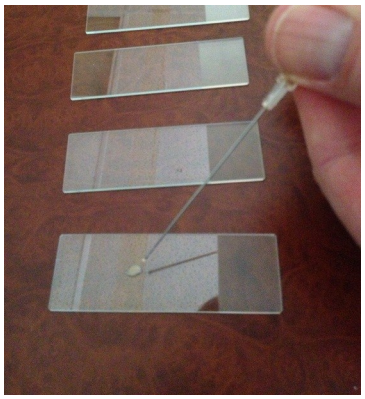
THERE IS NO NEED ATTACHE A SYRINGE FOR ANY NEGATIVE PRESSURE! This will only increase blood contamination and fracturing of cancer cells. The negative pressure within the needle is adequate to exfoliate cells for sampling.







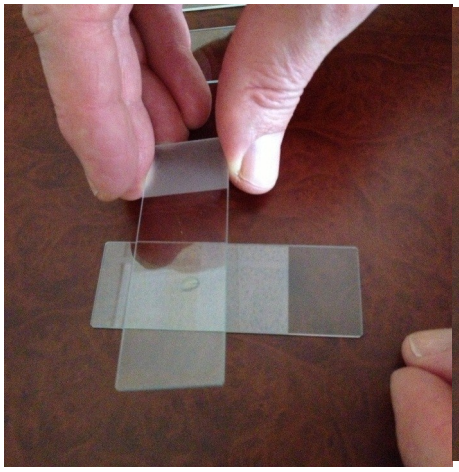
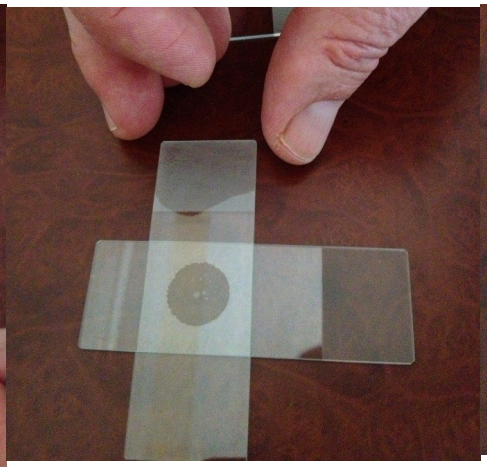
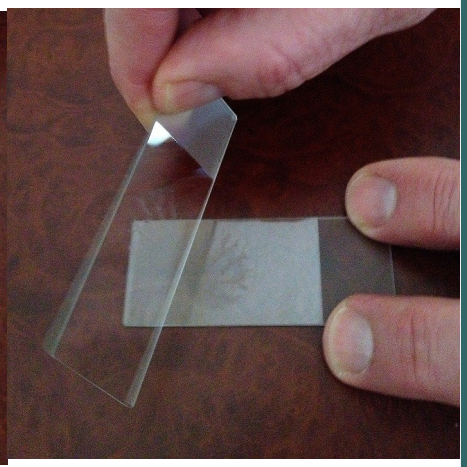
The users index finger is placed over the hub of the needle to minimize tissue from entering while the needle is advanced. Advance the needle using a back and forth motion to help identify the needle on ultrasound. Once the needle is in the target lesion, the finger is lifted off the hub and the needle is moved in and out about 4 to 5 times – while STAYING within the target lesion.



Remove the needle from the site.
Attach a 12 cc syringe (with about 10 cc of air in it) to the needle. Holding the needle in place on the syringe be sure the bevel of the needle is pointed down toward the slide surface. Push the plunger with moderate force to expel material. Repeat this step twice for each needle aspirate.

Make the impression smears by placing another slide upside down on top of the sample slide. Apply GENTLE pressure and pull the slides apart. (DO NOT USE FIRM PRESSURE OR SLIDE THE microscope slides over each other!)

Repeat the above procedure until you have 6-8 slides with adequate sample noted.

Kidney FNA: When you attempt a renal FNA sample, remember you want the renal cortex! The renal medulla does not help with a diagnosis. In cases of renal neoplasia, we can often easily obtain diagnostics samples, but in inflammatory/immune mediated type diseases, there may be a reason for a larger core needle biopsy sample.

You will need to align the needle parallel to the renal cortex at the area of interest. Once in the renal cortex, the back and forth motion should provide adequate cytological samples.

Lung FNA: Any solid/nodular lesion of the lungs that is in the periphery of the lung field (next to the thoracic wall) or surrounded by a fluid interface can be identified with ultrasound. These lesions can be aspirated just like any other mass lesion.

Lymph Node FNA: Ultrasound guided FNA of lymph nodes is beneficial as we often identify cases of alimentary lymphoma in this way, as well as metastatic diseases. When performing Lymph Node aspirations it is easy to push too hard with the transducer and move the target lymph node out of the field of vision. Once the lymph node is identified and in the path of the biopsy guide, use gentle pressure on the probe as only the needle needs to be creating pressure as it approaches and penetrates into the lymph node. Move the needle back and forth at least 4 to 5 time in target node.

Fine Needle Aspiration Transducer Needle Guides

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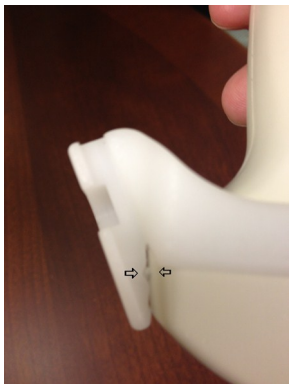
General Purpose Needle Guide Instructions

1. Attach bracket to the transducer aligning the notches on the bracket to the noches on the transducer.

Linear Probe:



Curvlinear Probe:




2. Make sure that the bracket is securely attached to the transducer.

On the linear transducer snap the bracket closed.

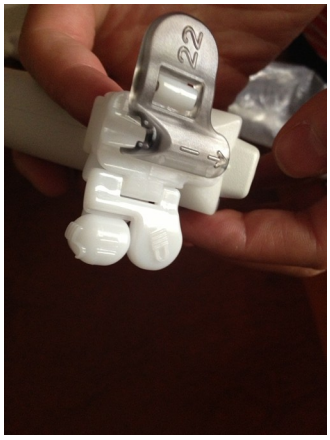


On the curvilinear, tighten the screw on the side.


3. Place Needle guide onto the biopsy mounting bracket over probe with locking pad in elevated position with receiving side up.

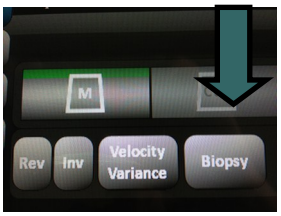


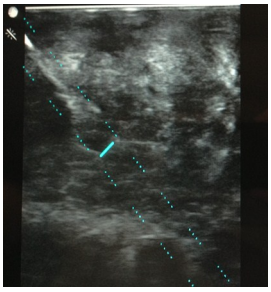

4. Lock guide into position by pressing down on the locking pad until you hear it “click”.

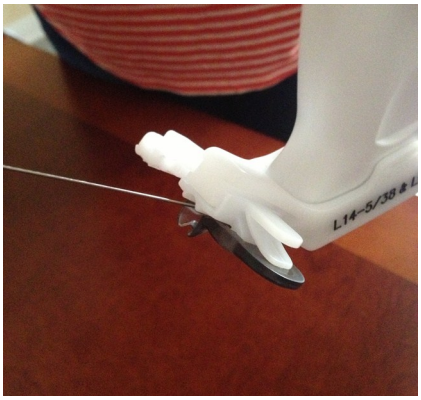

5. Check that the needle guide is FIRMLY connected and does not move.

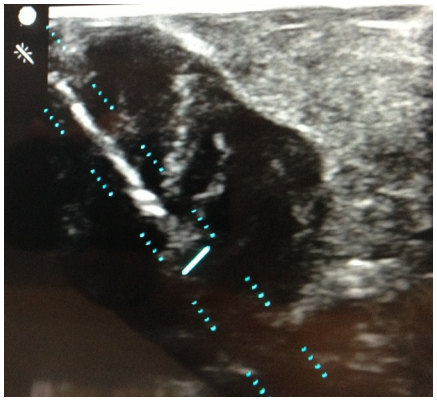
6. If desired, put the biopsy guide lines on your screen by selecting the mode button (it looks like a drawer), then select the biopsy button. With the linear probe you may also select the sonix shine button.

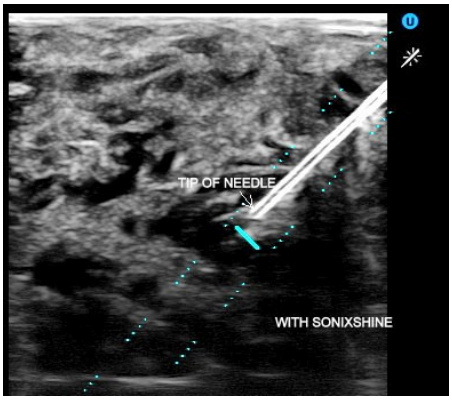


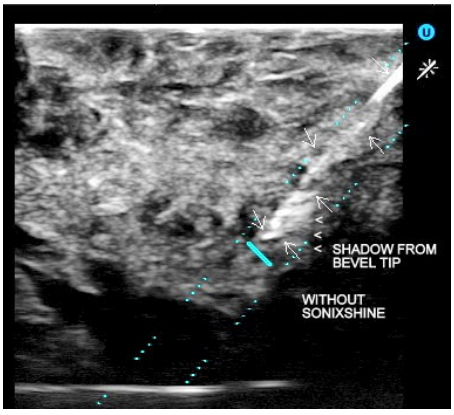


7. Place transducer on animal, get desired target into view and align onscreen guide. Insert needle into the top of the guide and advance until you are in your target. By moving needle back and forth you can visualize it better.









8. For quick release of the needle, you can press the needle guide pad and remove the needle or simply pull the needle out.
9. After use, remove needle guide by pushing up the locking pad and down on the lock button.