FINE NEEDLE ASPIRATION

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Why FNA?

• Cost effective
• Less invasive
• Accurate
• Diagnostic quality getting better:
  • refinement of cytologic criteria
  • availability and application of ancillary studies

Why?

• Feedback makes you better in FNA/smear technique & diagnosis!
  • (Anamnesis, radiological findings)
  • Palpation
  • Cytomacroscopy
  • Microscopy
• Choosing stainings or ancillary methods on site.
• Repeat FNA while patient is still in the office
• Time! Diagnosis/preliminary diagnosis faster than FNA that performed in other departments.

to be better:

• Experienced physician skilled in palpation
• The sample: adequate, representative, interpretable
• Patients comfort
• Diagnosis "in time"
• Interpretation by pathologist with special interest and training in cytopathology

WHO should perform FNA?

• The best (especially for palpable lesions):
  • Trained cytopathologist
  • In a specially prepared room
  • With radiological support
• Deep located lesions:
  • Trained radiologist together with cytopathologist
  • Endoscopic needle aspirations
  • Specialized clinician with ROSE (Rapid On Site Evaluation)

Why?

• A limited number of individuals with better quality
• Experienced cytopathologist can train other physicians from any specialty interested in learning the procedure.
• Uniformity in technique and smear preparation
• Contributes to a standard education of new generations.

Why? Continues...

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Ancillary personal

- Coordinator (to schedule patients)
- Nurse or cytotechnician on site

Aspiration room and equipment

- A comfortable examination table
- A curtain for privacy when the patient undresses
- Counter space with a sink
- Storage area for equipments, stains and supplies
- Microscope if needed

Equipment

- Syringe holder(s)
- Needles
  - 23 gauge mostly, and 25, 26 gauge needles
  - Alcohol soaked swabs and gauze pads
- Slide holders
- Glass slides with the frosted end used for labeling
- Present for children: 70% alcohol for wet-fixed smears
- Balanced solution (pbs)
- Vials for liquid based cytology
- Sterile swabs for bacterial analysis
- Gloves
FNA technique

- Clean the skin
  - Evaporate alcohol
  - Immobilize the lesion

- The assistant prepares and hands the equipment to the cytopathologist step by step

- Distract the patient
  - The assistant holds and squeezes patient’s hand while FNA is being done

Patient

- Should be prepared mentally for the procedure
- Present yourself, shake hand
- Relaxed patient = better result
- Explain how simple the method is.
- Explain that you usually need three passes (+/- 1)
- Do not perform FNA if the patient is not ready for it.
- Ask patient to show the location of the lesion that should be sampled.
- Give patient opportunity to ask questions
- Informed consent form (if the material will be used for research)
- Optimal position is crucial (even for you!)
FNA technique...

- We do not do injections of any anesthetic.
  - Anesthetic injection is painful
  - Palpation of the small lesion can be difficult after injection
  - May cause interpretation artefacts

- We usually use 23 gauge needles.
  - If needed 21 (especially in soft tissue) and 25 or very rarely 27 gauge (in small lesions)

- We use anesthetic creams especially for children.
  - And a present at the end of FNA to appreciate the child

FNA technique... step by step:

1. The needle is guided into the lesion
2. Plunger pulled back
3. How much suction?
4. Vertical to-and-from movements in some lesions slightly circular or scrape the wall of the needle tract
5. Attention to the material collecting in the needle hub
6. The material should remain in the hub
7. Stopping negative pressure (suction) when you have material in the hub
8. The suction must be released before withdrawing the needle.
9. Otherwise you will aspirate the material into the syringe. In this case rinse it in a balanced solution.
10. Remove the needle from the syringe
11. Take some air into the syringe
12. Attach the needle to the syringe
13. Expel the material on to the slide
14. Prepare smears
15. If needed, take a sample for immunocytochemistry, molecular analysis, cellblock, cell culture...

Nonaspiration technique—particularly in small lesions

1. Remove plunger
2. Attach the needle
3. Clean the skin
4. Hold the aspiration device as one would hold a pencil
5. Proximal part of the aspirator’s hand rests on patients body to get some stability
6. Insert the needle into the lesion
7. Rapid, back-and-forth movements
8. Insert the needle into the barrel
9. Insert the plunger into the barrel
10. Prepare smears

Nonaspiration technique—only needle (without syringe)

- Hold the needle between thumb and 3rd fingers
- Close the hub with the 2nd finger
- Insert the needle into the lesion
- Rapid, back-and-forth movements
- Withdraw the needle
- Insert the needle to the syringe (with air in the barrel)
- Prepare smears

Some details

- Three passes (may be 1-5)
- Prepare smears as soon as possible
- Especially in soft tissue tumors, we try to stick from the same point and mark the punctured site with ink.
- Try to get material from different parts of the lesion
- After each puncture, nurse or patient himself/herself should apply pressure with a gauze pad at the needle site to prevent hematoma!
- Patient or accompanying person may be light-headed or faint; be ready!
  - Check during the FNA process if the patient began to feel faint
  - Better to start with supine position
Smear preparation

- Prepare some slides and/or cover glass in advance (nurse)
- Write patient name and or personal number (nurse)
- Turn the bevel of the needle down to avoid splashing of material when expelling it.
- A drop close to frosted edge (2 different places on the same slide or several slides if there is good enough material in the needle)

Smear preparation...

- Prefer peripheral blood smear technique [air-plane taking off!]
  - To avoid crush artefacts
  - Creates a tail where most of the cells lies at the periphery.
  - Depending on the viscosity of the material draw
    - Slowly (lymph node aspirations)
    - Faster (cyst fluid)
  - If the material is thick or mucinous (colloid or mucin): do not use blood smear technique.
    - Put the cover glass on to the material parallel to the glass slide, press slightly and then smear in a fanlike fashion.

Smear preparation...

- Thick fragments on the slides can be transferred into a vial for cellblock
- Cyst fluid: a couple of smears, the rest of the fluid should be centrifugated (for cellblock or cytospin)
- Letters (A,B,...) or numbers (1,2,... or I,II,...) describing the site or locations should be written after FNA procedure.
- Alcohol vial/jar should be on site to put smears immediately into the vial.
Let the dropp flows laterally

Tail

Not bad!

Hmm!

Cellblock

Hvala vam puno na pažnji.

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