MELBOURNE PATHOLOGY
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How to get the best out of an FNA

April 2016

How to perform an FNA on a palpable mass

FNA and slide smearing technique

The key to the success of the FNA consists of an adequate and representative cell sample and expertise in cytology. A fine (25 or even 27 gauge) needle is preferable, especially for the thyroid FNA because the gland is vascular and can be performed with suction, applied by a syringe, or without, relying on capillary action for the material to enter the lumen of the needle. Local anaesthesia is optional. The skin is wiped clean with an alcohol swab and the needle placed into the nodule. The needle should not pass through ultrasound gel as this obscures cytomorphology when aspirated.

Once needle placement is determined to be satisfactory, the needle is then moved rapidly back and forth, in multiple directions within the nodule to ensure widespread sampling, the bevelled edge of the needle cutting free microfragments of tissue which then enter the lumen of the needle and hub of the syringe.

Each needle pass should be short, 5 – 10 seconds at the most, the number of needle passes for adequacy varying, with at least two, but up to five, recommended. If suction is used, this only needs to be 3 – 6mL and should be released when a small amount of material enters the hub of the syringe and prior to withdrawing the needle from the nodule. Large amounts of blood in the syringe are to be avoided. For cystic lesions, the cyst contents should be fully aspirated to dryness and any residual palpable nodule then reaspirated.

After the needle is removed, the syringe is detached and then air is drawn up into the syringe which is reattached to the needle. The air is used to express the aspirated material onto the glass slides. This manoeuvre can be repeated until all the material has been expressed. The material from one needle pass is expressed onto one glass slide and another is placed directly over the first, allowing the blood to be displaced to the periphery of the slide and the cellular component to concentrate in the centre.

The two slides are then gently pulled apart, thereby allowing the cellular material to spread evenly along the centre of the slide in a thin monolayer. One of the slides is then immediately fixed with commercial spray fixative, sprayed at arms length away, and the other is allowed to air dry. Slide preparation and fixation must be prompt in order to avoid cellular degeneration. Slides must then be labelled in **pencil** with the patients name, date of birth and the site of the FNA, indicating which are fixed and which are air dried, before being sent off to the laboratory. Please note, labelling in pen will be washed off with alcohol used during the staining process in the laboratory.

Slides can be fixed and Papanicolaou stained or air dried and Romanowsky stained, each stain allowing various diagnostic features to be better appreciated. It is therefore generally advisable to submit both fixed and unfixed slides for cytoevaluation as the stains are complementary and enhance definitive cytodiagnosis and accuracy.

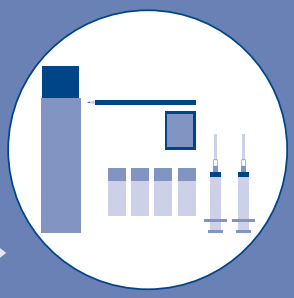
2 – 3 needle passes are recommended to achieve sample adequacy, averaging 6 – 10 slides in total. A large number of slides does not guarantee sample adequacy. If the aspirate looks unsatisfactory, it usually is and if it looks satisfactory, it may be so. If the volume of the aspirated material is excessive and bloody, there are a variety of techniques which can be employed to remove the excess blood. Firstly, prior to smearing, the slide onto which the material is expressed can be tilted to one side and the blood that flows to the side can be removed by touching an absorbent tissue to the dependent portion of the drop. Secondly, the needle and syringe can be used to gently suck back the excess blood by coursing it in between the visible tissue microfragments, which then remain on the glass slide for subsequent smearing. After the glass slides have been prepared, the remaining adherent blood and cellular material in the lumen of the needle and in the hub of the syringe can be rinsed in 2 – 5mL of saline for further preparation in the laboratory, ensuring full recovery of the aspirated material and allowing for cell blocking, diagnostic IHC and molecular tests.

Complications and contraindications

The main contraindication to FNA is bleeding diathesis and anticoagulation. In the case of a thyroid FNA, the formation of a large haematoma at the puncture site may cause compression of the trachea and respiratory distress. Rare puncture of the trachea will manifest as minimal and transient haemoptysis. Complications of FNA are very uncommon, including minor complications such as transient haematoma. Others such as site infections are almost never seen and serious complications like needle tract spread are virtually non-existent if the correct technique is employed.

What you need for a fine needle aspiration

- 4 – 6 x glass slides
- 2 – 3 x 25 gauge needles
- 2 – 3 x 10ml syringes
- Spray fixative
- Alcohol swabs and cotton wool
- Disposable gloves
- Laboratory referral form
- Pencil
- 2ml sterile saline

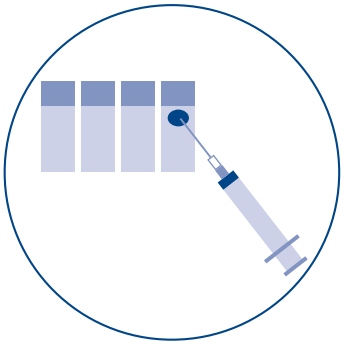


▶ Have everything laid out beforehand

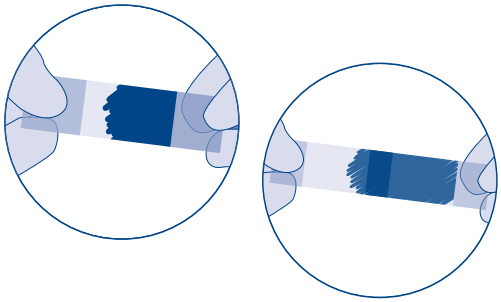
Instructions

1. Attach needle to syringe
2. Palpate and localise nodule or mass to be aspirated
3. Insert needle into mass and move back and forth within the mass in multiple directions and in short quick strokes while applying suction
4. When a small amount of material is present in the hub of the syringe, release suction on the syringe and then withdraw the needle. Avoid large amounts of blood in the syringe
5. Press puncture site with cotton wool until bleeding stops. (Can be done by either the patient or the attending nurse)

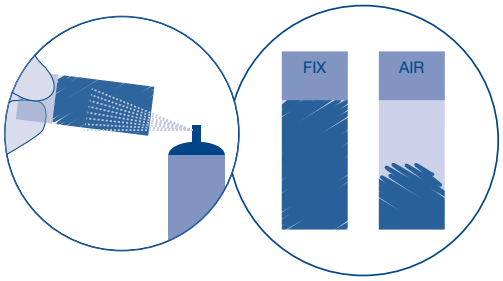
6. Detach needle from syringe, draw air into syringe, replace needle and expel contents onto one end of a glass slide. Repeat if necessary until all material is expelled)



7. Place second glass slide directly over first and press gently and firmly while pulling the two slides apart to spread material evenly over the two slides. Pull slides apart in a single motion



8. Spray fix one slide immediately holding slide horizontally and at arms length away. Allow the other slide to air dry



9. Repeat the procedure. If indicated, rinse needle in 2mls sterile saline for MC&S, TB culture or flow cytometry. If the lesion was difficult to aspirate, haemorrhagic or scanty material was obtained, consider repeating the FNA procedure for a third time
10. Label slides in **pencil** with patient's name, DOB, site of FNA and whether the slides are fixed or air dried and submit with the Melbourne Pathology referral, including relevant clinical details.

Melbourne Pathology offers an onsite FNA service for palpable lesions at our Collingwood laboratory, by appointment. For bookings, call 9287 7700.

MELBOURNE PATHOLOGY

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