RUNX1 Research Program

Optimizing Patient Comfort in Bone Marrow Aspiration and Biopsy: Practical Techniques for the Clinical Team

General Considerations

- Patients may prefer procedures to be performed at the same site as prior biopsies. Discuss benefits and drawbacks during the pre-procedure visit.
- Newer types of biopsy needles (e.g., Snarecoil) eliminate need for manipulation of the needle post insertion which can improve patient comfort and quality of collected specimens compared to traditional Jamshidi needles.
- If a patient requests that the most experienced team member perform the procedure, accommodate this when possible.
- Plan adequate time for the procedure; avoid rushing, as pacing directly affects both diagnostic quality and patient comfort.

Pre-Procedure Discussion (Ideally ≥ 24 hours before procedure)

Patient Preparation

- Assess and adjust any current medications and consider prophylactic treatments to reduce bleeding risk.
- Discuss options for managing pain and anxiety such as local anesthesia, pre-medication, and use of sedatives if clinically appropriate.
- Allow patients to wear comfortable clothes rather than a gown if possible; this may reduce procedural anxiety.

Procedure Explanation

- Explain the procedure, including benefits, expected sensations, and potential risks/ complications.
- Reinforce that the procedure will be performed deliberately and unhurriedly to maximize accuracy and minimize discomfort.
- Set expectations for overall duration, including preparation, positioning, and recovery.
- Review post-procedure care, expected soreness, warning signs of post-procedural complications, and who to contact with concerns.

Pre-Procedure Steps (Day of procedure)

Preparation Area

- Assemble and prep the sterile field before bringing the patient into view when possible to reduce anticipatory anxiety.
- Include an experienced assistant if available to support patient reassurance.

Positioning the Patient

- For a posterior approach, position the patient in a comfortable lateral recumbent position, ***with knees slightly staggered rather than stacked (Fig. 1 & 2)***. This position often feels more stable than the typical lumbar-puncture position and can allow the clinician to leverage gravity ("downhill" needle advancement).

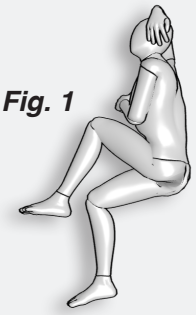


Fig. 1



Fig. 2

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Procedure Tips

Anesthesia & Entry

- For awake patients, consider a J-Tip (needle-free lidocaine delivery) for topical numbing prior to deeper infiltration.
- Adequate administration of lidocaine to the periosteum is key to improving patient comfort.
- A two-step numbing process, using a shorter needle to numb the skin and superficial tissue and then a longer needle to anesthetize the deeper layers and periosteum, will minimize discomfort.
- At the periosteum, administer the lidocaine in a circular fashion to numb an area at least the size of a dime (1 cm diameter).
- Inject local anesthetic slowly and generously. Adults typically require 6–10 mL of lidocaine.
- Allow 2–3 minutes for the anesthetic to take full effect.
- A scalpel incision is generally unnecessary for this puncture.
- For larger body habitus, consider:
  - For numbing, a spinal needle attached to the lidocaine syringe for improved reach, or
  - An anterior approach, if within the clinician's skill set.

Aspirate & Biopsy Technique

- A 15-gauge aspirate needle is generally sufficient for adults.
- Once the needle contacts the cortex and seats appropriately, advance while rotating in small, controlled clockwise-counterclockwise motion.
- For awake aspirates, alert patients that they may feel a brief sharp pain when the marrow is first aspirated ("On the count of three …")
- For awake biopsies, explain that feeling pressure or pushing is normal, but that they should report any sharp pain or discomfort immediately.

Post-Procedure Communication

Before discharge, confirm that the patient knows the following:

- Who will contact them with results,
- When to expect communication, and
- How to reach the clinical team with post-procedure concerns.

This clinical resource was created by the RUNX1 Research Program with guidance offered by Karyn Brundige MSN CPNP FAPHON, Nurse Practitioner, Boston Children's Hospital. For more information, email info@runx1-fpd.org.