



Precision Under Pressure: Optimizing Specimen Collection During Inferior Petrosal Sinus Sampling (IPSS) in a Biplane OR Suite

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Background

As a comprehensive cancer center, our institution evaluates patients with Cushing's syndrome that may be linked to ACTH-secreting tumors, including those associated with malignancy.

Inferior Petrosal Sinus Sampling (IPSS) is used to confirm whether Adrenocorticotropic Hormone (ACTH) is being secreted by a pituitary source or by an ectopic tumor—directly impacting treatment decisions.

The accuracy of this diagnostic tool depends on precise timing, labeling, and handling of specimens, making the perioperative RN, certified scrub technologist (CST), and patient care technician (PCT) essential to procedural success.

AIM

Improve diagnostic accuracy during IPSS procedures including the development of educational materials, early laboratory notification system and acquisition of equipment to ensure that necessary supplies and environmental controls are in place for specimen preservation.

Implementation

- Created a step-by-step IPSS workflow, supported by a PowerPoint training tool and printed binder for RNs, CSTs and PCTs
- Developed visual guides and hands-on orientation for PCTs to support specimen handling and real-time delivery
- Coordinated with the laboratory to:
 - Assign a designated contact for each IPSS case
 - Ensures that pre-labeled, pre-chilled lavender top tubes were available
 - Establish day-before alerts to increase lab awareness and readiness
- Purchased a dedicated cooler to maintain proper temperature of specimens throughout the procedure and transport
- Conducted simulation-based training to reinforce timing, documentation, and interdisciplinary communication

Procedure Set-up

Patient position: Supine, arms padded and tucked on sled

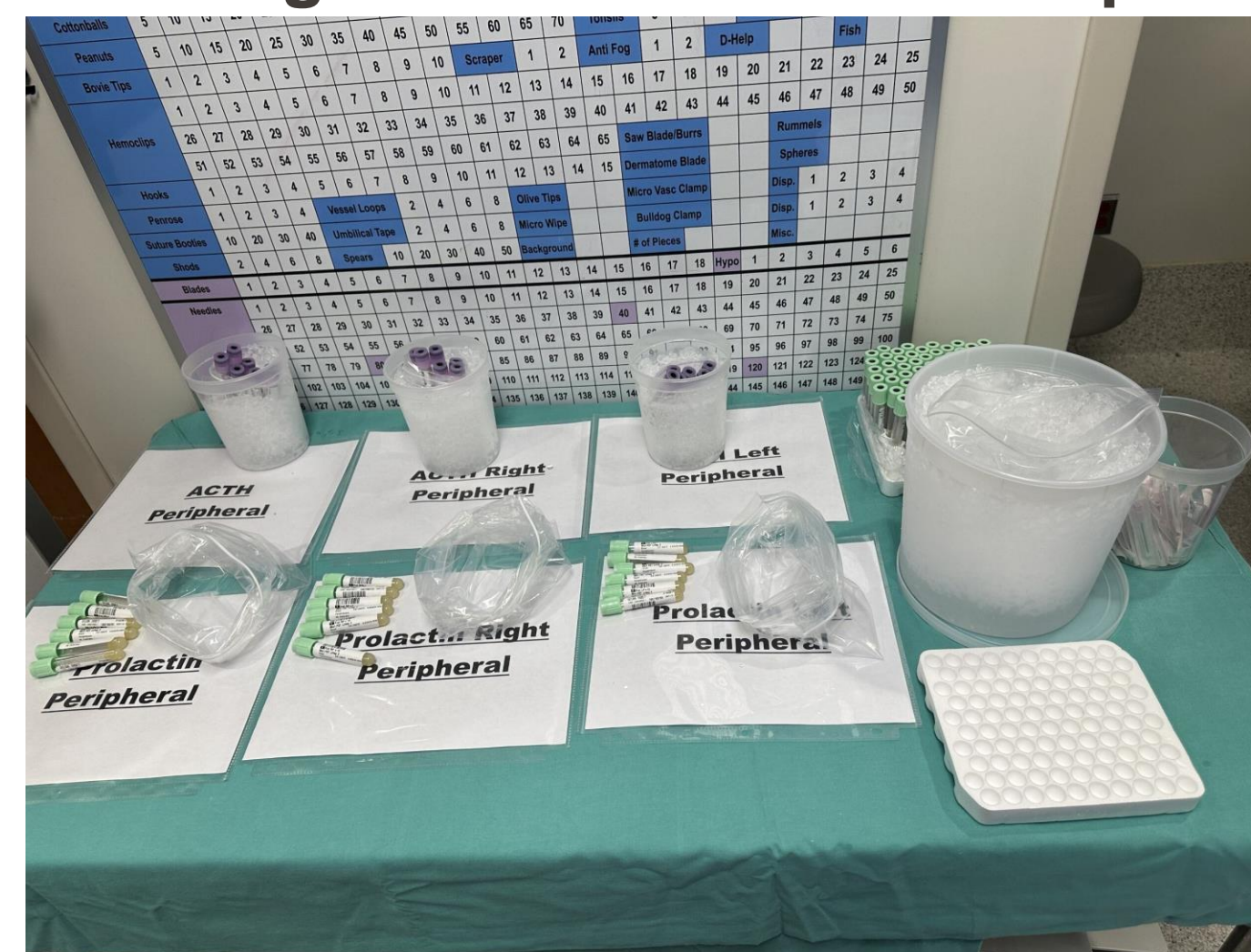
Medications:

1. Heparin 1000 u nits in 0.9% NaCl 500 mL (premix)
2. One bag of 0.9% NaCl Injection 250 mL
3. One vial of Lidocaine (xylocaine) 10 mg/mL Injection
4. Desmopressin (DDAVP) as ordered by surgeon

Supplies:

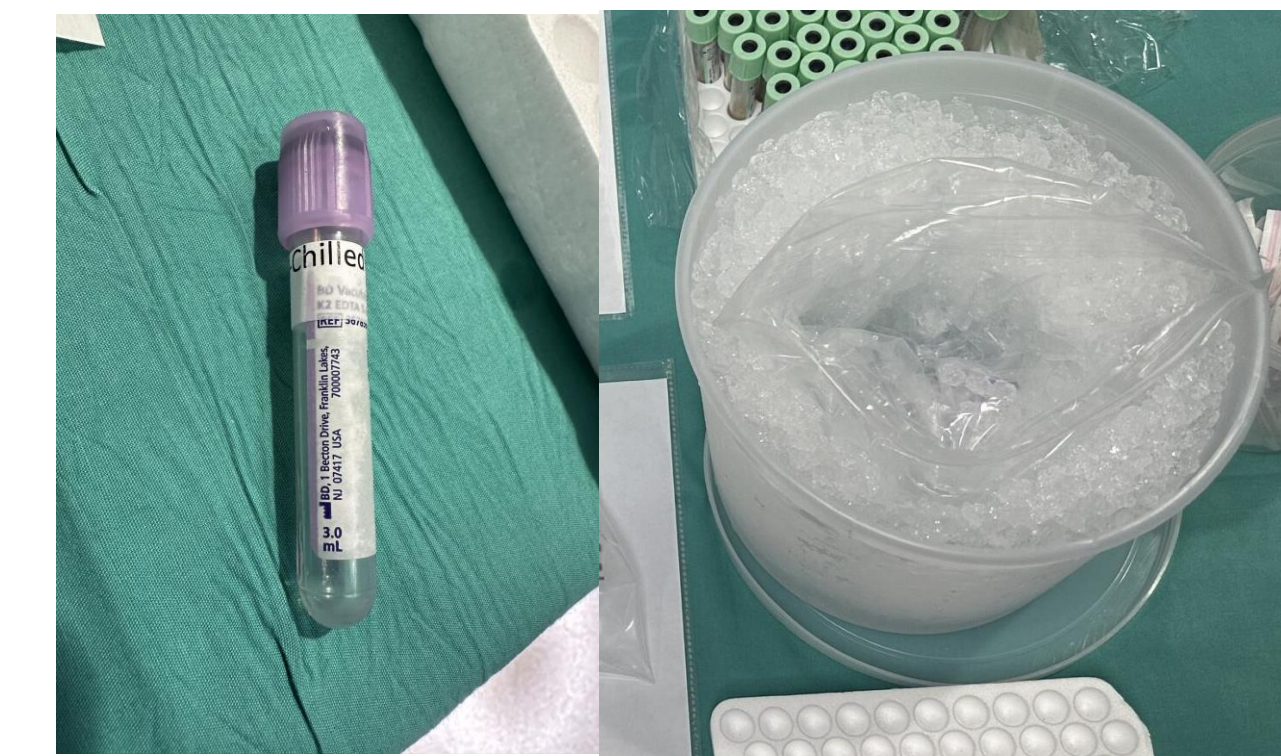
- > 18 pieces of pre-chilled lavender top tubes (EDTA tubes) from Main Lab
 - 18 pieces of mint top tubes
 - Ice in a bucket
 - Eighteen of the 18 gauge needles
 - 18 pieces of 10 cc syringes
 - 6 pieces of labeled paper
 - Time record form

Figure A: Circulator Set-up



The day before the procedure

- Inform the lab to prepare 18 mint-top tubes (prolactin) and 18 pre-chilled lavender-top tubes (ACTH tubes) for the IPSS procedure. (Note: ACTH samples need to be placed in pre-chilled lavender-top tubes and remain on ice thereafter, including during transport.)



During the procedure:

1. The surgeon fills each syringes (as shown on Figure B) with a blood sample.
2. Samples for determining baseline prolactin and ACTH levels are drawn first. Two circulators are needed for this step.
 - > The first circulator records the time on the time record form and uses the 18G needle to divide the blood samples the surgeon collected in the lavender-top tube (ACTH tube)
 - a) The second circulator fills the mint-top tubes (prolactin tubes).

Figure B. Sterile Table Set-up



3. The surgeon asks the anesthesiologist to administer Desmopressin (DDAVP). Additional blood samples are collected at 3, 5, 10 and 15 minutes.
4. The two circulators review all the blood samples. There should be a total of 36 tubes. All tubes should be labeled, and their times of sample collection should be recorded on the time record form.
5. The 18 mint-top tubes are placed in a bag, and the 18 lavender-top tubes are placed in the ice-filled bucket. All samples, along with the time record form, are delivered to the main lab.
6. The lab processes the blood samples and shares the results with the surgeon and primary physician

Outcome

- 100% compliance with time-sensitive specimen collection and labeling
- Zero specimen delays or repeat draws following implementation
- Increased confidence among perioperative staff (RNs, CSTs, PCTs), as reported through informal post-procedure feedback
- Improved consistency and responsiveness from the lab team

Implications for Perioperative Nurses

This project highlights how perioperative nurses and CSTs can lead and influence diagnostic outcomes through structured planning, interprofessional communication, and process ownership. In high-acuity, low-frequency procedures like IPSS, the precision and readiness of the nursing team directly support patient safety and clinical decision-making. This replicable model demonstrates how standardization and interdisciplinary alignment elevate the role of perioperative nursing in diagnostic excellence—especially within complex oncologic care.