Urine Collection for Cytology

Urine cytology is useful in diagnosing diseases that involve the mucosal surface. Knowing the type of exfoliated urinary tract specimen is essential. Therefore, clinical information should include whether the specimen is voided, catheterization or a bladder washing. The "clean catch" voided urine is recommended for screening purposes. But if suspecting bladder malignancy, bladder washing is preferred. It is important that no alcohol or any other preservatives are added to the specimen. Fresh is the most desirable specimen.

Voided Urine

Voided urine should be obtained 3-4 hours after the patient has last urinated. Early morning urines specimens are to be avoided, because stagnant cells in the low pH and hypertonic environment undergo degenerative changes, making cytologic assessment difficult. The minimum amount of urine necessary to ensure adequate cellularity is unknown, but it may be as high as 25-100ml.

In women, voided urine may be contaminated by vaginal cells, but in most instances this does not compromise a diagnosis. Still, to help ensure the adequacy of the sample, a mid-stream (clean catch) specimen is recommended.

VOIDED URINE COLLECTION:

- Thoroughly wash hands with soap and water and dry them on a clean towel.
- Open container and towelettes. DO NOT COLLECT FROM BEDPAN.
- Clean urethral area carefully before collecting sample, following the guidelines below for male or female patients:

Female Patients:

- With the forefingers of one hand, spread the outer folds of the labia and keep them apart until the urine has been collected.
- With the other hand, firmly wipe the first towelette with one stroke from front to back on one side of the fold and discard.
- With the second towelette, wipe the other side from front to back with one stroke and discard.
- With the third towelette, wipe the center area from front to back with one stroke and discard.
- Collect midstream urine in a container.
- Place the lid on the container securely.
- Label the sample with the patient name. Refrigerate if the sample will not be delivered within one hour.

Male Patients:

- Clean the urethral opening of the penis, retracting the foreskin if uncircumcised; carefully wipe from front to back with the cleaning materials provided. Use a cleaning pad only once and discard.
- Allow some of the first part of the urine to pass directly into toilet or bedpan.
- Pass urine into the sterile container until it is no more than half full.
- Place the lid on the container securely.
- Label the sample with the patient name. Refrigerate if the sample will not be delivered to the laboratory within one hour.

Catheterized Urine

Specimens obtained by catheterization have disadvantages for both the patient and the cytologist. First, catheterization carries a risk of urinary tract infection. Second, urine collected from an indwelling catheter is often a pooled specimen that has been at room temperature for many hours and cellular degeneration can be pronounced. Third, the tip of the catheter often scrapes off benign urothelial cell clusters, which mimic the appearance of a papillary neoplasm.

CATHETERIZED SAMPLES: IN/OUT CATHETERIZATION

Male Patients:

- Clean the urethral area carefully.
- Clean the urethral opening of the penis, retracting the foreskin if uncircumcised, carefully from front to back.

Female Patients:

- Clean the urethral area carefully
- Spread open the labial folds. Clean the vaginal area from front to back
- Pass the catheter into the bladder using a sterile technique.
- Discard the first 15-20 ml of urine that passes through the mouth of the catheter.
- Collect the urine in a sterile sample cup.
- Place the lid on the container securely.
- Label the sample with the patient name. Refrigerate if the sample will not be delivered to the lab within one hour.

CATHETERIZED SAMPLES: INDWELLING CATHETERS

Do not use urine from the bedside catheter bag.

- Do not disconnect the catheter from the bag to collect.
- Clean the sample port carefully with a 70% alcohol wipe.
- Insert a sterile 21 gauge needle with a syringe into the sample port to aspirate sample.
- Transfer the urine into a sterile cup without touching the rim or inside surfaces of the container.
- Place the lid on the container securely.
- Label the sample with the patient name. Refrigerate the sample if will not be delivered to the lab within one hour.

Bladder Washings

Bladder washings are obtained through a catheter by irrigating the bladder with five to ten pulses of 50ml of sterile normal saline, which produce a cellular suspension of freshly exfoliated epithelial cells. This specimen is collected before any biopsy sampling. The chief advantages of bladder washings over voided urine are better cellular preservation, greater cellularity and less chance of contamination by background debris. Place specimen in clean container and bring to laboratory immediately. If unable to bring immediately, place in refrigerator until it is brought to the laboratory.

Upper Tract Washings and Brushings

When an upper urinary tract malignancy is suspected directed washings or brushings of a ureter or renal pelvis can be performed. Although brushings obtained by direct visualization using endoscope were introduced in 1973, these are rarely obtained. Nevertheless, the sensitivity and specificity of this method compares favorably with exfoliative (voided, catheterized, irrigation) cytology.