Division of Nuclear Medicine Procedure / Protocol

RADIONUCLIDE CYSTOGRAM - NON-TX PTS
CPT CODE: 78740
UPDATED: APRIL 2010

Indications: This examination is most commonly performed for patients with suspected reflux of urine from the bladder into the ureters. The sensitivity of this examination and the identification of ureteral reflux is equal to the radiographic equivalent with far less (about one-one hundredth) of the radiation burden of the radiologic evaluation.

Patient Prep: Catheterization is necessary. IP's can be catheterized on the ward. OP's can self-catheterize if they routinely do so. OP pediatric patients should be catheterized by a parent or nurse (contact Peds Specialty Clinic) who accompanies the patient.

Scheduling: Allow 60-90 minutes.

Radiopharmaceutical & Dose: 2 doses, each 1.0 mCi + 20% (0.8-1.2) mCi Tc-99m-DTPA (or other Tc-99m agent if DTPA not available). TcO4 may be used only if a Tc-99m agent is not made. Dose will be adjusted for patient weight per NMIS or weight table.

Have Buretrol set up ready with 500 ml bag of saline running. Fill Buretrol with 150 ml saline.

Imaging Device: GE camera with LEHRPH collimator.

Imaging Procedure: PREDEFINED STUDY: Cystogram
1. Lay the patient supine with detector head below the table. Ensure that the bladder and both kidneys are in the FOV. Acquire a series of dynamic images for up to 60 min.
2. Begin running saline (warmed to room temp.) into the urinary bladder. Inject dose directly into the first port of the IV line as soon as saline is running properly. Start acquisition.
3. Watch computers or p-scope for reflux. Record volume instilled when reflux is first seen and time.
4. When the urinary bladder is filled (volume in bladder should be greater than 200 ml) or when patient complains of discomfort or the need to void, proceed as below.
5. At maximum filling, clamp the catheter and ask the patient to attempt to void for 2 min (frames). Watch for reflux. Then unclamp catheter and ask patient to void “around and through” the catheter while recording images. Expect possible leakage about the catheter.
6. Measure the volume of urine voided. Calculate the Residual Volume and Reflux Bladder Volume according to the worksheet (Worksheet: Radionuclide Cystogram).
7. If no reflux is seen, repeat second DYN acquisition.

Acquisition Protocol:
Set up two studies.
DYN filling and emptying 1
128 x 128; 60 sec frames, 60 frames
Static: Ant 128 x 128 Post 128 x 128
120 sec 120 sec

DYN filling and emptying 2
128 x 128; 60 sec frames, 60 frames
Post-emptying Static: Ant 128 x 128 Post 128 x 128
120 sec 130 sec
Display: Since there is no set endpoint to the test, the display format should be as follows. 

**NOTE:** On all patients, note time and volume when reflux occurs as well as total volume instilled.

Also measures the volume of urine voided and calculate residual volume and reflux bladder volume according to worksheet.

Display each DYN at 1 min/frame.

**NOTE:** You need to lower the upper window in order to identify a reflux or leak.

PACS: Send all dynamic images and save sets to PACS.

Interpretation: The study is very sensitive for detecting reflux with low radiation dose. The repeat test is required for maximum sensitivity. Any reflux is abnormal.

Comments: A Nuclear Medicine staff or resident physician should be consulted to determine if additional views are indicated.

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RADIONUCLIDE CYSTOGRAM WORKSHEET  CPT CODE: N/A
UPDATED: APRIL 2010

PATIENT NAME: ____________________________________________________

PATIENT NUMBER: __________________________________________________

DATE OF STUDY: ____________________________________________________

RADIOPHARMACEUTICAL: ____________________________________________

DOSE: ______________________________________________________________

Right Reflux at __________________________________ cc saline instilled

Left Reflux at __________________________________ cc saline instilled

Total __________________________________ cc saline instilled

Urinary Bladder: __________________________________ counts pre-void

__________________________________ counts post-void

Voided Volume of Urine: __________________________________ ml

Residual Volume = (voided volume) X (counts post-void)
   (counts pre-void) - (counts post-void)

Residual Volume = ( _____ ) X ( _____ ) = ______________________________
   ( _____ ) - ( _____ )

Residual Volume = __________________________

REFLUX BLADDER VOLUME:

Total Bladder Volume = voided volume + residual volume

Initial Volume = Total Bladder Volume - Total Volume Instilled

Reflux Volume = Initial Volume + Volume Instilled to Initiate Reflux

TECHNOLOGIST: ____________________________________________________