

DMSA Renal Cortical Scan

Updated

9/8/2024

- **Indications**

- To assess pyelonephritis and parenchymal scarring.

- **Radiopharmaceutical:**

- 3 mCi Tc-99m DMSA administered IV

- **Patient Preparation:**

- Have the patient drink 16-20 oz of water 30-60 mins prior to exam to ensure adequate hydration.
- Have the patient empty his/her bladder immediately prior to imaging. Instruct the patient to void frequently for a day following the exam.

- **Conflicting Examinations/Medications:**

- No Nuclear Medicine exams within the previous 24 hrs.
- No barium GI exams within the previous 48 hrs.

- **Pregnancy/Lactation:**

- Pregnancy testing is only needed in potentially pregnant patients who state they could be pregnant. See Pregnant, Potentially Pregnant and Lactating Patients policy for specifics.
- Breast feeding mothers should discard breast milk for 4-24 hrs following Tc-99m DMSA administration.

- **Imaging Technique:**

- Collimator - LEHR
- Photopeak - 140 keV 20% window for Tc-99m
- Image Preset Counts
 - Flow Images - 2 secs/image for 1 mins (30 images)
 - Static Images - 200k counts/image or 5-10 mins/image
 - SPECT - 32 stops, 20 secs/stop
- Matrix Size - 128 x 128 (flow), 256 x 256 (static), 64 x 64 (SPECT)
- Zoom - 1.23
- Patient Positioning - supine

- **Images/Views (Routine Protocol):**

- Flow Images
 - Begin imaging immediately before radionuclide administration.
 - Obtain posterior images of the abdomen for 60 secs.
- Static Images
 - Obtain posterior, 30° RPO and 30° LPO images of the abdomen at 2-4 hrs.
 - The worse the patient's renal function, the more delayed imaging will need to be obtained.
- SPECT Images (Only if Requested)
 - Obtain SPECT images of the abdomen after the 2 hrs static images are obtained.
 - Obtain axial, coronal and sagittal reconstructions and a 3D horizontal spinner.

- **Notes:**

- Morphological agents (DMSA and glucoheptonate) are mainly bound in the proximal tubules (in the renal cortex) for a prolonged time and are suitable for static renal imaging to detect renal masses or parenchymal scars/defects. Because of its high retention in the kidney, the radiation dose of DMSA is significant and the administered dose should be chosen with that in mind.
- The kidneys are bilaterally small in numerous chronic renal diseases. The kidneys can be bilaterally enlarged in early diabetic renal disease, acute interstitial nephritis, HIV nephropathy and amyloidosis.
- Renal cortical defects may be seen in focal pyelonephritis, renal abscess and with post pyelonephritic scarring.