GUNDERSEN HEATLH SYSTEM
NUCLEAR MEDICINE DEPARTMENT
PROTOCOL MANUAL

PROCEDURE: **THYROID IMAGING STUDY (Tc-99m-Pertechnetate)**

SECTION: **ENDOCRINOLOGY 3.4**

ORIGINAL DATE: **9 - 21 - 99**

DATE REVISED: **8 – 6 - 15**

REVIEWED: **ANNUAL**

Indications	Evaluation of palpable nodules.
	Evaluation of abnormal gland to palpation, but without definite nodules
	Evaluation of patients who had irradiation of the head and neck in childhood with or without palpable nodule.
	Follow up I-123 study for functioning nodules: If 1 or 2 functioning nodules are identified; a repeat study with radioactive iodine should be performed since some thyroid cancers concentrate Tc-99m-pertechnetate, but not radioactive iodine.
	Thyroid suppression test: 1. Performed to determine if a functioning nodule is autonomous. 2. Place the patient on triiodothyronine and repeat the thyroid imaging study.
Exam time length	1 hour
Patient Preparation	The patient must be off thyroid hormones: 1. Thyroxine (T-4) for at least 7 days. 2. Triiodothyronine (T-3) for at least 3 days
	The patient must not have had intravenous or intrathecal iodinated contrast agents (IVP, CT with contrast, myelogram, and angiogram) for at least 4 weeks.
	Obtain a pertinent, standard history to include current medications, present thyroid problems, previous thyroid surgeries and/or problems.
Camera	Small or large field of view
Collimator	Low energy all-purpose
Energy window	20% window centered at 140 KeV.
Radiopharmaceutical & Dose	Tc-99m-pertechnetate as sodium pertechnetate & 5 mCi (185 MBq).
Administration Technique	Standard intravenous injection

Static Acquisition	
Time interval between tracer injection and imaging	20 minutes
Collimator	LEGP/LEHR
Patient position	Supine
Energy	140 KeV +/- 10%
Matrix	128 x 128
Time /View	Non-zoom=5 min/img Zoomed= 10 min/img
Images taken	Ant including chest(zoom@1.5) Ant marker(SSN) ANT/RAO/LAO zoom @3.0 –fill ¾ of FOV
	If palpable nodule, an additional ANT image should be acquired for the same time as the other images, but with a radioactive marker, or Pb marker, placed on the skin immediately over the palpable nodule.
Screen caps to make	A/P + OBL Format 6:1, text as appropriate. Image and label SSN. Measure both OBL w/ electronic ruler +move toward sides.
Send to FUJI	Screen cap of statics
Send to Dr. PET	None

SPECT/CT Aquisition	
Time interval between tracer injection and imaging	20 min
Camera/Collimator	LEHR *see acquisition notes below
Patient position	Supine/Y-Body contour
Energy	Tc99m SC (140+122)
Range	low
Map	Tc99m
FE Mode	Normal
Matrix	128x128
Number of projections	60
Orbit CW or CCW	CW
Orbit type	Circular, 6-degree angle
Start Angle	0
End Angle	180
Time per view	20 seconds
Gating (Y/N)	N/A
Gating frames	N/A
R to R window	N/A
Uniformity and COR	Y
Prefilter Type	HANN
Filter cutoff/power	Freq = 0.9
Motion correction	N/A
Attenuation correction Y/N	Y- Partial 5mm slices (Select on Emission Img)
Normal database used Y/N	N/A
Reconstruction Matrix	256 x 256
Reconstruction Type: 3DPost filter type 3Dpost filter Para1 3Dpost filter Para2	OSEM/MLEM HANN 0.9 10.0
Screen caps to make	None:Spect may be acquired for Sublingqual Thyroid
Send to FUJI	Transaxial, Axial CT and MIP
Send to Dr. PET	Whole study

Data Acquisition-

When performing a SPECT acquisition where the pallet is NOT supported by the rollers in the gantry, the system applies a “table sag” correction to the data. In this scenario, we can use the body part “head or neck”.
If the pallet is advanced far enough during the acquisition set-up where it is supported by the rollers, then use “other” for body part.

To change, as needed, per above:
Under SPECT/CT acquisition Tomo Key Parameters, click “More Parameters”.
Click on “Tomo Admin Parameters”,
Under “Image Orientation: Change ‘Body Part” needed by clicking on the drop down.

Data Processing- steps for Tc Thyroid SPECT/CT:

See General SOP- XELERIS SPECT/CT PROCESSING