Healthy Blue

Clinical UM Guideline

Subject:	SPECT/CT Fusion Imaging		
Guideline #:	CG-MED-77	**Publish Date:**	05/21/2020
Status:	Revised	**Last Review Date:**	05/14/2020

Description

This document addresses the medical imaging technique in which the results obtained from a single photon emission computed tomography (SPECT) scan are merged with those obtained from a computed tomography (CT) scan (also known as hybrid imaging). This fusion may occur by the combining of images from two separate devices, or by the use of specialized equipment designed to perform both SPECT scanning and CT scanning simultaneously.

Note: Please see the following related document for additional information:

- CG-MED-87 Single Photon Emission Computed Tomography Scans for Noncardiovascular Indications

Clinical Indications

Medically Necessary:

The use of SPECT/CT fusion imaging is considered **medically necessary** in the evaluation of parathyroid glands in individuals with hyperparathyroidism when used for anatomic localization prior to parathyroid surgery.

The use of SPECT/CT fusion imaging is considered **medically necessary** for melanoma sentinel lymph node biopsy, when visualization using conventional methods is inadequate.

Not Medically Necessary:

The use of SPECT/CT fusion imaging is considered **not medically necessary** for all other indications.

Coding

The following codes for treatments and procedures applicable to this guideline are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement policy. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

Parathyroid Imaging:

CPT

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78072	Parathyroid planar imaging (including subtraction, when performed); with tomographic (SPECT), and concurrently acquired computed tomography (CT) for anatomical localization

ICD-10 Diagnosis

D35.1	Benign neoplasm of parathyroid gland
E21.0	Primary hyperparathyroidism
E21.1	Secondary hyperparathyroidism, not elsewhere classified
E21.2	Other hyperparathyroidism
E21.3	Hyperparathyroidism, unspecified

All other SPECT/CT Fusion Imaging:

CPT

78830	Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); tomographic (SPECT) with concurrently acquired computed tomography (CT) transmission scan for anatomical review, localization and determination/detection of pathology, single area (eg, head, neck, chest, pelvis), single day imaging
78832	Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); tomographic (SPECT) with concurrently acquired computed tomography (CT) transmission scan for anatomical review, localization and determination/detection of pathology, minimum 2 areas (eg, pelvis and knees, abdomen and pelvis), single day imaging, or single area imaging over 2 or more days

ICD-10 Diagnosis

C43.0-C43.9	Malignant melanoma of skin
Z85.820	Personal history of malignant melanoma of skin Note: Imaging for all other diagnoses is considered not medically necessary.

Discussion/General Information

SPECT/CT fusion refers to the imaging technique that combines the functional information from SPECT with the anatomical information from CT into one set of images. The SPECT and CT images are either "fused" by a software package that superimposes two digital images together or are processed simultaneously by combined SPECT/CT scanners. In either case, SPECT/CT fusion has been purported to allow for more accurate diagnosis and thus improved outcomes and treatment.

Some SPECT procedures utilize whole body scanning (such as bone scans), SPECT studies typically focus on the function of specific organs, such as the thyroid, heart, lungs, gallbladder, liver and kidneys. SPECT agents (radiopharmaceuticals) incorporate antibody and peptide formulations that can be targeted to specific tissue

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receptors, allowing one to discriminate healthy from diseased tissue. SPECT agents can also be monitored for tissue changes over time, allowing physicians to narrow down the characteristics of a specific disease process. Because SPECT tracers have very specific characteristics, more than one agent, each emitting a particular energy level, can be injected to track related processes simultaneously. The goal is to be able to pinpoint both the disease process and its ongoing response to treatments. However, because there are fewer landmarks using SPECT, the more specific the targeting agent is, the more difficult it is to interpret its anatomical position. This may make it difficult for physicians to accurately interpret certain SPECT images.

A CT scan is a painless, noninvasive diagnostic procedure that uses x-ray equipment to obtain cross-sectional images of the body. With the aid of a computer, each cross-sectional image of the body is added together to create a tomogram, (a 3-D image of the internal structures and organs in the body). CT scans are performed to analyze the internal structures of various parts of the body. For example, in the event of traumatic injuries, CT scans may be taken to identify blood clots or fractures. CT scans are also used to aid radiologists in performing procedures such as the biopsy of suspected cancers, the removal of internal body fluids for testing, and the draining of abscesses located deep within the body. With regards to cancer, CT scans are used to detect or confirm the presence of a tumor, its size, location, whether it has metastasized (spread) and to monitor the body's response to treatment.

By fusing SPECT and CT scans into a single procedure, researchers hope to obtain the superior metabolic information provided by SPECT studies with the clear anatomical information gained from CT scans. Performing the two exams while the individual remains on the table increases the likelihood of good image registration.

Parathyroid Imaging
The parathyroid glands are four small glands in the neck which control the body's calcium level. Keeping a proper balance of calcium is essential to the normal functioning of other organs in the body including the heart, kidneys, bones, and the nervous system. Due to the size and location of the parathyroid glands, localization is important preoperatively. Based on expert opinion and guidance, SPECT/CT is found to be medically necessary for certain parathyroid indications, especially when compared with other imaging modalities.

In a 2006 study by Sharma and colleagues, the authors compared the accuracy of four types of sestamibi-based scans for preoperative parathyroid localization. A total of 138 participants underwent planar imaging, 165 participants underwent SPECT scanning, 350 participants underwent SPECT with thyroid I-subtraction phase, and 180 participants underwent SPECT/CT imaging. False negative scans were noted in 38% of planar scans, 27% of SPECT scans, 4% of SPECT with thyroid I-subtraction phase, and 17% in SPECT/CT. The accuracy of each scan was determined based on intraoperative parathyroid pathology. When a single focus of uptake was noted on scan, a single adenoma was found at that location in 77% of planar imaging, 85% of SPECT imaging, 68% SPECT with thyroid I-subtraction, and 87% with SPECT/CT.

In a 2007 study by Lavely and colleagues, 98 participants had a diagnosis of primary hyperparathyroidism and single adenoma. Each participant had planar imaging, SPECT scanning, and SPECT/CT fusion imaging and comparisons were made to compare the accuracy of parathyroid SPECT/CT imaging to SPECT and planar imaging for localization of parathyroid adenomas. The overall sensitivity for localization for all modalities was 60%, specificity was 99%, positive predictive value (PPV) was 80%, negative predictive value (NPV) was 97%, and area

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under the curve (AUC) was 80%. When SPECT/CT was compared to planar imaging, the single-phase SPECT/CT was not significantly superior to dual-phase imaging for sensitivity, AUC or PPV of localization. The dual-phase SPECT/CT did have a higher sensitivity, AUC and PPV than the dual-phase planar imaging. When SPECT/CT was compared to SPECT scan, the dual-phase SPECT/CT was superior to dual-phase SPECT sensitivity and AUC for localization. The most superior method found was early SPECT/CT in combination with any delayed imaging when compared to a single- or dual-phase planar or SPECT scan for localization of parathyroid adenoma.

A study by Prommegger and colleagues (2009) evaluated 116 participants with primary hyperparathyroidism who had a SPECT scan and CT scan compared to SPECT/CT scan to determine whether the SPECT/CT fusion scan was superior in detecting abnormal parathyroid glands. The CT scan alone predicted the position of the abnormal gland in 75 participants, the SPECT scan alone predicted the position in 64 participants and the SPECT/CT fusion scan predicted the position of the abnormal gland in 102 participants. The sensitivity for CT scan was 70% and specificity was 94%. Sensitivity for SPECT scan was 59% with a specificity of 95%, SPECT/CT scan showed sensitivity of 80% with a specificity of 99%. A total of 62 participants underwent surgery. The authors concluded that the use of SPECT/CT fusion imaging had a higher sensitivity and specificity than CT or SPECT imaging alone when used for preoperative localization of parathyroid glands in those individuals with hyperparathyroidism.

In a 2015 meta-analysis by Wong and colleagues, the authors sought to determine the diagnostic utility of parathyroid scintigraphy with SPECT/CT fusion imaging for localization of parathyroid adenoma when compared to older planar and SPECT scans. A total of 24 articles were included in their analysis. Sensitivity of SPECT/CT was found to be 0.86 (confidence interval [CI], 0.81-0.90) compared to sensitivity of SPECT at 0.74 (CI, 0.66–0.82) and planar imaging at 0.70 (CI, 0.61–0.80). Using SPECT/CT imaging with parathyroid scintigraphy improves performance when compared to older planar and SPECT imaging.

Another meta-analysis by Treglia and colleagues (2016) reported on 23 articles in which participants with primary hyperparathyroidism had SPECT/CT fusion imaging prior to surgery. The pooled detection rate of SPECT/CT in preoperative planning of individuals with primary hyperparathyroidism was 88% (95% CI, 84% to 92%) on a per participant-based analysis and 88% (95% CI, 82% to 92%) on a per lesion-based analysis.

In a 2017 study by Sandqvist and colleagues, the authors reported on 249 participants who were biochemically diagnosed with primary hyperparathyroidism and received SPECT/CT imaging. A total of 200 participant records were reviewed following parathyroidectomy and compared to SPECT and CT images. The sensitivity for SPECT/CT was 83% with a specificity of 96% when compared to SPECT alone. SPECT alone sensitivity was 80% with a specificity of 93%. For small adenomas (less than 210 mg), SPECT/CT showed 67% which were graded with the highest confidence score, compared to 53% with SPECT alone.

In a 2018 retrospective database query, McCoy and colleagues reported on whether the use of SPECT/CT over SPECT alone improves localization accuracy in single-gland disease and identification of multiglandular disease in individuals who underwent initial parathyroidectomy for sporadic primary hyperparathyroidism. There were 1388 participants with sporadic primary hyperparathyroidism included. A total of 633 participants received SPECT imaging only and 755 participants received SPECT/CT imaging preoperatively. The rate of single gland disease was similar between the two groups; 86% vs. 85% respectively. The rate of negative imaging was also similar

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between the two groups; 11% vs. 9.7% respectively. Of the individuals with prior negative SPECT imaging, 192 had repeat imaging with SPECT/CT and 132 of those individuals had positive imaging that resulted in surgery for focused parathyroid exploration rather than a 4-gland exploration. In identifying single gland disease, SPECT/CT identified 534/647 participants (83%) compared to SPECT alone which identified 414/539 (77%). It is noted that the addition of IV contrast did not significantly improve imaging accuracy between the two groups. This study does have limitations including the retrospective design and exclusion of results from prior cervical ultrasound in the study results. There was also no tracking of data regarding concomitant thyroid disease nor tracking of the individuals with negative imaging results who were not referred for parathyroidectomy. Despite the limitations, the results noted that SPECT/CT provided a more reliable operative guidance than SPECT imaging alone.

A 2019 retrospective study by Tawfik and colleagues reported on 60 adults with primary hyperparathyroidism who underwent ultrasound and SPECT/CT for pre-operative localization of parathyroid adenoma. The purpose of the study was to evaluate the diagnostic performance of combined modalities before surgery and in comparison to each modality alone. Following surgery there were 48 subjects who had pathologically proven parathyroid adenoma. Of the 48 subjects with pathologically proven parathyroid adenomas, 40 were found by SPECT/CT, with 8 adenomas identified during surgery that were missed by SPECT/CT. Ultrasound alone detected 38 adenomas with 10 adenomas missed. Combined ultrasound and SPECT/CT detected 42 adenomas with 6 missed. The sensitivity of SPECT/CT alone 83%, specificity was 66%, and accuracy was 80%. Sensitivity of ultrasound alone was 76%, specificity was 63%, and accuracy was 73%. Combined SPECT/CT and ultrasound revealed sensitivity 87%, specificity 71%, and accuracy 85%. While there are some limitations to this study including the retrospective nature and different radiologists and ultrasonographers having different expertise, SPECT/CT missed fewer adenomas than ultrasound alone with higher sensitivity, specificity and accuracy.

Another retrospective study by Okudan and colleagues (2019) reviewed the records of 143 subjects with primary hyperparathyroidism who had ultrasound and SPECT/CT for preoperative localization of parathyroid lesions prior to surgery. During surgery, 125 subjects were found to have single parathyroid adenomas. Ultrasound identified 95 parathyroid adenomas (76.00%; 95% CI: 67.54–83.18%) and SPECT/CT identified 116 parathyroid adenomas (92.80%; 95% CI: 86.77–96.65%). SPECT/CT showed 6 subjects with false positive results suggesting an adenoma on the wrong side and ultrasound showed 9 subjects with false positive results. SPECT/CT was found to have sensitivity and PPV rates of correct lateralization 92.17% (95% CI: 85.66–96.36%) and 94.64% (95% CI: 94.37–94.91%), respectively. Ultrasound was found to have sensitivity and PPV rates of correct lateralization 75.89% (95% CI: 66.90–83.47%) and 90.43% (95% CI: 89.48–91.29%), respectively. When analyzed by laterality, the accuracy of imaging for SPECT/CT was 87.60% (95% CI: 80.38–92.89%) and 70.25% (95% CI: 61.26–78.21%) for ultrasound. While several limitations of the study should be noted, SPECT/CT identified more parathyroid adenomas, had fewer false positive results, and had higher sensitivity and PPV rates than ultrasound.

A 2009 European Association of Nuclear Medicine parathyroid guideline notes that "Use of integrated SPECT/CT with a high spatial resolution, spiral CT used for anatomical localization, improves accuracy and reporter confidence in clinical practice."

Imaging for Melanoma Sentinel Lymph Node Biopsy

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Melanoma is a type of skin cancer. The American Cancer Society estimates that in 2020 about 100,350 new cases of melanoma will be diagnosed. Although it is less common than other types of skin cancers, it can be more likely to spread to other parts of the body. If there is concern about spread to the lymph nodes, a sentinel lymph node biopsy can be done. To visualize the sentinel lymph nodes, the current gold standard imaging is by lymphoscintigraphy. However, the use of SPECT/CT is also being used for better visualization of the lymph nodes.

In a 2012 study, Stoffels and colleagues compared detection of metastatic nodes and disease-free survival using SPECT/CT to lymphoscinigraphy alone. There were 254 subjects who underwent sentinel lymph node excision by standard technique (lymphoscintigraphy alone) and 149 subjects who had SPECT/CT. The use of SPECT/CT allowed sentinel lymph node excision in the head and neck area more frequently (2.0% for lymphoscintigraphy versus 23.5% for SPECT/CT). For those in the SPECT/CT group, more sentinel lymph nodes were detected than in the lymphoscintigraphy group (2.40 versus 1.87, respectively). There were more positive sentinel lymph nodes in the SPECT/CT group compared to the lymphoscintigraphy group (0.34 versus 0.21, respectively). Local relapse rate was 6.8% in the SPECT/CT group compared to 23.8% in the lymphoscintigraphy group with an overall survival rate of 95.9% in the SPECT/CT group and 92.1% in the lymphoscintigraphy group. While the study has limitations including the retrospective design, the count of excised sentinel lymph nodes and number of positive sentinel lymph nodes would not be affected.

In a 2016 retrospective review by Chapman and colleagues, the authors reported on whether the addition of SPECT/CT to lymphoscintigraphy alters the identification, yield, and localization of metastatic nodes in melanoma of the head and neck. There were 91 subjects who underwent lymphoscintigraphy alone and 85 who had lymphoscintigraphy and SPECT/CT. The subjects in the SPECT/CT group were more likely to have a positive sentinel lymph node (18.8%) compared with the lymphoscintigraphy group (6.6 %). The median follow-up time for those in the lymphoscintigraphy group was 44 months compared to 10 months in the SPECT/CT group. In the lymphoscintigraphy group, 19 subjects had a locoregional recurrence including 8 local, 5 in-transit, and 6 lymph node recurrences. In the SPECT/CT group, 14 subjects had a locoregional recurrence including 3 local, 7 in-transit, and 4 lymph node recurrences. Both groups had similar disease-free and overall survival rates. While this study has limitations including the retrospective design, small group of subjects who underwent SPECT/CT, and relatively short follow-up period, the use of SPECT/CT for head and neck melanoma is associated with identification of a positive sentinel lymph node.

In 2015 the European Association of Nuclear Medicine published practice guidelines for lymphoscintigraphy and sentinel lymph node biopsy in melanoma. They note that due to complex anatomy, SPECT/CT should be performed in melanoma of the head and neck. SPECT/CT is also recommended for the groin and axillary areas because it assists in the detection of in-transit nodes and aberrant lymphatic drainage stasis in lymph vessels thus aiding the surgical procedure.

Other Clinical Conditions
The use of SPECT/CT fusion has been studied for other clinical conditions and malignancies. At this time there is a paucity of literature which shows improved clinical outcomes using SPECT/CT for other conditions or malignancies. A 2011 guideline by the European Association of Nuclear Medicine (Flotats), reported on hybrid imaging for individuals with known or suspected coronary artery disease. In terms of cardiac imaging, the hybrid

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systems are not routinely used because of the difficulty in determining which individuals would benefit from the dual scanning and radiation exposure is reported as a concern.

Definitions

Computed tomography (CT): An imaging technique that creates multiple cross-sectional images of the body by using special x-rays and computer enhancement to detect disease or abnormalities.

Single Photon Emission Computed Tomography (SPECT): An imaging technique that measures the concentration of chemicals injected into the body, and provides images of the chemical function of body parts of interest.

References

Peer Reviewed Publications:

1. Chapman BC, Gleisner A, Kwak JJ, et al. SPECT/CT improves detection of metastatic sentinel lymph nodes in patients with head and neck melanoma. Ann Surg Oncol. 2016; 23(8):2652-2657.
2. Doepker MP, Yamamoto M, Applebaum MA, et al. Comparison of single-photon emission computed tomography-computed tomography (SPECT/CT) and conventional planar lymphoscintigraphy for sentinel node localization in patients with cutaneous malignancies. Ann Surg Oncol. 2017; 24(2):355-361.
3. Kwak JJ, Kesner AL, Gleisner A, et al Utility of quantitative SPECT/CT lymphoscintigraphy in guiding sentinel lymph node biopsy in head and neck melanoma. Ann Surg Oncol. 2019 Nov 26. [Epub ahead of print]
4. Lavely WC, Goetze S, Friedman KP, et al. Comparison of SPECT/CT, SPECT, and planar imaging with single- and dual-phase (99m)Tc-sestamibi parathyroid scintigraphy. J Nucl Med. 2007; 48(7):1084-1089.
5. Liddy S, Worsley D, Torreggiani W, Feeney J. Preoperative imaging in primary hyperparathyroidism: literature review and recommendations. Can Assoc Radiol J. 2017; 68(1):47-55.
6. McCoy KL, Ghodadra AG, Hiremath TG, et al. Sestamibi SPECT/CT versus SPECT only for preoperative localization in primary hyperparathyroidism: a single institution 8-year analysis. Surgery. 2018; 163(3):643-647.
7. Okudan B, Seven B, Coskun N, Albayrak A. Comparison between single-photon emission computed tomography/computed tomography and ultrasound in preoperative detection of parathyroid adenoma: retrospective review of an institutional experience. Nucl Med Commun. 2019; 40(12):1211-1215.
8. Prommegger R, Wimmer G, Profanter C, et al. Virtual neck exploration: a new method for localizing abnormal parathyroid glands. Ann Surg. 2009; 250(5):761-765.
9. Sandqvist P, Nilsson IL, Grybäck P, et al. SPECT/CT's advantage for preoperative localization of small parathyroid adenomas in primary hyperparathyroidism. Clin Nucl Med. 2017; 42(2):e109-e114.
10. Shafiei B, Hoseinzadeh S, Fotouhi F, et al. Preoperative 99mTc-sestamibi scintigraphy in patients with primary hyperparathyroidism and concomitant nodular goiter: comparison of SPECT-CT, SPECT, and planar imaging. Nuc Med Commun. 2012; 33(10):1070-1076.
11. Sharma J, Mazzaglia P, Milas M, et al. Radionuclide imaging for hyperparathyroidism (HPT): which is the best technetium-99m sestamibi modality? Surgery. 2006; 140(6):856-863.

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12. Stoffels I, Boy C, Pöppel T, et al. Association between sentinel lymph node excision with or without preoperative SPECT/CT and metastatic node detection and disease-free survival in melanoma. JAMA. 2012; 308(10):1007-1014.
13. Tawfik AI, Kamr WH, Mahmoud W, et al. Added value of ultrasonography and Tc-99m MIBI SPECT/CT combined protocol in preoperative evaluation of parathyroid adenoma. Eur J Radiol Open. 2019; 6:336-342.
14. Treglia G, Sadeghi R, Schalin-Jäntti C, et al. Detection rate of 99m Tc-MIBI single photon emission computed tomography (SPECT)/CT in preoperative planning for patients with primary hyperparathyroidism: A meta-analysis. Head Neck. 2016; 38 Suppl 1:E2159-E2172.
15. Trinh BB, Chapman BC, Gleisner A et al. SPECT/CT adds distinct lymph node basins and influences radiologic findings and surgical approach for sentinel lymph node biopsy in head and neck melanoma. Ann Surg Oncol. 2018; 25(6):1716-1722.
16. Wong KK, Fig LM, Gross MD, Dwamena BA. Parathyroid adenoma localization with 99mTc-sestamibi SPECT/CT: a meta-analysis. Nucl Med Commun. 2015; 36(4):363-375.

Government Agency, Medical Society, and Other Authoritative Publications:

1. Bluemel C, Herrmann K, Giammarile F, et al. EANM practice guidelines for lymphoscintigraphy and sentinel lymph node biopsy in melanoma. Eur J Nucl Med Mol Imaging. 2015; 42(11):1750-1766.
2. Centers for Medicare and Medicaid Services. National Coverage Determination: Computerized Tomography. NCD #220.1. Effective March 12, 2008. http://www.cms.hhs.gov/mcd/index_list.asp?list_type=ncd. Accessed on February 6, 2020.
3. Flotats A, Knuuti J, Gutberlet M, et al. Hybrid cardiac imaging: SPECT/CT and PET/CT. A joint position statement by the European Association of Nuclear Medicine (EANM), the European Society of Cardiac Radiology (ESCR) and the European Council of Nuclear Cardiology (ECNC). Eur J Nucl Med Mol Imaging. 2011; 38(1):201-212.
4. Hindié E, Ugur O, Fuster D, et al. 2009 EANM parathyroid guidelines. Eur J Nucl Med Mol Imaging. 2009; 36(7):1201-1216.

Websites for Additional Information

1. American Cancer Society. Melanoma skin cancer. Available at: https://www.cancer.org/cancer/melanoma-skin-cancer.html Accessed on April 14, 2020.

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History

Status	Date	Action
Revised	05/14/2020	Medical Policy & Technology Assessment Committee (MPTAC) review. Revised to include MN statement for melanoma sentinel lymph node biopsy. Updated Coding, Discussion/General Information, References, and Index sections. Added Websites for Additional Information section.
	12/31/2019	Updated Coding section with 01/01/2020 CPT changes; added 78830, 78832.
Reviewed	06/06/2019	MPTAC review. Updated Discussion/General Information and References sections. Added Index section.
New	07/26/2018	MPTAC review. Initial document development. Moved content of RAD.00042 SPECT/CT Fusion Imaging to new clinical utilization management guideline document with the same title.

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