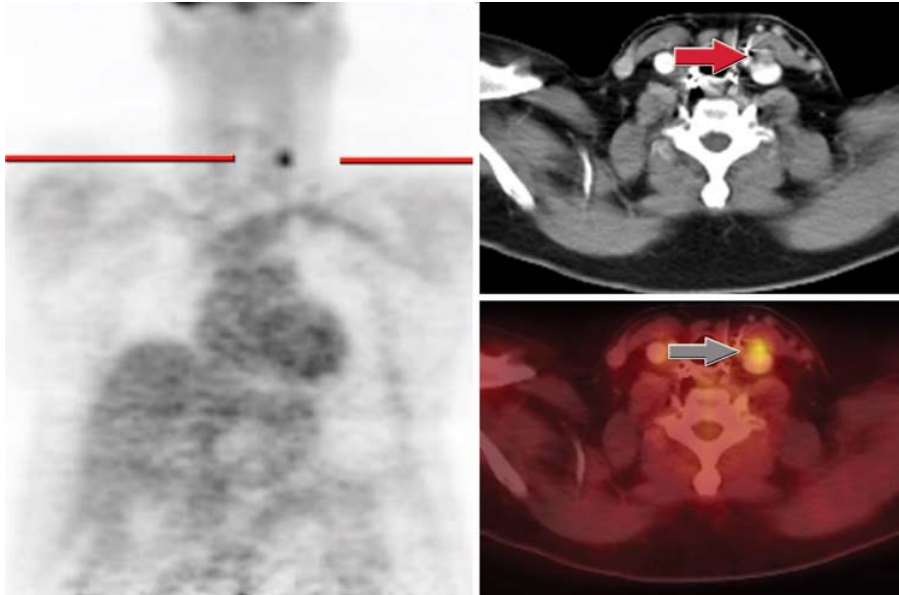


### Thyroid Case #1 - Summary Sheet



#### **Case Description:**

#### **HISTORY:**

56 year old female with a history of papillary thyroid carcinoma, status post thyroidectomy with rising thyroglobulin level and negative i-131 scan. Patient presents for restaging PET•CT.

#### **IMAGING FINDINGS:**

Nuclear Medicine I-131 Scan: 2/26/01

Total body images as well as spot images of the neck were obtained. There appear to be no abnormal areas of uptake of the radiopharmaceutical. There is normal distribution throughout the salivary gland, stomach, gut.

#### **PET•CT Scan:**

There is a focal area of moderate to intense increased uptake of FDG in the left neck inferiorly, corresponding to a small left level 4 lymph node on the CT portion of the exam, very suspicious for recurrent or residual disease.

#### **DIFFERENTIAL DIAGNOSIS:**

Normal node.  
Recurrent thyroid cancer.  
Second primary malignancy.

#### **TREATMENT:**

Re-exploration of left neck.

#### **DISCUSSION:**

Re-staging of thyroid cancer for PET or PET•CT is covered by Medicare and most third party payers in the United States. In general, we do not use PET•CT for the evaluation of primary disease or for staging because many of these tumors will be relatively non-FDG avid. There is a well-known flip-flop phenomenon, wherein a tumor that is iodine avid tends to be FDG negative and tumors that are not iodine sensitive tend to be FDG avid. Of course, there is some overlap.

The patients that we use PET•CT to evaluate are patients with a history of thyroid malignancy, have had a thyroidectomy and have had a negative I-131 and rising thyroglobulin levels. These patients may have at one time had iodine avid disease, but once their tumors have dedifferentiated, they often become negative on I-131. Many of these patients, as described above, will be positive on PET or PET•CT. We have had great success in localizing small or occult disease in this patient population.

In this particular case, a small normal appearing jugulodigastric lymph node was found to have FDG uptake and was subsequently resected and found to be positive for recurrent papillary carcinoma.

Data courtesy of Dr. Todd Blodgett, University of Pittsburgh Medical Center

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