

PET and PET•CT in Head and Neck and Thyroid Cancer

1. Are PET and/or PET•CT useful in the evaluation of patients with head and neck cancer?

Yes. FDG PET and PET•CT are useful in the initial evaluation, staging and restaging of squamous cell carcinoma (SCC) of the head and neck.

2. Are FDG PET and/or PET•CT recommended for evaluating patients with other head and neck malignancies, such as salivary gland tumors, mucoepidermoid carcinoma or adenoid cystic carcinoma?

Generally no, some of these tumors are not FDG avid.

3. Are PET and/or PET•CT useful in the evaluation of patients with thyroid cancer?

For certain applications. Generally PET and PET•CT are not indicated for evaluating the primary tumor or for staging well-differentiated thyroid tumors. While many of these tumors are iodine avid, they tend to be non-FDG avid. Over time, as these tumors tend to dedifferentiate into more aggressive tumor types, they tend to become FDG avid and lose their avidity for iodine. Therefore, the primary indication for PET and/or PET•CT in thyroid cancer is for the evaluation of patients status post thyroidectomy with a rising thyroglobulin level and a negative ¹³¹I study.

4. Are FDG PET or PET•CT helpful for detecting a primary mucosal lesion in patients with metastatic SCC of the neck?

Yes, FDG PET and PET•CT have been shown to have a sensitivity ranging from 26-40% for detecting the primary lesion in patients with “unknown primary” SCC of the neck. PET•CT has the added benefit of precise localization of lesions and offers biopsy information.

5. Are PET and/or PET•CT helpful for evaluating locoregional lymph node involvement?

Yes, several studies have shown their utility in assessing not only ipsilateral lymph node involvement, but also for detecting contralateral lymph node metastases.

6. How should I position the arms of patients being evaluated for head and neck cancer with PET•CT?

Typically patients with malignancies in the chest, abdomen and pelvis are scanned with arms up to avoid beam-hardening artifacts on the CT portion of the exam. For patients with head and neck malignancies, consideration should be given to either performing a separate CT with the arms down or to scan these patients all with arms down.

7. How good are FDG PET and/or PET•CT for differentiating scar and post treatment changes from recurrent/residual cancer?

By definition, scar is dead tissue and should have NO FDG uptake, while SCC of the head and neck is almost always FDG avid. These modalities are very useful for this purpose.