

Evidence Discussion (ONC 3.0-3.4)

Squamous Cell Carcinoma of the Head and Neck

Initial Staging

Accurate initial staging guides prognosis and management options. CT Neck with contrast or MRI Neck with and without contrast is required for correct tumor, nodal, and metastases (TNM) staging. A Contrast CT of the chest is also supported if requested.

- Classification of Tumor staging involves determination of mass size and extent of invasion, if present, of surrounding structures.
- Size and location (including laterality and nodal basin) of pathologic lymph nodes is also required for accurate nodal staging, which will further direct treatment planning to include the extent of potential neck dissection and/or field of radiation. Lymphoscintigraphy is supported, with SPECT if requested, for sentinel node evaluation when nodes are not clinically obviously positive.
- Assessment for potential distant metastases (“M”) is based on clinical signs/symptoms and the presence of advanced locoregional primary disease. Discovery of distant metastasis, or a second primary, shifts management to more systemic options. A heavy smoking history also may be a separate indication for advanced imaging of the chest. Up to 7-14% of patients may have a separate lung primary at the time of initial staging of head and neck SCCa. The use of IV contrast improves the detection of mediastinal and hilar adenopathy, and generally, CT Chest with contrast is preferred. Given the rarity of abdominal or pelvic metastatic disease, abdominopelvic imaging is only supported for signs and symptoms of metastatic disease.
 - Nasopharyngeal carcinoma (NPC) has a relatively high rate of distant metastases compared with other head and neck cancers, being found in 5-11% of patients at the time of initial diagnosis. The most common sites of metastasis are bone (20%), lung (13%), and liver (9%).
- FDG-PET/CT Skull Base to Mid-Thigh detects and localizes primary tumor site, and can be helpful in squamous cell carcinoma (SCCa) of the head and neck with unknown primary. It is also equivalent to and possibly superior to contrast-enhanced CT Neck for accurate diagnosis of regional nodal disease. It is helpful in confirming distant metastases as well. The National Comprehensive Cancer Network (NCCN) recommends FDG-PET/CT for initial staging of any NPC, as well as for patients with locoregionally advanced SCCa (ie, T3-T4 primary or $\geq$ N1 nodal staging).
 - PET/CT alone, however, is not sufficient for initial staging. It does not provide the necessary anatomic detail of the primary tumor’s extent for accurate “T” staging, which is required for best selection of local disease management options. Contrast-enhanced CT Neck or MRI Neck are necessary adjuncts.

- If imaging fails to reveal an obvious primary, PET/CT should be completed before exam under anesthesia, biopsies, and tonsillectomy, to help identify potential primary sites before any intervention occurs.

Restaging

Follow-up imaging is required for the evaluation of treatment response. In alignment with the NCCN, a PET/CT is supported following primary chemoradiotherapy in individuals who have not undergone surgical resection of the primary tumor or neck dissection. For patients receiving induction chemotherapy prior to definitive therapy, a CT or MRI of the primary tumor site to assess response is recommended by NCCN after 2-3 cycles of induction, but a repeat PET-CT is not routinely recommended by NCCN unless there are unclear findings on this CT or MRI. For patients with metastatic disease on active treatment, cross sectional imaging of involved body areas is supported every 2 cycles. PET-CT is supported for only as a problem-solving tool for inconclusive conventional imaging, as the incidence of false positive findings is high in the setting of ongoing inflammation with known disease.

For patients treated with primary chemoradiotherapy, a negative PET at the 3-6 month timeframe predicts improved survival at 2 years, with a negative predictive value of 95-97%. PET-CT performed earlier than this timeframe is associated with higher false-positive findings and should be avoided. CT or MRI neck may be performed **in lieu of** PET/CT, but PET/CT has excellent sensitivity and specificity in this setting, so these studies are generally not supported **in addition to** a PET/CT as they add additional radiation without a clear impact on management.

For suspected local recurrence, CT or MRI of the primary site (neck/face) is supported, as well as CT chest with contrast as lung and mediastinal nodes are the most common site of metastatic disease at recurrence, often without pulmonary symptoms. PET/CT has a relatively high false-positive rate due to ongoing inflammatory changes, and thus eviCore guidelines do not support PET-CT for suspected recurrence until recurrence is proven by biopsy.

Surveillance

Timely detection and accurate assessment of the extent of recurrent disease will direct salvage therapy and improve prognosis. A thorough head and neck clinical examination will typically guide any additional imaging that may be necessary, after post-treatment baseline imaging. There is no controlled prospective data showing a survival benefit for long term surveillance imaging. 3 –year disease free survival in patients undergoing surveillance imaging vs those undergoing clinical surveillance only is not significantly different (41% vs 46%, P=0.91) . Given the excellent NPV of PET-CT 3-6 months post therapy, and the fact that median time to recurrence is 6 months, eviCore guidelines support cross sectional imaging once within 6 months of completion of therapy, following the initial post treatment PET-CT. For patients whose primary tumor site cannot be evaluated with physical exam and for

patients with nasopharyngeal primary tumors, CT neck or MRI face/orbit neck are supported annually for 3 years, as 80-90% of recurrences occur within 3 years.

- The role of annual CT Chest screening for surveillance of lung metastasis is controversial in head and neck cancer, following primary definitive treatment (surgery, XRT, or systemic therapy/XRT). Further study is needed to determine the extent of the positive effect and/or cost-effectiveness of this approach. Patients with a heavy smoking history may be at increased risk, and may meet criteria for low-dose CT lung cancer screening as defined in eviCore GL CH 33.

References

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