January 2021

NI-RADS Category Descriptors, Imaging Findings, and Management

<table>
<tr><th rowspan="2">Category</th><th rowspan="2">Primary Site</th><th rowspan="2">Neck</th><th colspan="2">Imaging Findings</th><th rowspan="2">Management</th></tr>
<tr><th>Primary Site</th><th>Neck</th></tr>
<tr><td>Incomplete</td><td>0</td><td>0</td><td colspan="2">New baseline study without any prior imaging available AND knowledge that prior imaging exists and will become available as comparison</td><td>Assign score in addendum after prior imaging examinations become available</td></tr>
<tr><td>No evidence of recurrence</td><td>1</td><td>1</td><td colspan="2">Expected post treatment changes
Non-mass-like distortion of soft tissues
Low-density post-treatment mucosal edema
Diffuse linear mucosal enhancement or FDG
If residual nodal tissue, no FDG uptake or enhancement</td><td>Routine surveillance</td></tr>
<tr><td rowspan="2">Low suspicion</td><td>2a</td><td rowspan="2">2</td><td>Focal mucosal enhancement or FDG uptake on initial post treatment scan*</td><td rowspan="2">Mild/ mod FDG in residual nodal tissue or persistent areas of heterogenous enhancement
Enlarging or new lymph node without definitive abnormal morphologic features *
Any discordance between PET & CECT: enlarging lymph node but little to no FDG uptake **</td><td>2a: Direct visual inspection</td></tr>
<tr><td>2b</td><td>Deep, ill-defined soft tissue, with only mild/ mod FDG if PET available
Any discordance between PET & CECT: discrete CECT abnormality but little to no FDG uptake or focal FDG uptake but no CT correlate**</td><td>2b or neck 2: Short interval follow-up (3 months) or PET if scoring on CECT alone</td></tr>
<tr><td>High suspicion</td><td>3</td><td>3</td><td colspan="2">Discrete nodule or mass at the primary site with intense focal FDG uptake if PET available
Residual nodal tissue with intense FDG
New enlarged lymph node or enlarging lymph node with abnormal morphologic features*** on CECT only or focal intense FDG uptake if PET available</td><td>Image guided or clinical biopsy if clinically indicated</td></tr>
<tr><td>Definitive recurrence</td><td>4</td><td>4</td><td colspan="2">Pathologically proven or definite radiologic and clinical progression</td><td>Clinical management</td></tr>
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*Focal mucosal abnormalities have a high likelihood of being treatment related, especially on the initial post-treatment PET/CECT, so that in most cases, it is prudent to assign a “2a” and let surgeons or oncologists directly inspect. If a more mass-like or nodular mucosal abnormality develops later in the time course of surveillance, it may warrant a “3”.

**This guideline for PET and CECT discordance only applies if the original tumor was FDG avid

**Morphologically abnormal features which are definitive= new necrosis or gross extra nodal extension (ENE) as evidenced by invasion of adjacent structures

- “Residual nodal tissue” = node that was abnormal and identified on pre-treatment scan. In these cases, hypo enhancement and irregular borders are not unexpected and are likely a sign of treatment response, especially if there is no FDG uptake.
- “New or enlarging node” = node that develops DURING surveillance (not on pre-treatment scan). In these nodes, irregular borders or necrosis are definitively abnormal features.

+ If Primary tumor is unknown, then authors suggest designating “P-unknown primary”, if the primary cannot be assessed (dental artifact, motion or other technical reasons or outside FOV), then authors suggest P-x

+ NI-RADS categories designed for use after definitive/ curative treatment for H&N cancer, and therefore not designed to be used during treatment