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™ PET/CT Category Descriptors, Imaging Findings, and Management

<table>
<thead>
<tr>
<th>Category</th>
<th>Primary Site</th>
<th>Neck</th>
<th>Imaging Findings</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incomplete</td>
<td>0</td>
<td>0</td>
<td>● 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>
</tbody>
</table>
| No evidence of recurrence | 1            | 1    | ● 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 | Routine surveillance |
| Low suspicion              | 2a           | 2    | ● Focal mucosal enhancement or FDG uptake on initial post treatment scan* | 2a: Direct visual inspection |
|                           |              |      | ● 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** | 2b or neck 2: Short interval follow-up (3 months) or PET if scoring on CECT alone |
|                           | 2b           |      | ● New baseline study without any prior imaging available AND knowledge that prior imaging exists and will become available as comparison | Assign score in addendum after prior imaging examinations become available |
| High suspicion             | 3            | 3    | ● 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 | Image guided or clinical biopsy if clinically indicated |
| Definitive recurrence      | 4            | 4    | ● Pathologically proven or definite radiologic and clinical progression | Clinical management |

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