Bronchial neuroendocrine tumor

MP VULLIERME BEAUJON HOSPITAL
COURTESY OF
MP REVEL, COCHIN HOSPITAL, PARIS
Two main lesions

Not well differentiated

Carcinoids, well differentiated
Not well differentiate NET

Same pattern as lung carcinoma
Carcinoids tumors

Typical or atypical
Two main pattern:

- central form
- peripheral one, less symptom,
  - frequently atypical
Central form

- Main bronchial
- Lobar or
- Segmentary.

**Peri hilar tumor**
(typical)

**Proximal Nodule**
(typical)

**endo-bronchial nodule**
(typical)
Peripheral nodule (distal bronchial)

Parenchymal nodule without visible bronchial connexion
Central bronchial NET

- Hyperenhancing
- Calcifications
enhancing

High uptake  Post contrast density 104 UH

Central form
calcifications

Central form
1 - direct pattern: endobronchial tumor

Biopsy: endoscopy
Endoscopic pattern: biopsy

Smooth
Polyploïde
Red cherry
1- direct pattern: endobronchial
2- indirect pattern: « mosaïc » aspect

arterial vasoconstriction secondary to bronchial obstruction, hypoperfusion

Central form
2- indirect pattern: downstream bronchectasy
2- indirect pattern: Obstructive Pneumopathy

Central form
2- indirect pattern: Obstructive Pneumopathy

- Liquid/bronchial

Central form
2- indirect pattern: Obstructive Pneumopathy
2- indirect pattern: Atelectasia

Total atelectasia of superior lobe isointense

Central form
2- indirect pattern: Atelectasia

Central form
2- indirect pattern: Atelectasia
Technical aspect: **3 phases MDCT**

1. Unenhanced: calcifications.
2. Arterial phase (30 s post IV): hypervascular
3. Late phase (90 à 120 s post IV) non enhancing necrosis

To differentiate tumor and atelectasia
Peripheral nodule: NET pattern

- Well delineated, regular shape
- Normal surrounding parenchyma
- No fat (hamartoma)
- Calcifications unfrequent
- Stable or slow growing
- Small size
- Young
- Non smoker
Peripheral pattern

Peripheral nodule
Peripheral pattern

Biopsy: transcutaneous, CT
Peripheral pattern

Peripheral nodule

atypical
Pulmonary carcinoid tumor

Gallium TEP
# AJCC staging for lung tumor NETs

### Primary tumor (T)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Primary tumor cannot be assessed or tumor was proved by the presence of malignant cells in sputum or bronchial washings but not visualized by imaging or bronchoscopy</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumor</td>
</tr>
<tr>
<td>T1</td>
<td>Tumor ≤3 cm in greatest dimension, surrounded by lung or visceral pleura, without bronchoscopic evidence of invasion more proximal than the lobar bronchus (i.e. not in the main bronchus)</td>
</tr>
<tr>
<td>T1a</td>
<td>Tumor ≤2 cm in greatest dimension</td>
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<tr>
<td>T1b</td>
<td>Tumor ≥2 cm but &lt;3 cm in greatest dimension</td>
</tr>
<tr>
<td>T2</td>
<td>Tumor ≥3 cm but ≤7 cm or tumor with any of the following features (T2 tumors with these features are classified T2a if ≤5 cm); involves main bronchus, ≥2 cm distal to the carina; invades visceral pleura (PL1 or PL2); associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung</td>
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<tr>
<td>T2a</td>
<td>Tumor ≥3 cm but ≤5 cm in greatest dimension</td>
</tr>
<tr>
<td>T2b</td>
<td>Tumor ≥5 cm but ≤7 cm in greatest dimension</td>
</tr>
<tr>
<td>T3</td>
<td>Tumor ≥7 cm or one that directly invades any of the following: parietal pleural (PL3) chest wall (including superior sulcus tumors), diaphragm, phrenic nerve, mediastinal pleura, parietal pericardium; tumor in the main bronchus (&lt;2 cm distal to the carina pleura, parietal pericardium; tumor in the main bronchus (&lt;2 cm distal to the carina but without involvement of the carina); or associated atelectasis or obstructive pneumonitis of the entire lung or separate tumor nodule(s) in the same lobe</td>
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<tr>
<td></td>
<td>Description</td>
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<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>Regional lymph nodes (N)</td>
</tr>
<tr>
<td>NX</td>
<td>Regional lymph nodes cannot be assessed</td>
</tr>
<tr>
<td>N0</td>
<td>No regional lymph node metastases</td>
</tr>
<tr>
<td>N1</td>
<td>Metastasis in ipsilateral peribronchial and/or ipsilateral hilar lymph nodes and intrapulmonary nodes, including involvement by direct extension</td>
</tr>
<tr>
<td>N2</td>
<td>Metastasis in contralateral mediastinal, contralateral hilar, ipsilateral or contralateral scalene, or supraclavicular lymph node(s)</td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>Distant metastasis (M)</td>
</tr>
<tr>
<td>M0</td>
<td>No distant metastasis</td>
</tr>
<tr>
<td>M1</td>
<td>Distant metastasis</td>
</tr>
<tr>
<td>M1a</td>
<td>Separate tumor nodule(s) in a contralateral lobe tumor with pleural nodules or malignant pleural (or pericardial) effusion</td>
</tr>
<tr>
<td>M1b</td>
<td>Distant metastasis (LIVER)</td>
</tr>
</tbody>
</table>
Take home

Most frequent young people pulmonary tumor

Bronchial obstruction

Endo bronchial hypervascular nodule

Typical and atypical: same pattern

Peripheral: frequently atypical