AJCC 7th Edition Staging
Disease Site Webinar
Breast

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Overview

• Highlights of disease site chapter

• Uniqueness, differences and exceptions based on
  – Anatomy
  – Diagnostic workup
  – Treatment
  – Outcomes

• Cautions and reminders for staging
Learning Objectives

• Recognize differences based on disease site
• Examine criteria for assigning stage
• Analyze effect of uniqueness on staging
• Employ critical thinking in using physician documentation
• Utilize appropriate guidelines to gain knowledge
• Identify resources for AJCC staging
Stage Classifications

Pathologic – p

Clinical - c

Date of Diagnosis

Diagnostic Workup – phy exam, imaging, bx

Clinical - c

Surgical Treatment

Systemic or Radiation Therapy

Pathology Report

Evaluation by imaging & physical exam

Surgical Treatment

Pathology Report

Posttherapy - yc

Posttherapy - yp
Anatomy Affecting Stage
Breast Staging Anatomy

• Chest wall
  – Ribs
  – Intercostal muscles
  – Serratus anterior muscles
  – **NOT** pectoral muscle

• Intramammary nodes
  – Within breast
  – Considered axillary for staging

• Regional nodes
  – Location
  – Alternate names

Classification Issues
Clinical and Pathologic Staging

• Clinical Staging
  – Most definitive size from imaging, physician documentation
  – Biopsy of primary site, potentially nodal or mets biopsy

• Pathologic Staging
  – Use clinical stage information together with
  – Operative findings and
  – Resection of tumor
Posttherapy Staging

- **Neoadjuvant therapy** eligible based on NCCN guidelines
  - Operable: criteria for breast-conserving surgery except tumor size
  - Inoperable or locally advanced

- **NOT** neoadjuvant therapy: 2-4 weeks of endocrine therapy
  - Clinical trials using imaging assessment pre & post 2-4 weeks of Rx
  - Early response may be surrogate for long-term endocrine benefit

- **yPathologic Staging**
  - First treatment must be neoadjuvant
  - All information from yclinical staging with
  - Operative findings and
  - Resection of tumor
Assigning T, N, M, Stage Group
T Category

• Most accurate size
  – Mammogram, ultrasound, physical exam
  – Physician statement

• Multiple tumors – stage by largest, use (m)

• Complex shapes
  – Macroscopically distinct tumors very close together may be 1 tumor
  – Physician judgment based on imaging and pathology report
T Category

- Skin dimpling & nipple retraction
  - Do not affect T category
  - Not T4

- Inflammatory carcinoma
  - Diffuse erythema and edema (peau d’orange) in 1/3+ of skin
  - Primarily a clinical diagnosis
  - Histologic evidence is supportive of dx but not required
  - Rare, progresses quickly within days/weeks
# T Category

## Primary Tumor (T)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumor</td>
</tr>
<tr>
<td>Tis</td>
<td>Carcinoma in situ</td>
</tr>
<tr>
<td>Tis (DCIS)</td>
<td>Ductal carcinoma in situ</td>
</tr>
<tr>
<td>Tis (LCIS)</td>
<td>Lobular carcinoma in situ</td>
</tr>
<tr>
<td>Tis (Paget’s)</td>
<td>Paget’s disease of the nipple NOT associated with invasive carcinoma and/or carcinoma in situ (DCIS and/or LCIS) in the underlying breast parenchyma. Carcinomas in the breast parenchyma associated with Paget’s disease are categorized based on the size and characteristics of the parenchymal disease, although the presence of Paget’s disease should still be noted</td>
</tr>
<tr>
<td>T1</td>
<td>Tumor ≤20 mm in greatest dimension</td>
</tr>
<tr>
<td>T1mi</td>
<td>Tumor ≤1 mm in greatest dimension</td>
</tr>
<tr>
<td>T1a</td>
<td>Tumor &gt;1 mm but ≤5 mm in greatest dimension</td>
</tr>
<tr>
<td>T1b</td>
<td>Tumor &gt;5 mm but ≤10 mm in greatest dimension</td>
</tr>
<tr>
<td>T1c</td>
<td>Tumor &gt;10 mm but ≤20 mm in greatest dimension</td>
</tr>
<tr>
<td>T2</td>
<td>Tumor &gt;20 mm but ≤50 mm in greatest dimension</td>
</tr>
<tr>
<td>T3</td>
<td>Tumor &gt;50 mm in greatest dimension</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4</td>
<td>Tumor of any size with direct extension to the chest wall and/or to the skin (ulceration or skin nodules).</td>
</tr>
<tr>
<td>T4a</td>
<td>Extension to the chest wall, not including only pectoralis muscle adherence/invasion</td>
</tr>
<tr>
<td>T4b</td>
<td>Ulceration and/or ipsilateral satellite nodules and/or edema (including peau d’orange) of the skin, which do not meet the criteria for inflammatory carcinoma</td>
</tr>
<tr>
<td>T4c</td>
<td>Both T4a and T4b</td>
</tr>
<tr>
<td>T4d</td>
<td>Inflammatory carcinoma (see “Rules for Classification”)</td>
</tr>
</tbody>
</table>
N Category

• Clinically fixed or matted denotes
  – Nodes attached to each other or other structures
  – Extracapsular extension or inflammatory process

• Consider as movable if no statement
  – Physicians document exam findings, not what is absent

• Micromets will be designated as such
  – Consider as metastasis, >2.0 mm if no statement
N Category

- Clinically detected
  - Identified on imaging/physical exam, characteristics of involvement
  - Macromets on FNA/biopsy

- Not clinically detected
  - Not identified on imaging or physical exam
Regional Lymph Nodes (N)

Clinical

NX  Regional lymph nodes cannot be assessed (e.g., previously removed)
N0  No regional lymph node metastases
N1  Metastases to movable ipsilateral level I, II axillary lymph node(s)
N2  Metastases in ipsilateral level I, II axillary lymph nodes that are clinically fixed or matted; or in clinically detected* ipsilateral internal mammary lymph nodes in the absence of clinically evident axillary lymph node metastases
N2a Metastases in ipsilateral level I, II axillary lymph nodes fixed to one another (matted) or to other structures
N2b Metastases only in clinically detected* ipsilateral internal mammary nodes and in the absence of clinically evident level I, II axillary lymph node metastases
N3  Metastases in ipsilateral infraclavicular (level III axillary) lymph node(s) with or without level I, II axillary lymph node involvement; or in clinically detected* ipsilateral internal mammary lymph node(s) with clinically evident level I, II axillary lymph node metastases; or metastases in ipsilateral supraclavicular lymph node(s) with or without axillary or internal mammary lymph node involvement
N3a Metastases in ipsilateral infraclavicular lymph node(s)
N3b Metastases in ipsilateral internal mammary lymph node(s) and axillary lymph node(s)
N3c Metastases in ipsilateral supraclavicular lymph node(s)

*Note: Clinically detected is defined as detected by imaging studies (excluding lymphoscintigraphy) or by clinical examination and having characteristics highly suspicious for malignancy or a presumed pathologic macrometastasis based on fine needle aspiration biopsy with cytologic examination. Confirmation of clinically detected metastatic disease by fine needle aspiration without excision biopsy is designated with an (f) suffix, for example, cN3af. Excisional biopsy of a lymph node or biopsy of a sentinel node, in the absence of assignment of a pT, is classified as a clinical N, for example, cN1. Information regarding the confirmation of the nodal status will be designated in site-specific factors as clinical, fine needle aspiration, core biopsy, or sentinel lymph node biopsy. Pathologic classification (pN) is used for excision or sentinel lymph node biopsy only in conjunction with a pathologic T assignment.
N Category

Pathologic (pN)*

pNX  Regional lymph nodes cannot be assessed (e.g., previously removed, or not removed for pathologic study)

pN0  No regional lymph node metastasis identified histologically

Note: Isolated tumor cell clusters (ITC) are defined as small clusters of cells not greater than 0.2 mm, or single tumor cells, or a cluster of fewer than 200 cells in a single histologic cross-section. ITCs may be detected by routine histology or by immunohistochemical (IHC) methods. Nodes containing only ITCs are excluded from the total positive node count for purposes of N classification but should be included in the total number of nodes evaluated.

pN0(i−)  No regional lymph node metastases histologically, negative IHC

pN0(i+)  Malignant cells in regional lymph node(s) no greater than 0.2 mm (detected by H&E or IHC including ITC)

pN0 (mol−)  No regional lymph node metastases histologically, negative molecular findings (RT-PCR)

pN0 (mol+)  Positive molecular findings (RT-PCR),** but no regional lymph node metastases detected by histology or IHC

pN1  Micrometastases; or metastases in 1−3 axillary lymph nodes; and/or in internal mammary nodes with metastases detected by sentinel lymph node biopsy but not clinically detected***

pN1mi  Micrometastases (greater than 0.2 mm and/or more than 200 cells, but none greater than 2.0 mm)

pN1a  Metastases in 1−3 axillary lymph nodes, at least one metastasis greater than 2.0 mm

pN1b  Metastases in internal mammary nodes with micrometastases or macrometastases detected by sentinel lymph node biopsy but not clinically detected***

pN1c  Metastases in 1−3 axillary lymph nodes and in internal mammary lymph nodes with micrometastases or macrometastases detected by sentinel lymph node biopsy but not clinically detected
### N Category

**Pathologic (pN)* (Continued)**

<table>
<thead>
<tr>
<th>pN2</th>
<th>Metastases in 4–9 axillary lymph nodes; or in clinically detected*** internal mammary lymph nodes in the absence of axillary lymph node metastases</th>
</tr>
</thead>
<tbody>
<tr>
<td>pN2a</td>
<td>Metastases in 4–9 axillary lymph nodes (at least one tumor deposit greater than 2.0 mm)</td>
</tr>
<tr>
<td>pN2b</td>
<td>Metastases in clinically detected*** internal mammary lymph nodes in the absence of axillary lymph node metastases</td>
</tr>
<tr>
<td>pN3</td>
<td>Metastases in ten or more axillary lymph nodes; or in infraclavicular (level III axillary) lymph nodes; or in clinically detected*** ipsilateral internal mammary lymph nodes in the presence of one or more positive level I, II axillary lymph nodes; or in more than three axillary lymph nodes and in internal mammary lymph nodes with micrometastases or macrometastases detected by sentinel lymph node biopsy but not clinically detected***; or in ipsilateral supraclavicular lymph nodes</td>
</tr>
<tr>
<td>pN3a</td>
<td>Metastases in ten or more axillary lymph nodes (at least one tumor deposit greater than 2.0 mm); or metastases to the infraclavicular (level III axillary lymph) nodes</td>
</tr>
<tr>
<td>pN3b</td>
<td>Metastases in clinically detected*** ipsilateral internal mammary lymph nodes in the presence of one or more positive axillary lymph nodes; or in more than three axillary lymph nodes and in internal mammary lymph nodes with micrometastases or macrometastases detected by sentinel lymph node biopsy but not clinically detected***</td>
</tr>
<tr>
<td>pN3c</td>
<td>Metastases in ipsilateral supraclavicular lymph nodes</td>
</tr>
</tbody>
</table>
Notes:
*Classification is based on axillary lymph node dissection with or without sentinel lymph node biopsy. Classification based solely on sentinel lymph node biopsy without subsequent axillary lymph node dissection is designated (sn) for “sentinel node,” for example, pN0(sn).

**RT-PCR: reverse transcriptase/polymerase chain reaction.

***“Not clinically detected” is defined as not detected by imaging studies (excluding lymphoscintigraphy) or not detected by clinical examination.

****“Clinically detected” is defined as detected by imaging studies (excluding lymphoscintigraphy) or by clinical examination and having characteristics highly suspicious for malignancy or a presumed pathologic macrometastasis based on fine needle aspiration biopsy with cytologic examination.
M Category

• **cM0(i+)**
  - CTC: circulating tumor cells in blood
  - DTC: disseminated tumor cells in bone marrow, nonregional tissue

• **M category for postneoadjuvant therapy staging (yp)**
  - Same as M category assigned for clinical stage
  - If M1 before Rx, M1 for yp stage even if mets no longer detected
  - Progression: distant mets identified after Rx when preRx eval neg
**M Category**

### Distant Metastases (M)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M0</td>
<td>No clinical or radiographic evidence of distant metastases</td>
</tr>
<tr>
<td>cM0(i+)</td>
<td>No clinical or radiographic evidence of distant metastases, but deposits of molecularly or microscopically detected tumor cells in circulating blood, bone marrow, or other nonregional nodal tissue that are no larger than 0.2 mm in a patient without symptoms or signs of metastases</td>
</tr>
<tr>
<td>M1</td>
<td>Distant detectable metastases as determined by classic clinical and radiographic means and/or histologically proven larger than 0.2 mm</td>
</tr>
</tbody>
</table>
AJCC Staging Rules

• Standard AJCC staging rules apply if no exceptions noted

• AJCC Curriculum for Registrars
  – Utilize this resource for staging rules
  – Slides available for download
  – Recordings available to watch at any time

• Refer to AJCC website for more information and education
Case Scenarios
Case #1 – Diagnostic Workup

• History/Chief Complaint
  – 57 year old female with abnormal mammogram

• Physical Exam
  – Breasts appear symmetric with no masses detected

• Imaging
  – Mammogram: small focus of micro-calcifications UOQ right breast

• Procedure
  – Stereotactic core biopsy UOQ right breast

• Pathology Report
  – Ductal carcinoma in situ, comedo and cribiform types; estimated size of DCIS 1.2 cm in greatest dimension, extending close to posterior margin, ER/PR positive
Case #1 – Clinical Staging

• Physical exam
  – No mass detected in breast
  – No mention of lymphadenopathy is significant

• Imaging
  – Focus of micro-calcifications does not provide staging information

• Procedure
  – No staging information

• Pathology report
  – In situ carcinoma
  – Size does not play a role in staging for in situ
  – Margin information does not play a role in staging
Case #1 – Clinical Staging Answer

• **pTis**
  – In situ carcinoma identified
  – AJCC rules state this is pTis for the clinical T category
    • Must have microscopic evidence, cannot diagnose in situ on imaging

• **cN0**
  – No axillary adenopathy

• **cM0**
  – No signs or symptoms of mets

• **Stage 0**
Case #1 – Treatment

• History/Chief Complaint
  – Presents for surgical resection

• Operative Report
  – Right partial mastectomy

• Pathology Report
  – No residual carcinoma in situ, right partial mastectomy
Case #1 – Pathologic Staging

• Surgery
  – Patient had surgical resection qualifying for pathologic staging

• Clinical staging information
  – pTis cN0 cM0

• Operative report
  – No additional info

• Pathology report
  – No residual carcinoma in situ
  – No nodes resected
Case #1 – Pathologic Staging Answer

• pTis
  – Carcinoma in situ for clinical stage
  – No residual on resection

• cN0
  – No nodes resected
  – AJCC rule for carcinoma in situ allows cN0 for pathologic stage

• cM0
  – No signs or symptoms of mets

• Stage 0
Case #2 – Diagnostic Workup

- **History/Chief Complaint**
  - 55-year-old female noted lump in right breast

- **Physical Exam**
  - Extensive mass involving large volume right breast
  - No axillary adenopathy

- **Imaging**
  - Mammogram: suspicious lesion right breast
  - MRI: spiculated mass 1.2 x 1.0 x 1.3 cm involving 1/3 of breast

- **Procedure**
  - Core needle biopsy

- **Pathology Report**
  - Ductal carcinoma in situ with focal comedo necrosis, biopsy
Case #2 – Clinical Staging

• Physical exam
  – Extensive mass in right breast
  – No axillary adenopathy

• Imaging
  – Mammogram does not provide any staging information
  – MRI 1.2x1.0x1.3 cm mass involving 1/3 of breast

• Procedure
  – Biopsy has no staging information

• Pathology report
  – In situ carcinoma
Case #2 – Clinical Staging Answer

- **pTis**
  - In situ carcinoma identified
  - AJCC rules state this is pTis for the clinical T category
    - Must have microscopic evidence, cannot diagnose in situ on imaging

- **cN0**
  - No axillary adenopathy

- **cM0**
  - No signs or symptoms of mets

- **Stage 0**
Case #2 – Treatment

• History/Chief Complaint
  – Presents for surgical resection with sentinel node biopsy

• Operative Report
  – Right modified radical mastectomy with sentinel node biopsy, and subsequent axillary dissection

• Pathology Report
  – 1.1 cm Infiltrating ductal carcinoma, right breast
  – Metastatic to 5/15 axillary nodes
Case #2 – Pathologic Staging

• Surgery
  – Patient had surgical resection qualifying for pathologic staging

• Clinical staging information
  – pTis cN0 cM0

• Operative report
  – No additional information

• Pathology report
  – Invasive carcinoma
  – 1.1 cm tumor size
  – Involvement of 5 axillary nodes
Case #2 – Pathologic Staging Answer

• **pT1c**
  – >10 mm ≤20 mm invasive tumor size
  – Carcinoma in situ on clinical stage

• **pN2a**
  – 5 axillary nodes involved
  – Presume >2 mm since not stated as micromets

• **cM0**
  – No signs or symptoms of mets

• **Stage IIIA**
Information and Questions on AJCC Staging
AJCC Web site

- https://cancerstaging.org

- Cancer Staging Education Registrar menu includes
  - Timing is Everything – stage classification timeframe graphic
  - Presentations
    - Self-study or group lecture materials
      - Registrar’s Guide to Chapter 1, AJCC Seventh Edition
      - Explaining Blanks and X, Ambiguous Terminology and Support for Staging
      - AJCC T, N, and M Category Options for Registry Data Items in 2016
  - AJCC Curriculum for Registrars
    - 4 free self-study modules of increasing difficulty on staging rules
      - Each module consists of 7 lessons, including recorded webinar with quizzes
AJCC Web site

• https://cancerstaging.org

• Cancer Staging Education Physician menu includes
  – Articles
    • 18 articles on AJCC staging in various medical journals
  – Webinars
    • 14 free webinars on staging rules and some disease sites

• Cancer Staging Education General menu includes
  – Staging Moments
    • 15 case-based presentations in cancer conference format to promote accurate staging with answers and rationales
AJCC Cancer Staging Manual and Atlas

Order at http://cancerstaging.net
CAnswer Forum

• Submit questions to AJCC Forum
  – Located within CAnswer Forum
  – Provides information for all
  – Allows tracking for educational purposes

• http://cancerbulletin.facs.org/forums/
Summary
Summary

• Recognize differences based on disease site
  – Examine criteria for assigning stage
  – Effect of uniqueness of anatomy, workup, treatment

• Employ critical thinking in using physician documentation
  – Understanding current standard medical practice
  – Interpretation of available information

• Utilize guidelines available to registrars to gain knowledge

• Identify resources for AJCC staging
  – Information and guidance
  – Obtain answers to questions to learn staging
    • Understand rationale to apply to future cases
    • Not just an answer for today’s case
Thank you

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