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

Anatomy Affecting Stage
Regional Lymph Nodes

- Regional nodes are those of the true pelvis
  - Sacral
  - Obturator
  - Hypogastric
  - External iliac
  - Pelvis NOS

- Note location
  - Not surrounding prostate

Classification Issues

Clinical and Pathologic Staging

- Clinical staging
  - Physical exam and DRE
  - Imaging only in T3, T4, or potential/probability of N1
  - cN0 based on physician judgment and nomograms
  - PSA and Gleason are required categories for assigning stage group

- Pathologic staging
  - Total/radical prostatectomy required
  - General rules apply
  - Microscopic highest T & N may be used
  - Microscopic T3 and highest N under certain circumstances
  - PSA and Gleason are required categories for assigning stage group

- No pathologic staging
  - No neoadjuvant therapy for prostate outside of clinical trials

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Assigning T, N, M, Stage Group

T Category – Clinical Classification

- Inapparent and apparent
  - DRE is gold standard
  - Imaging may be used based on physician judgment
  - Registrar cannot interpret imaging

- Do not assign T2 in absence of a clear statement
  - Inapparent is T1
  - Apparent is T2-T4

T Category – Clinical Classification

- T category and clinical stage may not be assigned
  - Without physical exam information including DRE
  - From biopsy pathology report alone
    - Unless report contains statements from physical exam

- If physician did not examine prostate, assign TX
### T Category

**Incidental finding during prostatectomy**
- **No** clinical stage assigned
- **Not** cT0

**T2 category – confined to prostate includes**
- Invasion into prostatic apex
- Invasion into prostatic capsule, but not beyond

**Not a true capsule, usually termed extraprostatic extension**
- So called capsule only laterally and posteriorly
- No capsule for anterior, bladder area, or apex
  - Bladder area is base, top of prostate
  - Apex is at bottom of prostate

**Margin positivity and extraprostatic/extracapsular extension**
- Observations are separate, cannot correlate
- Cannot infer one from the other
- No rules can exist to automatically assign T category

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### Primary Tumor (T)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>T2</td>
<td>No evidence of primary tumor</td>
</tr>
<tr>
<td>T3</td>
<td>Clinically apparent tumor neither palpable nor visible by imaging</td>
</tr>
<tr>
<td>T4a</td>
<td>Tumor incidentally found in prostate, e.g., because of symptom or abnormal PSA</td>
</tr>
<tr>
<td>T4b</td>
<td>Tumor confined within prostate</td>
</tr>
<tr>
<td>T4c</td>
<td>Tumor limited to one lobe or less</td>
</tr>
<tr>
<td>T4d</td>
<td>Tumor involves more than one lobe but not both lobes</td>
</tr>
<tr>
<td>T4e</td>
<td>Tumor invades seminal vesicles</td>
</tr>
<tr>
<td>T4f</td>
<td>Tumor extends through the prostate capsule</td>
</tr>
<tr>
<td>T4m</td>
<td>Extraprostatic extension (bilateral) or Bladder</td>
</tr>
<tr>
<td>T4n</td>
<td>Tumor invades seminal vesicles or extraprostatic extension to other than seminal vesicles such as external sphincter, rectum, bladder, lower ureters, and/ or pubic symphysis</td>
</tr>
</tbody>
</table>

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*Note: Tumor found in one or both lobes by needle biopsy, but not palpable or reliably visible by imaging, is classified as T1.*

*Note: Invasion into the prostatic capsule or into (but not beyond) the prostate capsule is classified as T4 but as T2.
**T Category**

Pathologic (pT)

- pT2: Organ-confined
- pT2a: Unilateral, one-half of one side or less
- pT2b: Unilateral, involving more than one-half of one side but not both sides
- pT3a: Bilateral disease
- pT3b: Extraprostatic extension
- pT3c: Extraprostatic extension or microscopic invasion of bladder neck**
- pT3d: Seminal vesicle invasion

**Note:** There is no pathologic T1 classification.

**Note:** Positive surgical margin should be indicated by an R1 descriptor (residual microscopic disease).

**N Category**

- Physician judgment may be used to assign cN0
  - Takes into account T category, PSA, Gleason
  - Nomograms indicate probability of nodal involvement
  - Pelvic CT or MRI only if certain criteria are met
  - NCCN guidelines on staging workup

- If no nodes removed with prostatectomy
  - Must assign pNX
  - If not T4 or M1, stage group cannot be assigned

**Regional Lymph Nodes (N)**

- Clinical:
  - NX: Regional lymph nodes were not assessed
  - N0: No regional lymph node metastasis
  - N1: Metastasis in regional lymph node(s)
- Pathologic:
  - pNX: Regional nodes not sampled
  - pN0: No positive regional nodes
  - pN1: Metastasis in regional node(s)
M Category

• Important to assign subcategories
  – Even though stage group not affected
  – Critical to have M1a, M1b, M1c data
  – Data may lead to different stage groups in future

• M1c: other sites with/without bone disease
  – If only one site proven microscopically, still assign pM1c
  – Important to indicate there is microscopic evidence

Distant Metastasis (M)*
- M0: No distant metastasis
- M1: Distant metastasis
- M1a: Nonregional lymph node(s)
- M1b: Bone(s)
- M1c: Other site(s) with or without bone disease

* Note: When more than one site of metastasis is present, the most advanced category is used. pM1c is most advanced.

PSA and Gleason

• PSA measured pre-diagnosis
  – Any manipulation of prostate can raise PSA levels
  – Including digital rectal exam and biopsy

• Gleason histologic grade table in 7th edition
  – Gleason grading system not changed between 6th & 7th editions
  – Shows prognostic significance, and prognosis changed
  – Criteria for pathologist to assign Gleason grade did not change
  – Corresponds to cutpoints in stage group
  – http://cancerbulletin.facs.org/forums/node/1150

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Gleason

- Gleason score is recommended grading system
  - Accounts for inherent morphologic heterogeneity of prostate cancer
  - Primary and secondary patterns assigned
  - Patterns summed for Gleason score
  - Highest Gleason is used

- May be different for clinical and pathologic staging
  - Based on timeframes used for staging
  - Clinical: use biopsy or TURP, only information known at that time
  - Pathologic: all information used, highest of bx/TURP/prostatectomy

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 #1 – Diagnostic Workup

- **History/Chief Complaint**
  - 67-year-old male, elevated PSA of 6.1, six months prior was 5.2
- **Physical Exam**
  - Rectal: firm area involving prostate apex, predominantly on right
- **Imaging**
  - CT abdomen/pelvis: prostate moderately enlarged, indents bladder base, mild asymmetric soft tissue thickening along left posterolateral margin, several small nodes visualized in pelvis all non-pathologic by radiographic criteria
  - Bone scan: degenerative changes in thoracic spine
- **Procedure**
  - Transrectal ultrasound with biopsy: large hypoechoic lesion involving peripheral gland from mid portion extending to apex
- **Pathology Report**
  - Gleason Grade 3+3 prostatic adenocarcinoma in needle biopsy

Case #1 – Clinical Staging

- **History**
  - PSA 6.1
- **Physical exam**
  - Firm area on right
- **Imaging**
  - Prostate description doesn’t play a role in staging
  - No involvement of pelvic nodes
- **Procedure**
  - TRUS shows lesion in periphery of gland from mid portion to apex
- **Pathology report**
  - Gleason patterns 3+3, score 6

Case #1 – Clinical Staging Answer

- cT2a
  - Firm area right prostatic apex
  - Lesion in periphery, mid portion to apex
  - Describes less than half of right lobe
- cN0
  - Nodes not involved on imaging
- cM0
  - No signs or symptoms of mets
- PSA <10
  - 6.1
- Gleason 6
- Stage I
Case #1 – Treatment

- History/Chief Complaint
  - Admitted for surgery

- Operative Report
  - Radical Prostatectomy with bilateral pelvic lymph node dissection:
    right side prostate somewhat adherent because tumor was present on biopsies on this side, left side appeared to be no tumor involvement

- Pathology Report
  - Extensive Gleason Grade 3+4 prostatic adenocarcinoma. No evidence of capsular invasion by tumor. Seminal vesicle free of tumor. Margins negative. 0/8 right pelvic nodes, 0/4 left pelvic nodes. Benign right seminal vesicle.

Case #1 – Pathologic Staging

- Surgery
  - Patient had surgical resection qualifying for pathologic staging

- Clinical staging information
  - cT2a cN0 cM0 PSA <10 Gleason 6

- Operative report
  - Tumor on right side
  - No tumor on left side

- Pathology report
  - Gleason grade patterns 3+4, score 7
  - No capsular invasion
  - Margins negative does not play a role in staging
  - Seminal vesicles not involved
  - No pelvic nodes involved

Case #1 – Pathologic Staging Answer

- pT2a
  - Prostate did not show further involvement than clinical stage info
  - No invasion of capsule or seminal vesicles

- pN0
  - Pelvic nodes negative

- cM0
  - No signs or symptoms of mets

- PSA <20
  - 6.1

- Gleason 7

- Stage IIA
Case #2 – Diagnostic Workup

- **History/Chief Complaint**
  - 69-year-old male with inability to void
  - Patient is s/p renal transplant as treatment of end-stage nephroarteriosclerosis

- **Physical Exam**
  - Rectal: normal, urinary retention secondary to BPH

- **Procedure**
  - Transurethral resection of prostate

- **Pathology Report**
  - Solitary small focus of well-differentiated, Gleason histologic pattern of 1 and 2, adenocarcinoma of prostate, involving only 1 of 25 fragments of prostate gland

Case #2 – Clinical Staging

- **Physical exam**
  - Normal DRE
  - Urinary retention due to BPH does not play a role in staging

- **Procedure**
  - TURP performed to relieve urinary retention
  - No description to play a role in staging

- **Pathology report**
  - Small focus of tumor
  - Gleason pattern 1+2, score 3
  - Involving 1 of 25 fragments, ~4%

Case #2 – Clinical Staging Answer

- **cT1a**
  - DRE normal, no cancer suspected
  - Incidental finding in 4% of TURP tissue fragments

- **cN0**
  - No reason to suspect nodal involvement

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

- **PSA X**
  - Not performed, cancer not suspected

- **Gleason 3**
- **Stage I**
Case #2 – Treatment

• Patient will not have surgical treatment
• Multiple health problems
• Low or very low risk group according to guidelines
• Treatment guidelines according to life expectancy
  – Observation
  – Active surveillance

Case #2 – Pathologic Staging

• No surgical treatment
• Patient does not qualify for pathologic staging

Case #2 – Pathologic Staging Answer

• No T, N, M, or stage group may be assigned
• All categories left blank – does not qualify for staging
• Stage group may be coded as 99 for cancer registries
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
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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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