2016 AJCC TNM Practice Cases
(You Will Need an AJCC Staging Manual)

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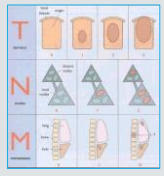
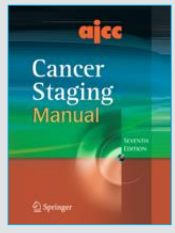
2016-2017 FCDS WEBCAST SERIES
OCTOBER 20, 2016
STEVEN PEACE, CTR

AJCC
American Joint Committee on Cancer

AJCC Cancer Staging Instruction for Registrars
https://cancerstaging.org/CSE/Registrar/





CDC & Florida DOH Attribution

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CDC Centers for Disease Control and Prevention

"We acknowledge the Centers for Disease Control and Prevention, for its support of the Florida Cancer Data System, and the printing and distribution of the materials for the 2016-2017 FCDS Webcast Series under cooperative agreement DP003872-03 awarded to the Florida Department of Health. The findings and conclusions in this series are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention".

FCDS would also like to acknowledge the Florida Department of Health for its support of the Florida Cancer Data System, including the development, printing and distribution of materials for the 2016-2017 FCDS Webcast Series under state contract CODJU. The findings and conclusions in this series are those of the author(s) and do not necessarily represent the official position of the Florida Department of Health.

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A special thanks and acknowledgement to the staff at the AJCC for providing slides with critical content used in this presentation and available in full on the AJCC website www.cancerstaging.org

Purchase and Ordering Information

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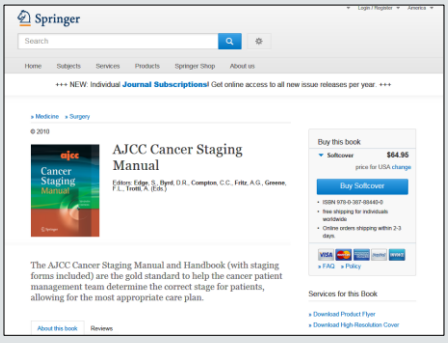

http://www.springer.com/us/book/9780387884400

- **AJCC Cancer Staging Manual – 7th edition, 2010**
- **COST: $64.95**
- **ISBN: 978-0-387-88440-0**

- Required - Florida Mandate
  - FCDS will not purchase
  - Facility may purchase
  - Individual may purchase

- **Also Required to Purchase 8th Edition in 2016-2017**

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Chapter Outline and Contents

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Staging at a Glance	**Summary of anatomic stage/prognostic grouping**
Changes in Staging	Table summarizing changes in staging from the 6th edition
Introduction	Overview of factors affecting staging and outcome
Anatomic Considerations	o Primary Tumor o Regional lymph nodes o Metastatic sites
Rules for Classification	o Clinical o Pathologic
Prognostic Features	Identification and discussion of non-anatomic prognostic factors
Definitions of TNM	T: Primary tumor N: Regional lymph nodes M: Distant metastasis
Anatomic Stage Prognostic Groups	
Prognostic Factors (SSFs)	a. Required for staging b. Clinically significant
Grade	
Histopathologic Type	
Bibliography	
Staging Form	

AJCC Cancer Staging Manual, 7th ed. – Chapter 1, Table 1.10, p.14

Stage Classifications – Points in Time

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- Timing for Clinical Stage – Date of Diagnosis up to the 1st treatment… in the Absence of Disease Progression or within first 4 months after Diagnosis
- Timing for Pathologic Stage – Date of Diagnosis through definitive surgery… in the Absence of Disease Progression or within first 4 months after Diagnosis
- Timing for Post-Treatment Stage (Pathologic - yp) – Pathologic Stage following treatment with neoadjuvant therapy(s) and definitive surgery (can include progression after neo-TX)
- Timing for Post-Treatment Stage (Clinical - yc) – Clinical Stage following treatment with neoadjuvant therapy(s) and before definitive surgery or no definitive surgery (can include progression after neo-TX)

Clinical Stage – Pretreatment Stage

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- Clinical Stage (Pre-TX Stage) is the extent of disease defined by diagnostic study before information is available from surgical resection or initiation of neoadjuvant therapy, or within 4 months after date of diagnosis, whichever is shorter.
  - Patient Medical History
  - Physical Examination
  - Diagnostic Imaging Studies
  - Endoscopy
  - Biopsy of primary tumor
  - Biopsy of single node or sentinel nodes
  - Biopsy of metastatic sites
  - Exploratory Surgery
  - Other relevant lab tests, biomarker tests, or examinations

Lymph Node Biopsy and/or Resection

7

- A lymph node biopsy can be either clinical or pathologic. If the only assessment of the primary tumor is a clinical (cT) assessment, then a biopsy of a single lymph node or of a sentinel lymph node can also be included in the clinical (cN) stage. In this situation, there would have been no evaluation of the primary tumor that qualifies for the pT. This allows for the assignment of a clinical stage when a pathological stage is not applicable.
- Generally a resection of the primary tumor that qualifies for the pT is required in order to assign the pN. If there is a resection that qualifies for the pathologic assessment of T (pT), then any microscopic evidence of regional node involvement is classified as pN. MUST have at least ONE node microscopically examined to assign a pN. This can be a FNA, biopsy or excision of a node as long as there is microscopic confirmation.

Pathologic Stage

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- Pathologic Stage includes any information obtained about the extent of cancer through completion of definitive surgery as part of the first course of treatment or identified within 4 months after the date of diagnosis, whichever is longer, as long as there is no systemic or radiation therapy initiated or the cancer has not clearly progressed during that time frame.
- Must meet chapter-specific criteria for surgical resection to assign
- Includes all of the clinical stage information from clinical stage, plus
  - Observations at time of surgical resection from operative report
  - Pathologic Examination of surgically resected primary specimen
  - Pathologic Examination of surgically resected regional lymph nodes
  - Pathologic Examination of biopsy or resection of metastasis

Pathologic Stage

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- The pathologic stage classification starts at the moment of DIAGNOSIS. Pathologic stage is defined by the same diagnostic studies used for clinical staging supplemented by findings from surgical resections and histologic examination of the surgically removed tissues. The pathologic stage encompasses three equal pieces of information:
  - All of the clinical classification information not disproven by the intra-operative or pathology findings.
  - PLUS includes the operative findings during the resection not submitted to or disproven on pathology.
  - PLUS includes the pathology report findings of the resected specimen.

Pathologic Stage

10

- If a biopsied tumor is not resected for any reason (e.g., when technically unfeasible) and if the highest T and N categories or the M1 category of the tumor can be confirmed microscopically, the criteria for pathologic classification and staging have been satisfied without total removal of the primary cancer.
  - To use the highest T and highest N to assign the pathologic stage, you have to have both microscopic confirmation of the highest T for a pT AND microscopic confirmation of the highest N for a pN.
  - IMPORTANT: pT blank and pN3 is not enough for a pathologic stage so the pN will be used for the clinical stage.

Post-Treatment Stage

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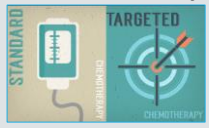
- Documents measured response to initial (neoadjuvant) therapy(s)
  - Complete Response
  - Partial Response
  - No Response
  - Progression



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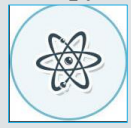

- May be clinical measurement only – yc
  - Based on post-treatment imaging, physical examination, biopsy
- More often it is post-treatment pathologic stage – yp
  - Based on post-treatment surgical resection of primary site and regional nodes
  - Must meet chapter-specific criteria for surgical resection
- What about pre-treatment with less than 1 month of endocrine therapy including various hormones (prostate, breast, thyroid)? This is Not Neoadjuvant Tx…even though it begins before surgery

Staging Practice

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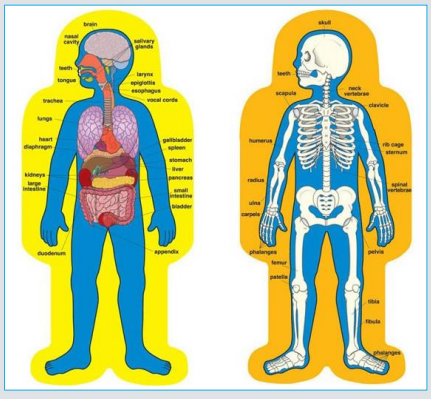
Staging Practice

13

Types of Cases

14

- Bladder
- Breast
- Colon
- Endometrium
- Lymphoma
- Lung
- Neuroendocrine
- Prostate
- Rectum
- Melanoma
- Soft Tissue Sarcoma
- Thyroid



Case 1 – Case Vignette

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- HISTORY: 57 year-old African-American female with bx-confirmed adenocarcinoma of the rectosigmoid.
- CT CHEST: few small (<1cm) nonspecific hilar lymph nodes noted in chest. Exam otherwise negative.
- COLONOSCOPY : Large tumor colon @ 15 cm biopsy: invasive poorly differentiated adenocarcinoma
- PATHOLOGY: Sigmoidectomy - 5.9 x 4.2 x 2.7 cm ulcerative lesion; invasive poorly differentiated colonic adenocarcinoma with extension into and through muscularis propria and focal transmural extension to serosal surface, margins free of tumor, 13 lymph nodes negative for metastatic adenocarcinoma; two discontinuous tumor deposits – present and positive for metastatic adenocarcinoma

Case 1 – Answer & Rationale

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Practice Case #1			
C19.9 - rectosigmoid; 8140/3 adenocarcinoma, NOS; Grade 3 (poorly differentiated)			
Chapter 14 - Colon and Rectum (Sarcomas, lymphomas, and carcinoid tumors are not included) - p. 143			
Clinical TNM AJCC Stage Group	cTX cNX cM0	99	Clinical staging is based on history, physical exam, colonoscopy with biopsy, and other exams that may demonstrate extra-colonic metastasis. Tumor Extension into or thru the layers of the colon wall is basis for cT evaluation. But, only tumor location can be assessed from Colonoscopy. Primary tumor cannot be assessed (cTX). Clinical Regional Lymph Node status cannot be assessed with only a CT Chest and Colonoscopy (cNX). cM0 based on no clinical evidence of metastasis and negative CT Chest.
Pathologic TNM AJCC Stage Group	pT4a pN1c cM0	IIIB	Pathologic staging is based on surgical exploration, surgical resection, and pathologic review of the resected specimen. Tumor invades through muscularis propria with focal transmural extension to serosal surface (pT4a). Nodes examined are negative (0/13), but 2 discontinuous tumor deposits are present and positive (pN1c). No pathologic confirmation of any metastasis - so, you take the clinical (cM0).
SSF for Staging			None Required for Staging

Case 2 – Case Vignette

17

- HISTORY: 61 yr old white female, lifelong smoker, with multiple medical problems including recent adenoma on routine screening colonoscopy. Physical exam - negative.
- CT CHEST: Negative
- COLONOSCOPY : Transverse colon polyp @ 110cm – high grade dysplasia with focal well differentiated adenocarcinoma arising in an adenoma.

Case 2 – Answer & Rationale

18

Practice Case #2			
C18.4 - transverse colon; 8210/3 adenocarcinoma arising in adenoma; Grade = 1 (well differentiated)			
Chapter 14 - Colon and Rectum (Sarcomas, lymphomas, and carcinoid tumors are not included) - p. 143			
Clinical TNM AJCC Stage Group	cT1 cN0 cM0	I	Clinical staging is based on history, physical exam, colonoscopy with biopsy, and other exams that may demonstrate extra-colonic metastasis. Colonoscopy does not assess extension through wall for cT but pathology shows high grade dysplasia with focal adenocarcinoma; tumor not described as in situ, so assign lowest T value for invasive tumor (cT1). No clinical or imaging exam is documented to assess clinical node status, but assigning cN0 per registry guidelines (no statement of involvement, early stage disease, usual treatment - (cN0). CT chest performed to assess metastatic disease in chest only, but no other indication of metastatic disease and MX not valid (cM0).
Pathologic TNM AJCC Stage Group	<blank>	99	Pathologic staging is based on surgical exploration, surgical resection, and pathologic review of the resected specimen. No surgical resection was performed. So, Pathologic Staging is not assigned and you code pT=blank, pN=blank, pM=blank. Although, Pathologic Stage is not assigned, the p Stage Group must still be coded 99 per AJCC coding instruction.
SSF for Staging			None Required for Staging

Case 3 – Case Vignette

19

- HISTORY: 64 year old Hispanic male admitted through the ER with severe abdominal pain.
- CT CHEST/ABD: extra-luminal gas right lower quadrant in area of cecum, suspect perforation of ascending colon
- PATHOLOGY Laparoscopic Ileocecectomy: poorly differentiated adenocarcinoma of cecum.; Maximum dimension: 6.3 cm, Microscopic tumor extension: penetrates serosal surface (visceral peritoneum) with perforation and direct invasion of distal ileum; LVI: present; One discontinuous extramural tumor deposit found in mesentery without nodal structure; Margins: free of tumor, three of nine lymph nodes positive for mets (3/9).

Case 3 – Answer & Rationale

20

Practice Case #3			
C18.0 - cecum; 8140/3 adenocarcinoma, NOS; Grade = 3 (poorly differentiated)			
Chapter 14 - Colon and Rectum (Sarcomas, lymphomas, and carcinoid tumors are not included) - p. 143			
Clinical TNM AJCC Stage Group	Blank	99	Clinical staging is based on history, physical exam, colonoscopy with biopsy, and other exams that may demonstrate extra-colonic metastasis. There was no biopsy prior to emergency surgery. CT diagnosis suspected perforation of ascending colon but did not state a cause for the perforation. Clinical assessment of cancer was not performed before surgery. So, there is no clinical stage assigned. Code cT = blank, cN = blank, cM = blank. Clinical staging is not assigned, but the c Stage Group field is coded 99 per AJCC coding instruction.
Pathologic TNM AJCC Stage Group	pT4b pN1b cM0	IIIC	Pathologic staging is based on surgical exploration, surgical resection, and pathologic review of the resected specimen. Tumor penetrates serosal surface with perforation and direction invasion of distal ileum (pT4b). Nodes examined are positive (3/9) (pN1b). There is 1 discontinuous tumor deposit present, but pathologically confirmed nodes take precedence in assigning N category - so you code the lymph node mets but not the discontinuous tumor deposits in this case. No pathologic confirmation of metastatic disease, so clinical M used in staging, with no indication of distant metastasis noted on CT of chest and abdomen (cM0).
SSF for Staging			None Required for Staging

Case 4 – Case Vignette

21

- HISTORY: 49 year old white female admitted following recent colonoscopy showing malignant appearing mass in ascending colon. Family History: Father and brother had rectal cancer Physical Exam is essentially WNL.
- CT CHEST/ABDOMEN: no abnormalities noted
- COLONOSCOPY per history showed malignant appearing mass in proximal ascending colon – unknown if biopsy was taken to confirm malignancy.
- CEA 0.6 – WNL
- PATHOLOGY from Resection - Right hemicolectomy with appendix: Intermediate grade 2 neuroendocrine tumor (NET) of cecum (carcinoid tumor). Maximum dimension: 3.0 cm. Grossly the lesion invades through the muscularis propria into the underlying mesenteric adipose tissue. Microscopic tumor extension: invades through muscularis propria. Lymphovascular invasion: present (venous). Perineural invasion: not identified. Margins: free of tumor. One of twenty two lymph nodes positive for metastatic carcinoma (1/22).

Case 4 – Answer & Rationale

22

Practice Case #4			
C18.0 - cecum; 8240/3 malignant carcinoid tumor (carcinoid is a type of neuroendocrine tumor or NET); Grade = 2 (intermediate Grade)			
Chapter 17 Neuroendocrine Tumors p.181			
Clinical TNM AJCC Stage Group	cTX cN0 cM0	99	Clinical staging is based on anatomic extent and hormonal activity of tumor ascertained by examination before treatment. Clinical exam include history, physical exam, lab studies, and biochemical markers of NET disease. CT is used to localize NETs and metastases. There is indication of a malignant tumor prior to surgery, but no indication of histology. Patient apparently had elective rather than emergency surgery, so case was staged clinically as a colon carcinoma - but still cTx because clinical staging for colon also requires biopsy. (cTX). CT abdomen within normal limits (cN0). No abnormalities on CT chest, abdomen (cM0).
Pathologic TNM AJCC Stage Group	pT2 pN1 cM0	IIIB	Pathologic staging is based on surgical exploration and examination of surgically resected primary tumor, lymph nodes and distant metastases. Grossly the tumor invades through muscularis propria into the underlying mesenteric adipose tissue, but microscopic invasion is through the muscularis propria only (pT2). 1 of 22 nodes is positive (pN1). There is no pathologic assessment of distant metastases, but CT of chest and abdomen are negative (cM0).
SSF for Staging			None Required for Staging

Case 5 – Case Vignette

23

- HISTORY: 47 year old morbidly obese white male with chronic constipation and bright red blood in stool. Rectal exam positive for mass low in rectum with fixation.
- EUS: large mass fixed to rectal wall with evidence of invasion into perirectal fat and partial lumen obstruction, prominent node on ultrasound exam.
- RECTAL BX: poorly differentiated adenocarcinoma
- Treatment Summary: Patient was treated with pre-operative 5-FU with concurrent radiation therapy. Patient completed her short-course XRT but did not return for surgical resection and expired in home.

Case 5 – Answer & Rationale

24

Practice Case #5			
C20.9 - rectum; 8140/3 adenocarcinoma, NOS; Grade = 3 (poorly differentiated)			
Chapter 14 - Colon and Rectum (Sarcomas, lymphomas, and carcinoid tumors are not included) - p. 143			
Clinical TNM AJCC Stage Group	cT3 cN1 cM0	IIIB	Clinical staging is based on history, physical exam, colonoscopy with biopsy and other exams that may demonstrate extra-colonic metastasis. Biopsy of rectum positive. Endo-rectal US is used to assess preoperative pelvic extent of disease for rectal cancers. On EUS, tumor invaded into perirectal fat (cT3). There was a prominent node noted on EUS, but a diagnosis of nodal involvement is not specifically stated. The registrar must use their knowledge to determine that "prominent node" is clinically positive. There is no indication of examinations for metastatic disease, but cM0 is coded in absence of positive information (MX not valid) (cM0).
Pathologic TNM AJCC Stage Group	<blank>	99	Pathologic staging is based on surgical exploration, surgical resection, and pathologic review of the resected specimen. No surgical resection performed. pT blank, pN blank, pM blank. Note that yp staging would apply in this case if surgical resection was performed. Since, no surgery was performed - Pathologic Stage is not assigned, and the p Stage Group field is coded 99 per AJCC coding instruction.
SSF for Staging			None Required for Staging

Case 6 – Case Vignette

25

- HISTORY: 70-year-old female with right pleural effusion in January. Thoracentesis with bloody pleural fluid. Cytology showed no tumor cells. Patient admitted with right pleural effusion with a pleural-based mass for biopsy.
- CT CHEST/ABD/PELVIS: nonspecific hilar and mediastinal lymph nodes. Soft tissue mass in RLL lung size 3.5 x 2.5cm. Extensive abnormal right pleural thickening with large right pleural effusion. Abdomen/Pelvis – neg
- PROCEDURE: Mini Thoracotomy with VATS wedge resection RLL lung.
- RLL LUNG WEDGE RESECTION: poorly differentiated adenocarcinoma typical of lung primary with extensive visceral pleural invasion. TTF1 and CK7 positive and CK20 negative. 3 hilar nodes negative.
- FINAL DX: Adenocarcinoma of lung, right lower lobe.

Case 6 – Answer & Rationale

26

Practice Case #6			
C34.3 - lower lobe right lung; 8140/3 adenocarcinoma, NOS; Grade = 3 (poorly differentiated)			
Chapter 25 - Lung (Carcinoid tumors are included. Sarcomas and other rare tumors are not included.) p.253			
Clinical TNM AJCC Stage Group	cT2a cN0 cM1a	IV	Clinical staging is based on physical exam, imaging studies, lab tests, and staging procedures, including VATS and exploratory thoracotomy. Wedge resection positive. Lung mass 3.5cm on CT with pleural thickening, and extensive visceral pleural invasion at biopsy (cT2a). Nonspecific hilar and mediastinal nodes on CT, with 3 negative hilar nodes on biopsy (cN0). Pleural effusion on CT; cytology (singular) was negative, but fluid was bloody and no clinical judgment is stated that this is M0 (cM1a). (Most pleural effusion are due to tumor, but where multiple cyto-pathologic examinations are negative, fluid is non-bloody and not an exudate, and clinical judgment dictates that the effusion is not related to the tumor, M0 classification is assigned.)
Pathologic TNM AJCC Stage Group	<blank>	99	Pathologic staging is based on evidence acquired before treatment, supplemented or modified by additional evidence acquired during and after surgery, particularly from pathologic examination. This procedure is described as exploratory thoracotomy with wedge biopsy of the tumor and not as treatment, and does not meet the criteria for assessing the highest T and/or N categories. pT blank, pN blank, pM blank. Pathologic staging is not assigned, but the p Stage Group field is coded 99 per AJCC coding instruction.
SSF for Staging			None Required for Staging

Case 7 – Case Vignette

27

- HISTORY: 58 yr old white male, smoker, with lung mass noted on CT. He has had repeated bouts of bronchopneumonia treated with antibiotics. He complains of shortness of breath, 15 pound weight loss, and mental status change. Admitted for workup and start of treatment.
- CT CHEST/ABD/PELVIS: Large mass obstructing right upper lobe lung measuring at least 6cm with large mediastinal mass 5cm x 6cm in size. Large right-sided pleural effusion noted. Multiple cysts noted in liver.
- MRI BRAIN: Diffuse 4th ventricle involvement with large cerebellar mass
- BRONCHOSCOPY WITH BIOPSY: right upper lobe lung tumor, biopsy with small cell neuroendocrine carcinoma. CK7 +, Chromogranin + with SY38 positive consistent with small cell carcinoma of lung origin.
- THORACENTESIS: pleural fluid + for malignant cells

Case 7 – Answer & Rationale

28

Practice Case #7			
C34.1 - upper lobe right lung; 8041/3 (small cell carcinoma is a type of neuroendocrine carcinoma); Grade = 9			
Chapter 25 - Lung (Carcinoid tumors are included. Sarcomas and other rare tumors are not included.) p.253			
Clinical TNM AJCC Stage Group	cT2b cN2 cM1b	IV	Clinical staging is based on physical exam, imaging studies, lab tests, and staging procedures. Biopsy of lung mass positive. Lung mass at least 6cm on CT (cT2b). Mediastinal mass 5x6cm on CT (per registry guidelines, mediastinal mass is positive for mediastinal nodes for lung cancer) (cN2). Pleural effusion on CT, and 4th ventricle involvement with cerebellar mass on MRI brain (cM1b).
Pathologic TNM AJCC Stage Group	<blank>	99	Pathologic assessment of tumor and nodes was not performed (pT blank, pN blank). Important Note: Pleural fluid is positive for malignant cellswhich would support pM1a, but this is an M1b tumor based on brain metastasis, which was clinically determined. Since the clinical determination was greater extension than the histologically proven pleural fluid - cannot assign pM1b. Pathologic staging is not assigned, but the p Stage Group field is coded 99 per AJCC coding instruction.
SSF for Staging			None Required for Staging

Case 8 – Case Vignette

29

- HISTORY: 65 year old male admitted with chest pain, cough, hoarseness and partial vocal cord paralysis. History of 1ppd smoker x 50yrs
- CT CHEST: 7.5cm mass right main stem bronchus with supraclavicular node.
- CT-GUIDED CORE BX RIGHT LUNG TUMOR MASS: Poorly differentiated squamous cell carcinoma. p63 and CK5 positive, Napsin and TTF1 neg - c/w squamous cell carcinoma of lung origin. *(Positive IHC for p63 and CK5 supports the diagnosis of squamous cell carcinoma. Negative IHC for Napsin and TTF-1 argues against adenocarcinoma.)*
- ULTRASOUND-GUIDED CORE BX SUPRACLAVICULAR MASS: positive for metastatic squamous cell carcinoma of pulmonary origin.
- FINAL DX: Biopsy-proven unresectable squamous cell carcinoma of right lung with vocal cord paralysis and positive supraclavicular lymph node on FNA.

Case 8 – Answer & Rationale

30

Practice Case #8			
C34.0 - mainstem bronchus, right; 8070/3 squamous cell carcinoma, Grade = 3 (poorly differentiated)			
Chapter 25 - Lung (Carcinoid tumors are included. Sarcomas and other rare tumors are not included.) p.253			
Clinical TNM AJCC Stage Group	cT4 cN3 cM0	IIIB	Clinical staging is based on physical exam, imaging studies, lab tests, and staging procedures. Biopsy of tumor mass positive. Lung mass 7.5cm on CT. Lung mass is located in the right mainstem bronchus and no mediastinal nodal involvement is noted on CT. Vocal cord paralysis may be related to direct extension of the primary tumor or to lymph node involvement. The treatment options and prognosis associated with this direct extension of the primary tumor fall within the T4 N0-1 (Stage IIIA) category; therefore, a classification of T4 is recommended. If the primary tumor is peripheral, vocal cord paralysis is usually related to the presence of N2 disease and should be classified as such (cT4). Supraclavicular node on CT chest with positive FNA (cN3). No indication of distant metastases noted in chart, and MX is invalid (cM0).
Pathologic TNM AJCC Stage Group	<blank>	99	Pathologic staging is based on evidence acquired before treatment plus evidence acquired during and after surgery, particularly from pathologic exam. If the highest T and N categories or the greatest M category of the tumor can be confirmed microscopically, the criteria for pathologic classification and staging have been satisfied without total removal of the primary tumor. The highest N was confirmed microscopically in this case, but the highest T was not. So, pT blank, pN blank, pM blank). The criteria for pathologic staging are not met, but p Stage Group is coded 99 per AJCC coding instruction.
SSF for Staging			None Required for Staging

Case 9 – Case Vignette

31

- HISTORY: 55 yr old white female, non-smoker, with lung mass seen on routine chest x-ray. No clinical symptoms or complaints. Admitted for workup and surgical treatment for left upper lobe lung cancer.
- CT CHEST: 3cm tumor in left upper lobe lung no lymphadenopathy.
- FNA LEFT LUNG : non small cell carcinoma, favor adenocarcinoma
- VATS WEDGE RESECTION LUL LUNG WITH NODE SAMPLING: moderately differentiated adenocarcinoma 2.5 x 2.8cm in size, wedge resection, with no involvement of surgical margins. 3 hilar lymph nodes sampled, 1 node with micrometastasis noted on IHC.

Case 9 – Answer & Rationale

32

Practice Case #9			
C34.1 - upper lobe left lung; 8140/3 adenocarcinoma, NOS; Grade = 2 (moderately differentiated)			
Chapter 25 - Lung (Carcinoid tumors are included. Sarcomas and other rare tumors are not included.) p.253			
Clinical TNM AJCC Stage Group	cT1b cN0 cM0	IA	Clinical staging is based on physical exam, imaging studies, lab tests, and staging procedures. FNA of lung mass positive. Lung mass 3cm on CT. No lymphadenopathy on CT (cN0). No indication of distant metastases noted in chart, no clinical symptoms or complaints, and MX is invalid (cM0).
Pathologic TNM AJCC Stage Group	pT1b pN0 cM0	IIA	Pathologic staging is based on evidence acquired before treatment plus evidence acquired during and after surgery, particularly from pathologic examination. At surgery, 2.8cm tumor (pT1b). 1/3 hilar nodes positive with micro-metastasis noted on IHC (pN1). No biopsy of positive metastatic site, clinical M used for staging (cM0).
SSF for Staging			None Required for Staging

Case 10 – Case Vignette

33

- HISTORY: 47-year-old female presents for suspicious mole removal left forearm.

- PUNCH BIOPSY SPECIMEN: Left dorsal forearm skin lesion - melanocytes invade beyond the papillary dermis to a maximal Breslow depth of 3.67 mm. Mild ulceration is present. One dermal mitosis is seen in one section. No microsatellitosis is identified.
- FINAL DIAGNOSIS:
- - Malignant Melanoma
- - Breslow Depth: 3.67mm
- - Ulceration: Mild ulceration is present on the skin surface
- - Mitotic Index: 1 per square millimeter
- - The lesion extends to the peripheral edge of the biopsy.
- - Excision with appropriate margins is necessary.
- - Sentinel lymph node biopsy is warranted.

- WIDE EXCISION SPECIMEN: Excision of malignant melanoma on left forearm.
- Skin, left forearm, excision:
- - Residual malignant melanoma
- - Surgical margins negative for melanoma.
- COMMENT: The residual malignant melanoma is all in-situ.

Case 10 - Answer & Rationale

34

Practice Case #10			
C44.6 - skin of arm, left; 8720/3 malignant melanoma, NOS; Grade = 9			
Chapter 31 - Melanoma of Skin p.325			
Clinical TNM AJCC Stage Group	pT3b cN0 cM0	IIB	Clinical staging is performed after complete excision of the primary melanoma (including micro-staging) with clinical assessment of regional lymph nodes. Excision of melanoma: Breslow depth 3.67 mm, mild ulceration, 1 mitosis per square mm, residual melanoma in situ with final negative surgical margins.(pT3b). Assumed clinically negative nodes and metastases with no indication otherwise on exam, sentinel node biopsy not performed. (cN0 cM0) Note: AJCC manual criteria require pT for clinical staging, though AJCC coding instructions do not allow pT3 in clinical TNM T field for 2016.
Pathologic TNM AJCC Stage Group	pT3b pNX cM0	99	Pathologic staging uses information from both micro-staging of the primary melanoma and pathologic evaluation of the nodal status. Excision of melanoma: Breslow depth 3.67 mm, mild ulceration, 1 mitosis per square mm, residual melanoma in situ with final negative surgical margins.(pT3b). Sentinel node biopsy not performed though recommended, nodes not assessed pathologically. But, pN cannot be blank except when pT is blank. So, code pNx rather than pN0 per EDITS and AJCC coding instruction and clarification. No indication of distant metastases, MX invalid (cM0). Stage group unknown (99) with no pN category.
SSF for Staging			Depth of Invasion = 367 (WATCH YOUR DECIMAL POINT) Ulceration is present Mitosis = 001

Case 11 – Case Vignette

35

- 28-year-old Hispanic female with enlarged thyroid gland on physical exam. Ultrasound and PET scan showed a lesion in the right thyroid gland. A fine needle aspirate showed papillary carcinoma of the right thyroid. PET/CT showed a node behind the clavicle on the right and a 7 mm node along the hyoid on the right that appeared to be positive. She is admitted for total thyroidectomy and right modified radical neck dissection. IMPRESSION: Papillary carcinoma of the thyroid with probable metastasis to right neck.
- FNA RIGHT THYROID : Papillary Carcinoma of the Thyroid.
- SURGERY: total thyroidectomy and right modified radical neck dissection
- EXCISION, RIGHT LOBE OF THYROID – Multifocal areas of papillary carcinoma of the thyroid, largest focus 1.6cm in maximum dimension. No definite areas of extension into the periglandular soft tissue is identified.
- RIGHT PARATRACHEAL LYMPH NODE DISSECTION: Metastatic papillary thyroid carcinoma identified in six (6) of eight (8) lymph nodes.
- EXCISION, LEFT LOBE OF THE THYROID: Two foci of papillary thyroid carcinoma identified, 0.3cm and 0.7cm in maximum dimension, without extension into the periglandular soft tissue.

Case 11 - Answer & Rationale

36

Practice Case #11			
C73.9 - thyroid; 8260/3 papillary carcinoma of thyroid; Grade = 9			
Chapter 8 – Thyroid p.87			
Clinical TNM AJCC Stage Group	cTx cN1a cM0	I	Age = 28, Multiple Tumors Noted Thyroid Note: No Grade Stated Clinical staging is based on inspection of the thyroid gland and regional lymph nodes, imaging including US and PET, confirmed by needle or open biopsy. FNA was positive. Size of lesion is not stated, cTX assigned. Node behind clavicle on PET/CT, report ambiguous if this node involved. 7mm node along hyoid that appeared to be positive on PET/CT. It is unclear from report statement of "along hyoid" if this node would be in N1a (Level VI) or N1b (Level IA) group; assigned to N1a based on registry principle of using lower category when conflict, also Level VI nodes are more at risk for metastasis from thyroid than Level IA nodes (cN1a). No indication of metastatic disease in record, MX is invalid (cM0).
Pathologic TNM AJCC Stage Group	pT1b pN1a cM0	I	Age = 28, Multiple Tumors Noted Thyroid Note: No Grade Stated Pathologic staging is based on all information obtained in clinical staging as well as histologic study of surgically resected specimen. Largest focus of tumor is 1.6cm with no extension into para-glandular soft tissue for any focus (pT1b). 6 of 8 R para-tracheal lymph nodes are positive (pN1a). No positive confirmation of metastatic disease, clinical M value is used (cM0).
SSF for Staging			Age = 25 Multiple Tumors present Grade not stated

Case 12 – Case Vignette

37

- 65-year old female with right-sided dominant thyroid nodule. Recent PET/CT shows suspicious thyroid nodule as well as suspicious metastatic lesions in lung and bones.
- PET/CT; intense focal increased FDG uptake in the right lung apex compatible with FDG Avid malignant process. Increased FDG uptake within the right lobe of the thyroid gland measuring 2.8cm suspicious for FDG AVID malignancy. T3 and T1 bone lesion suspicious for bony metastatic lesions
- PATH: TOTAL THYROIDECTOMY: Anaplastic thyroid carcinoma, 4.0cm in general dimension, unifocal with extensive extrathyroidal extension, margin positive; LVI present, 0/5 lymph nodes with carcinoma. PAX-8 (+), TTF-1(+) AND P53(+)
- 66-year old female who was diagnosed with metastatic anaplastic carcinoma of the thyroid to the bone and lung. She is status post total thyroidectomy followed by chemotherapy and radiation to the H&N and bone. Latest images showing progression of disease in lungs.
- IMRT to the thyroid and neck delivering 6600 CGY in 33 fractions/42 days
- IMRT to the T9 spine delivering 3500 CGY in 10 fractions/14 days.
- 05/25/16. weekly Carboplatin/Taxol X 7 weeks
- 04/19/16. Synthroid.112 MCG

Case 12 - Answer & Rationale

38

Practice Case #12			
C73.9 - thyroid; 8021/3 anaplastic carcinoma of thyroid; Grade = 4 (anaplastic)			
Chapter 8 – Thyroid p.87			
Clinical TNM AJCC Stage Group	cTx cNx cM1	IVC	Age = 65 and Tumor Grade prior to resection is not known. Clinical staging is based on inspection of the thyroid gland and regional lymph nodes, imaging including US and PET, confirmed by needle or open biopsy. No biopsy of the lesion was performed before surgery, but in this case the history indicates that a diagnosis of metastatic thyroid cancer was made before surgery, with the confirming biopsy at surgery. Given the possibility of anaplastic carcinoma, and the presence of metastatic disease on PET/CT, cTX and cNX are appropriate for clinical information prior to surgery. Note: Anaplastic carcinoma of thyroid can only have T4a or T4b for T category codes. Even if you had sufficient information pre-surgery to clinically stage, the biopsy would have shown anaplastic carcinoma and your T Code choices would only be cT4a or cT4b. PET/CT, metastasis to bone and lung (cM1).
Pathologic TNM AJCC Stage Group	pT4b pN0 cM1	IVC	Age = 65 and Tumor Grade at resection is anaplastic. ALL Anaplastic Thyroid Cancers are Stage IV. Pathologic staging is based on all information obtained in clinical staging as well as histologic study of surgically resected

Case 13 – Case Vignette

39

- 75-year-old male with CT scan showing a mass centered on the right lobe of the thyroid extending into the superior mediastinum, multiple lung nodules, and mediastinal and left hilar adenopathy. Referred for FNA biopsy of the mass in the right thyroid.

- RIGHT THYROID MASS, FNA: Non-Hodgkin large cell lymphoma
- PERIPHERAL BLOOD SMEAR: Normal RBC and WBC morphology
- BONE MARROW, ASPIRATION – Negative for malignant lymphoma
- PET IMG W CT SKULL TO THIGH - IMPRESSION:
  - The right-sided neck mass is intensely hypermetabolic with SUV of greater than 13.
  - There is a solitary hypermetabolic node anterior to the left hilum with SUV of 4.
  - No hypermetabolism is seen in the lung nodules.
  - Two skeletal areas of hypermetabolism seen; one in right ilium and the other in the body of T11.
- FNA vertebral T-11: Atypical lymphoid infiltrate consistent with large B-cell lymphoma

- MEDICAL ONCOLOGY: Stage IV diffuse large B cell lymphoma involving bone and thyroid. Bulky thyroid mass 11 cm. IPI score 4. TREATMENT PLAN: R-CHOP.

Case 13 - Answer & Rationale

40

Practice Case #13			
C73.9 - thyroid; 9680/3 diffuse large B-cell lymphoma of thyroid; Grade = 6 (B-Cell Immunophenotype)			
Chapter 57A - Hodgkin & Non-Hodgkin Lymphomas p.607			
Clinical TNM AJCC Stage Group	cT88 cN88 cM88	IV	Clinical staging includes medical history, physical exam, imaging, blood chemistry, bone marrow biopsy. Imaging shows involvement of thyroid, lung, hilar and mediastinal nodes, and bone. Stage IV is diffuse or disseminated involvement of 1 or more extra-lymphatic organs, with or without associated lymph node involvement. Per AJCC coding instruction TNM coded 88 for lymphoma.
Pathologic TNM AJCC Stage Group	<blank>	99	Pathologic staging is reserved for staging laparotomies with intent to assess presence of abdominal disease, and has been essentially abandoned. pT blank, pN blank, pM blank. P Stage Group coded 99 per AJCC coding instruction.
SSF for Staging			Unknown if Symptomatic or Asymptomatic – cannot assign A or B status.

Case 14 - Case Vignette

41

- 66 year old white female with post menopausal bleeding
- CT Abdomen: uterus enlarged with large amount of fluid in endometrial cavity. Mass 4.4cm. No enlarged lymph nodes.
- TAH/BSO: high grade carcinoma, favor endometrial serous. 5cm size, lower uterine segment and cervix both positive, left ovary positive, favor endometrial serous carcinoma, 1.3cm omentum negative. 29 nodes negative, myometrial invasion 1.2cm myometrial thickness 1.6cm (75%) lymph vascular invasion negative. No microsatellite instability
- CK7, Vimentin, P53 - All (+). ER/PR (-), WT-1 (-), P16 (-), CEA (-), CA-125 (+) at 78. MLH1, PMS2, MSH2, MSH6 - All (+).
- Treatment Planed: Taxol/Carboplatin

Case 14 - Answer & Rationale

42

Practice Case #14			
C54.1 - endometrium; 8441/3 serous carcinoma; Grade = 9			
Chapter 36 - Corpus Uteri (carcinomas & carcinosarcoma) p.403			
Clinical TNM AJCC Stage Group	<blank>	99	Clinical staging of lymph node involvement performed if systematic lymph node sampling imposes unfavorable risk. CT abdomen was performed showing enlarged uterus and no enlarged lymph nodes identified, but no indication of primary site diagnosis before surgery. cT blank, cN blank, cM blank. c Stage Group coded 99 per AJCC coding instruction.
Pathologic TNM AJCC Stage Group	pT3a pN0 cM0	IIIA	Surgical/pathologic staging used for corpus uteri cancer. This case is identified as corpus uteri rather than ovarian cancer by the designation of "endometrial" serous. Primary tumor invades 1.2cm of 1.6cm myometrium and also involves left ovary (pT3a). 29 examined nodes are negative (pN0). There is no indication of metastatic disease on CT of abdomen or otherwise in the record, MX is invalid (cM0).
SSF for Staging			None Required for Staging

Case 15 – Case Vignette

43

- HISTORY: 65 year old black female admitted for biopsy and resection of 2cm mass noted on mammography. Palpable mass in UOQ right breast, right axilla WNL.
- CT CHEST: no abnormalities noted
- MAMMOGRAPHY: 2.5cm stellate mass in right UOQ, suspicious for malignancy. Recommend biopsy.
- Excision: Right UOQ Breast biopsy – infiltrating duct carcinoma, 2.1cm in greatest dimension, Nottingham Grade 2. ER/PR neg, HER2 +
- Wide Excision and SNL Biopsy: No residual carcinoma. 2 sentinel lymph nodes negative for carcinoma 0/2. IHC stain for Cytokeratin is positive.

Case 15 – Answer & Rationale

44

Practice Case #15			
C50.4 - upper outer quadrant right breast; 8500/3 infiltrating duct carcinoma; Grade = 1 (Nottingham Grade 2 - score not given)			
Chapter 32 - Breast p.347			
Clinical TNM AJCC Stage Group	cT2 cN0 cM0	IIA	Clinical staging based on physical exam, imaging, and pathologic exam of tissue as appropriate to establish the diagnosis. Bx + from 2.5cm mass on mammogram (cT2). Right axilla normal on examination (cN0). No indication of metastatic disease on exam or CT chest (cM0).
Pathologic TNM AJCC Stage Group	pT2 pN0(i+) cM0	IIA	Pathologic staging includes all information from clinical staging plus information from surgical exploration and pathologic examination of involved sites. Tumor at surgery is 2.1cm (pT2). 2 sentinel nodes are negative (0/2). Nodes IHC positive, not stated but assuming ITCs only, which are not positive N for breast. [pN0(i+)]. No positive pathologic examination of metastatic sites, clinical M is used (cM0).
SSF for Staging			None Required for Staging

Case 16 – Case Vignette

45

- HISTORY: 62 year old Asian female admitted for biopsy of 1cm abnormality noted on mammography. No mass felt in the left breast, left axilla WNL.
- CT CHEST: no abnormalities noted
- MAMMOGRAPHY: 1cm abnormality in left UOQ, possible malignancy. Recommend biopsy.
- Excision: Left UOQ Breast biopsy – low grade DCIS (solid, cribriform and papillary subtypes) 6mm area of involvement . ER/PR pos, HER2 not stated
- Wide Excision and SNL Biopsy: No residual carcinoma. 1 sentinel lymph nodes negative for carcinoma 0/1. IHC stain for Cytokeratin is negative.

Case 16 – Answer & Rationale

46

Practice Case #16			
C50.4 - upper outer quadrant left breast; 8523/2 DCIS (solid, cribriform and papillary subtypes); Grade = 1 (breast - low grade)			
Chapter 32 - Breast p.347			
Clinical TNM AJCC Stage Group	pTis cN0 cM0	0	Clinical staging based on physical exam, imaging, and pathologic exam of tissue as appropriate to establish the diagnosis. 1cm mass on mammogram, DCIS on biopsy (pTis). Left axilla normal on examination (cN0). No indication of metastatic disease on exam or CT chest (cM0).
Pathologic TNM AJCC Stage Group	pTis pN0 cM0	0	Pathologic staging includes all information from clinical staging plus information from surgical exploration and pathologic examination of involved sites. No residual at surgery, tumor assessed as DCIS at biopsy (pTis). 1 sentinel node negative (0/1), (pN0). No positive pathologic examination of metastatic sites, clinical M is used (cM0).
SSF for Staging			None Required for Staging

Case 17 – Case Vignette

47

- 61 year old white female with mammo showing suspicious tumor in lateral aspect of right periareolar area. Physical Exam shows a palpable mass in periareolar region right breast @ 9:00 approximately 2cm in size, close to skin with extension to retroareolar area and overlying areola. Mass is not fixed to chest wall but may be contiguous to subcutaneous tissue. No palpable lymphadenopathy.

- MAMMO – mass right breast @ 9:00, suspicious lymph node with thickening in right axilla
- MRI Bilateral Breast – left breast neg. right breast in retroareolar area shows enhancing mass measuring 2.3cm. 1.4cm right axillary lymph node corresponds to recent biopsy of lymph node.
- CT ABD/PELVIS neg and CXR neg

- Right Breast @ 9:00, subareolar infiltrating ductal carcinoma Nottingham Grade 3/3. Core biopsy axillary lymph node – positive for metastatic ductal carcinoma.

- ER POS. 40%/PR NEG. 0%/HER-2/NEU IHC NEG. 1+/KI-67 high proliferative index 95%
- ONCOTYPE DX score 64/ER 5.5 NEG./<3.2 NEG./HER-2/NEU IHC <7.6 NEG.

- Right Breast Wide Excision with right axillary sentinel node biopsy – No residual tumor after 5 cycles of Adria/Cytoxan + Taxol. 1 sentinel node negative after neoadjuvant chemotherapy

Case 17 – Answer & Rationale

48

Practice Case #17			
C50.1 - subareolar is central breast, right; 8500/3 infiltrating ductal carcinoma; Grade = 3 (Nottingham Grade 3 - score not given)			
Chapter 32 - Breast p.347			
Clinical TNM AJCC Stage Group	cT2 cN1 cM0	IIB	
Pathologic TNM AJCC Stage Group	ypT0 ypN0 cM0	99	Pathologic staging includes all info from clinical staging plus info from surgical exploration and pathologic examination of involved sites.yp staging is appropriate in this case, staging at surgical resection after the performance of neoadjuvant chemotherapy. No residual tumor identified (ypT0). 1 sentinel node negative (ypN0). The M component is classified by the M status defined prior to surgery (cM0). As there is no residual tumor or nodal involvement, there was complete response to pre-surgical therapy and there is no cancer present. p Stage Group is coded 99 per AJCC coding instructions.
SSF for Staging			None Required for Staging

Case 18 – Case Vignette

49

- HISTORY: 49 yr old white female, non-smoker, with large central breast mass on right and multiple suspicious large nodes in right axilla. Patient complains of redness, skin thickening and edema over past 6-12 months, still evident. Recommend pre-surgical treatment.
- CT CHEST: Negative
- BONE SCAN: Abnormal uptake L4-L5 concerning for metastatic disease
- PLAIN FILM XRAY L-SPINE: osseous mets L4-L5
- FNA BREAST MASS: adenocarcinoma
- RIGHT MODIFIED RADICAL MASTECTOMY: poorly differentiated infiltrating duct carcinoma. Tumor extends to pectoralis muscle and deep margin with involvement of dermal lymphatics. 10/15 axillary lymph nodes involved with largest node measuring 2.8cm in size.
- Biopsy L4 – metastatic adenocarcinoma c/w breast primary
- ER/PR +, HER2 –
- Patient refused pre-operative therapy – mastectomy only

Case 18 – Answer & Rationale

50

Practice Case #18			
C50.1 - central breast right; 8500/3 infiltrating duct carcinoma, Grade = 3 (poorly differentiated)			
Chapter 32 - Breast p.347			
Clinical TNM AJCC Stage Group	cTx cN1 cM1	IV	Clinical staging based on physical examination, imaging, and pathologic examination of tissue as appropriate to establish the diagnosis. Positive FNA of breast. Redness, skin thickening, edema evident on exam, but amount of skin surface of breast not stated, and clinical size of tumor not stated - does not meet criteria for T4d (cTx). Multiple suspicious large axillary nodes on exam (cN1). Osseous metastases on x-ray of spine (cM1).
Pathologic TNM AJCC Stage Group	pTx pN3a pM1	IV	Pathologic staging includes all data from clinical staging plus info from surgical exploration and pathologic examination of involved sites. Tumor extends to pectoralis muscle at surgery and dermal lymphatics involved, but size of tumor not stated; dermal lymphatic invasion without typical clinical findings is not sufficient for a diagnosis of inflammatory breast cancer, and the clinical exam did not specify the amount of breast skin involved (pTX). 10 of 15 axillary nodes are positive on exam (pN3a). Per coding guidelines, Pathologic staging includes any information obtained about the extent of cancer through completion of definitive surgery as part of first course treatment or identified within 4 months after the date of diagnosis, whichever is longer, as long as there is no systemic or radiation therapy initiated or the cancer has not clearly progressed during that time frame. Positive Biopsy of spine took place after surgery, but presumably within 4 months of diagnosis, and confirms clinical diagnosis made before surgery (pM1).
SSF for Staging			None Required for Staging

Case 19 – Case Vignette

51

- HISTORY: 57 year-old Hispanic female with 2.5cm mass at 10:00 in right breast and prominent axillary node noted on screening mammography and on PE.
- CT CHEST: few small (<1cm) nonspecific hilar lymph nodes noted in chest. Exam otherwise negative.
- PROCEDURE: Lumpectomy, right breast with core biopsy of sentinel axillary lymph nodes (2) – Level I
- PATHOLOGY: Moderately differentiated infiltrating duct carcinoma with extensive associated DCIS, high nuclear grade; cribriform, papillary and solid types. Invasive component 1.5cm in greatest linear dimension, Nottingham Grade 2 (3+2+1=6), core biopsies (3) of suspected axillary lymph node showing tumor present in all core fragments (3/3).

Case 19 – Answer & Rationale

Practice Case #19			
C50.4 - upper outer quadrant right breast; 8500/3 infiltrating duct carcinoma - ignore the terms describing non-invasive components of the neoplasm; Grade = 2 (Nottingham Grade 2 - 3+2+1=6)			
Chapter 32 - Breast p.347			
Clinical TNM AJCC Stage Group	cT1c cN1 cM0	IIA	Clinical staging based on physical exam, imaging, and pathologic exam of tissue as appropriate to establish the diagnosis. This case is ambiguous, because it describes the procedure as a lumpectomy with core biopsy of lymph node. However, the invasive component is described as 1.5cm in linear dimension, which is a common description for specimens on a core biopsy. Given that the nodal assessment is specifically described as a core biopsy, it is assumed that this case is not describing a surgically resected breast cancer. The total tumor is described as 2.5cm on mammogram and physical exam, but the biopsy shows 1.5cm invasive tumor with extensive associated DCIS. 1.5cm used for invasive tumor size (cT1c). Prominent axillary nodes on exam, with core biopsies of node showing tumor present in all fragments (cN1). CT chest negative, no indication of metastatic disease elsewhere in the record (cM0).
Pathologic TNM AJCC Stage Group	<blank>	99	Pathologic staging includes all information from clinical staging plus information from surgical exploration and pathologic examination of involved sites. This case is ambiguous, because it describes the procedure as a lumpectomy with core biopsy of lymph node. However, the invasive component is described as 1.5cm in linear dimension, which is a common description for specimens on a core biopsy. Given that the nodal assessment is specifically described as a core biopsy, it is assumed that this case is not describing a surgically resected breast cancer. With the diagnosis of extensive DCIS and no statement about margins, surgical resection would likely be planned. pTblank, pN blank, pM blank. p Stage Group assigned 99 per AJCC coding instruction.
SSF for Staging			None Required for Staging

Case 20 – Case Vignette

53

- 59 year old white male with elevated PSA – biopsy-proven adenocarcinoma
- MRI Prostate – 2cm area of tumor involving right mid gland and apex. Tumor abuts posterior wall without definitive extracapsular extension. No pelvic lymphadenopathy noted. Bone Scan is negative.
- PSA=13.5
- TRUS BX=Adenocarcinoma Gleason 3 + 4 = 7. No perineural invasion.
- Robot-Assisted Radical Prostatectomy with Bilateral Pelvic LN Dissection.
- Radical Prostatectomy – 1.7cm dominant focus in right posterior peripheral zone from apex to mid gland. 20% of gland involved. Gleason 3 + 4 = 7. Tumor extends focally a fraction of a millimeter past the prostatic capsule resection margins. All final margins negative. Perineural invasion is identified in the specimen. 6 pelvic lymph nodes negative for metastatic adenocarcinoma.

Case 20 – Answer & Rationale

54

Practice Case #20			
C61.9 - prostate; 8140/3 adenocarcinoma, NOS; grade = 2 (Gleason 3+4=7)			
Chapter 41 – Prostate (Sarcomas and transitional cell carcinomas are not included) p.457			
Clinical TNM AJCC Stage Group	cT1c cN0 cM0	IIA	Clinical staging is based on digital rectal exam of prostate and histologic confirmation of cancer. Tumor not palpable or visible by imaging is classified as T1c. MRI was performed, but per the AJCC Manual, "MRI provides high spatial resolution, but none of these approaches have been proven to be consistently helpful in staging attempts." Elevated PSA noted only in record, assuming no positive findings on DRE, positive biopsy (cT1c). No indication of nodal involvement on record, low T category, and surgery performed, the assumption is that lymph nodes were assessed clinically as not involved (cN0).(The MRI did indicate no lymphadenopathy.) Bone scan is negative (cM0).
Pathologic TNM AJCC Stage Group	pT3a pN0 cM0	III	Pathologic staging is based on radical prostatectomy specimens. Tumor extends focally past the prostatic capsule resection margins (pT3a). 6 examined pelvic nodes are negative (pN0). No positive metastatic sites were biopsied, so clinic M is used in stage assignment (cM0). Any PSA and any Gleason score are used for pT3a tumors.
SSF for Staging			SSF 1 PSA = 135 (WATCH YOUR DECIMAL POINT) SSF 8 Gleason score at biopsy = 007 SSF 10 Gleason score at prostatectomy = 007

Case 21 – Case Vignette

55

- HISTORY: 65 year old black male admitted with intermittent microscopic hematuria . History of prostate cancer. History of 1ppd smoker x 45yrs.
- CT CHEST: no abnormalities noted
- CT ABDOMEN: negative
- CYSTOSCOPY: 2 papillary projections identified, one along the right lateral wall, the other in the trigone area of the bladder. TURBT was performed.
- PATHOLOGY: Bladder biopsy (TURBT) – low grade papillary urothelial carcinoma (no mention of invasion)
- FINAL DX: Papillary urothelial carcinoma of bladder, low grade. Repeat cystoscopy in 3 months.

Case 21 – Answer & Rationale

56

Practice Case #21			
C67.9 - bladder, NOS; 8130/2 pTCC - papillary urothelial (transitional cell) carcinoma, no mention of invasion Grade = 2 (low grade - Bladder different than Breast or Prostate)			
Chapter 45 - Urinary Bladder p.497			
Clinical TNM AJCC Stage Group	pTa cN0 cM0	0a	Clinical staging is based on examination under anesthesia, endoscopic surgery, biopsy or TURB, and histologic verification of tumor. Biopsy positive for noninvasive papillary urothelial carcinoma (pTa). With in situ or noninvasive tumors, cN0 and cM0 assigned per AJCC general rules - "By definition, CIS has not involved any structures in the primary organ that would allow tumor cells to spread to regional nodes or distant sites." (cN0 cM0).
Pathologic TNM AJCC Stage Group	<blank>	99	Pathologic staging for bladder is based on the histologic review of the radical or partial cystectomy specimen. Though AJCC rules specify that "pTis cN0 cM0 should be reported as both clinical and pathologic stage 0", an exception is made for bladder based on site requirements for cystectomy. No cystectomy was performed. pT blank, pN blank, pM blank. p Stage Group is not assigned, but is coded 99 per AJCC coding instruction.
SSF for Staging			None Required for Staging

Case 22 – Case Vignette

57

- HISTORY: 77 year-old female with painless hematuria and clotting. TURBT PTA indicated multiple high grade urothelial carcinomas largest showing muscle invasion to at least the T2 level. Admitted for radical cystectomy following 4 cycles neoadjuvant chemotherapy (gemcitabine, cisplatin)
- PRE-OP CT CHEST/ABD/PELVIS: few small (<1cm) nonspecific hilar lymph nodes noted in chest. Abdomen and pelvis – 3.2cm lesion in right posterior bladder wall highly suspicious for bladder cancer. 2.5cm right obturator node suspicious for metastatic carcinoma. Exam otherwise negative.
- PROCEDURE: Radical cystectomy with TAH/BSO and bilateral pelvic lymph node dissection, ileal conduit diversion
- PATHOLOGY: High grade (grade 3 of 3) urothelial carcinoma with squamous differentiation. PSA/PAP negative, CK7+, CK20+, 34betaE12+. Main tumor mass invades lamina propria deep into muscularis propria. Bilateral obturator and iliac nodes all negative for mets (0/11)
- FINAL DX: High grade urothelial carcinoma of bladder s/p neoadjuvant chemotherapy. Radical cystectomy with ileal conduit this admission.

Case 22 – Answer & Rationale

58

Practice Case #22			
C67.9 - bladder, NOS; 8120/3 - urothelial carcinoma (per MPH - ignore the squamous differentiation); Grade = 3 (Grade 3/3 as stated)			
Chapter 45 – Urinary Bladder p.497			
Clinical TNM AJCC Stage Group	pT2a cN1 cM0	IV	Clinical staging is based on examination under anesthesia, endoscopic surgery, biopsy or TURB, and histologic verification of tumor. TURBT showed muscle invasion to at least T2 level. T2 is defined for bladder, but staging only includes T2a and T2b. Per AJCC general rules, "if uncertain, classify or stage using the lower category." (cT2a). A single obturator node is suspicious for involvement on CT (cN1). CT of chest/abdomen, and pelvis negative for distant metastatic disease (cM0).
Pathologic TNM AJCC Stage Group	ypT2b ypN0 cM0	yp II	Pathologic staging for bladder is based on the histologic review of the radical or partial cystectomy specimen. In this case surgical resection was performed after neoadjuvant treatment, so yp staging applies. Tumor invades lamina propria deep into muscularis propria (ypT2b). 11 examined lymph nodes are negative for metastasis (yp N0). M is classified by M status before therapy (cM0).
SSF for Staging			None Required for Staging

Case 23 – Case Vignette

59

- HISTORY: 61 yr old man, lifelong smoker, with frequent and urgent urinary symptoms and microscopic hematuria noted on routine exam.
- CT ABDOMEN: Negative
- CT CHEST: Negative
- CYSTOSCOPY: Flat urothelial carcinoma diffuse involvement of bladder - multiple biopsies with fulguration and administration Intravesical BCG
- PATHOLOGY: flat urothelial carcinoma, high grade, diffuse - Tis
- TREATMENT: TURBT with Intravesical BCG (now and for next 6 weeks)

Case 23 – Answer & Rationale

60

Practice Case #23			
C67.9 - bladder, NOS; 8120/2 - flat urothelial carcinoma noninvasive); Grade = 4 (high grade - Bladder different than Breast or Prostate)			
Chapter 45 – Urinary Bladder p.497			
Clinical TNM AJCC Stage Group	pTis cN0 cM0	0is	Clinical staging is based on examination under anesthesia, endoscopic surgery, biopsy or TURB, and histologic verification of tumor. Biopsy positive for flat urothelial carcinoma noted as Tis on pathology report (pTis). With in situ or noninvasive tumors, cN0 and cM0 assigned per AJCC general rules - "By definition, CIS has not involved any structures in the primary organ that would allow tumor cells to spread to regional nodes or distant sites." (cN0 cM0).
Pathologic TNM AJCC Stage Group	<blank>	99	Pathologic staging for bladder is based on the histologic review of the radical or partial cystectomy specimen. Though AJCC rules specify that "pTis cN0 cM0 should be reported as both clinical and pathologic stage 0", an exception is made for bladder based on site requirements for cystectomy. No cystectomy was performed. pT blank, pN blank, pM blank. p Stage Group is not assigned, but is coded 99 per AJCC coding instruction.
SSF for Staging			None Required for Staging

Case 24 – Case Vignette

61

- HISTORY: 55 yr old white male, non-smoker, with elevated PSA and recurring prostatitis with minimal response to multiple course of antibiotics. DRE shows enlarged prostate with firm nodule in left lateral lobe of prostate. No other clinical symptoms or complaints. Admitted for treatment evaluation.
- PSA: 10.3 ng/mL
- CT CHEST: Negative
- BONE SCAN: Abnormal uptake L4-L5 concerning for metastatic disease
- PLAIN FILM XRAY L-SPINE: no evidence for osseous mets
- TRUS-GUIDED BX PROSTATE: adenocarcinoma, Gleason 4+4=8, 9 of 12 cores positive
- RADICAL RETROPUBIC PROSTATECTOMY WITH LYMPH NODE SAMPLING: moderately differentiated adenocarcinoma Gleason 4+4=8 with microscopic involvement of bladder neck. Negative surgical resection margins. 3 inguinal lymph nodes sampled, all negative

Case 24 – Answer & Rationale

62

Practice Case #24			
C61.9 - prostate; 8140/3 adenocarcinoma, NOS; grade = 3 (Gleason 4+4=8)			
Chapter 41 - Prostate (Sarcomas and transitional cell carcinomas are not included) p.457			
Clinical TNM AJCC Stage Group	cT2a cN0 cM0	IIB	Clinical staging is based on digital rectal examination of prostate and histologic or cytologic confirmation of carcinoma. DRE shows enlarged nodule in left lateral lobe of prostate, with amount of lobe involved not specified. T2 is defined for prostate, but staging only includes T2a and T2b for single lobe involvement. Per AJCC general rules, "If uncertain, classify or stage using the lower category (cT2a). No mention of nodal involvement on record, low stage disease, and surgery was performed, so assuming nodes clinically not involved (cN0). Bone scan is concerning for metastatic disease, (concerning is non-diagnostic) but x-ray of the spine and chest CT are negative (cM0). PSA = 10.3, Gleason = 4+4=8 which upstages the stage group to IIB.
Pathologic TNM AJCC Stage Group	pT3a pN0 cM0	III	Pathologic staging is based on radical prostatectomy specimens. Tumor had microscopic involvement of bladder neck (pT3a). 3 examined nodes were negative (pN0). There was no pathologic examination of involved metastatic site, so clinical M is used in stage assignment (cM0).
SSF for Staging			SSF 1 PSA = 103 (WATCH YOUR DECIMAL POINT) SSF 8 Gleason score BX = 008 SSF 10 Gleason score prostatectomy = 008

Case 25 – Case Vignette

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- HISTORY: 2 year old white male child with abdominal distention, decreased bowel sounds and abdominal pain of several weeks duration.
- Ultrasound Abdomen – large heterogeneous 21cm x 9.6cm space occupying lesion of uncertain origin.
- CT Abdomen – large intra-abdominal space occupying lesion w/mass effect
- CT Chest – no metastatic disease in the chest noted
- Whole Body Bone Scan – negative for metastatic disease
- Tumor Biopsy and Biopsy of Omental Implant – high-grade embryonal rhabdomyosarcoma
- Plan: vincristine, dactinomycin, mesna, cyclophosphamide plus irinotecan

Case 25 – Answer & Rationale

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Practice Case #25			
C49.4 - connective tissue abdomen; 8910/3 embryonal rhabdomyosarcoma; Grade = 4 (high grade)			
Chapter 28 – Soft Tissue Sarcoma p.291			
Clinical TNM AJCC Stage Group	cT2b cNx pM1	IV	Clinical staging is based on clinical examination and radiographic imaging. 21cm mass on US, large space-occupying lesion on CT of abdomen. Abdominal tumor is deep by definition (cT2b). Nodal disease not noted on CT; AJCC manual contains guidelines for coding cN0 for adult sarcomas when nodal status is not determined, but age of this patient is 2, and this is advanced disease (cNX). CT chest and bone scan are negative for metastatic disease, but omental implant biopsy is positive (pM1). FNCLCC grade not specified, but "high grade" mapped to grade 3 in SSF 1.
Pathologic TNM AJCC Stage Group	pTblank pNblank pM1	IV	Pathologic staging is based on the removal and pathologic evaluation of the primary tumor and clinical/radiologic evaluation for regional and distant metastases. Surgical resection not performed in this case (pTX pNX). Per general AJCC guidelines, "If the highest T and N categories or the M1 category of the tumor can be confirmed microscopically, the criteria for pathologic classification and staging have been satisfied without total removal of the primary tumor. (pM1).
SSF for Staging			SSF 1 - Soft Tissue Sarcoma Grade = 200 Grade = 3

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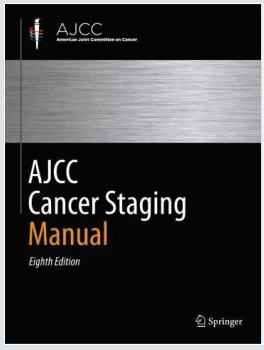

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