Colon Case Scenarios

COLORECTAL CASE #1

64-year-old man who presents with abdominal pain and constipation and presents for colonoscopy

9/18/22 Screening Colonoscopy: Ulcerated 100% circumferential large rectal mass located 3 cm above the dentate line, biopsy taken

9/18/22 Biopsy Path Report: Invasive well-differentiated adenocarcinoma, MMR intact nuclear expression

9/30/22 CEA 8.5 ng/mL H (<5.0 ng/mL).

10/7/22 PET/CT: irregular wall thickening in the rectum c/w known ca. Hypermetabolic presacral LN'S bilateral calcified & non calcified pulmonary nodules.

10/9/22 MRI Pelvis: low to mid rectal tumor with extramural invasion. Tumor extends up to the low posterior mesorectal fascia with abnormal mesorectal and extra mesorectal LNs

10/18/22 EUS: rectum mass with tumor breakthrough of muscularis propria into perirectal fat.

10/22/22 MD note: cT3N1M0 Stage IIIB

10/25/22-12/5/22 Neo-adj Xeloda

Radiation:

Treatment Site	Energy	Dose/Fx (cGy)	#Fx	Total Dose (cGy)	Start Date	End Date	Elapsed Days
Pelvis IMRT	6x	180	25/25	4500	10/28/22	12/2/22	35
Pelvis Boost IMRT	6x	180	3/3	540	12/2/22	12/5/22	2
Total:				5040	10/28/22	12/5/22	37

1/31/23 Surgery: Robotic assisted APR with LN dissection

1/31/23 Surgery Path Report:

NATURE OF SPECIMEN

Specimen(s) Received A:Rectum, sigmoid colon, and anus CASSETTES: Representative sections are submitted as follows: A1-2: Proximal margin, en face, entirely submitted. A3-5: Distal margin, closest approach to ulcerated lesion, en face, representative. A6: Ulcerated lesion, closest approach to radial margin. A7-11: Ulcerated lesion, representative. A12: Candidate polyp, bisected, entirely submitted. A13: Additional candidate polyp, bisected, entirely submitted. A14: Additional candidate polyp, bisected, entirely submitted. A15: Area of hemorrhage. A16-17: Pedunculated mass at dentate line, bisected, entirely submitted. A18: Colon with narrowed lumen. A19: Uninvolved colon. A20: One candidate lymph node, trisected. A21: Two candidate lymph nodes, one inked blue, bisected. A22: Multiple candidate lymph nodes, intact. A23: One candidate lymph node, bisected. A24: One candidate lymph node from mesorectum, bisected. A25: One candidate lymph node from mesorectum, bisected. A26-28: Multiple candidate lymph nodes, intact.

Addendum Diagnosis Addendum Comment Immunohistochemistry was performed to evaluate the status of DNA mismatch repair protein expression on block A6. The results in the tumor cell nuclei are: MLH1 expression: Present. PMS2 expression: Present. MSH2 expression: Present. MSH6 expression: Present.

GROSS PATHOLOGY

Gross Description The case is received in one part, labeled with the patient's name, medical record number and additionally labeled "rectum, sigmoid colon, and anu [sic]," and consists of an oriented segment of colon and anus (30 cm in length x 1.7-4 cm in diameter x 0.5 cm in average wall thickness). GROSS ABNORMALITIES: There is a firm, tan-yellow ulcerated lesion (4 x 2.3 cm, depth of 0.9 cm from mucosa) located 2.7 cm from the dentate line, 4.5 cm from the distal margin, and 21 cm from the proximal margin. The ulcerated lesion appears to extend through the muscularis propria into the subserosal fat and approaches within 0.9 cm of the radial margin. Additionally, there are multiple firm tan sessile polyps (up to 0.5 cm) scattered throughout the colonic mucosa, with the closest approach to the proximal margin being 10 cm and the closest approach to the distal margin being 8 cm. There is an indurated area of hemorrhage (1 x 0.5 cm) located 12.5 cm from the proximal margin and 16 cm from the distal margin. There is a pedunculated polypoid mass (1 x 0.5 x 0.3 cm) located just below the dentate line, 1.5 cm from the distal margin. The lumen of the anterior aspect of the colon is narrowed (to 1.7 cm diameter). The mesorectum appears grossly intact and complete. Multiple candidate lymph nodes are identified in the pericolonic fat and mesorectum, all of which are submitted for microscopic evaluation. ORIENTED BY: Anatomic landmarks. INTRAOPERATIVE FINDINGS: Not performed. INKING: - Proximal margin: Blue. - Distal margin: Black. - Radial margin/mesorectum: Black TISSUE BANKING: Not performed.

FINAL PATHOLOGIC DIAGNOSIS

Rectum, sigmoid colon, and anus, abdominoperineal resection: 1. Residual/recurrent adenocarcinoma invasive into the perirectal soft tissue, negative margins; see comment. 2. Metastatic adenocarcinoma in four of twelve lymph nodes (4/12). 3. Hyperplastic polyps. 4. Anal acrochordon. 5. Skeletal muscle with no significant pathologic abnormality.

SYNOPTIC REPORT

- PROCEDURE: Abdominoperineal resection.
- LOCATION OF TUMOR: Rectum.
- TUMOR SIZE: 4 x 2.3 x 0.9 cm.
- MACROSCOPIC TUMOR PERFORATION: Not identified.
- MACROSCOPIC INTACTNESS OF MESORECTUM: Complete.

- HISTOLOGIC TYPE: Adenocarcinoma.
- HISTOLOGIC GRADE: Moderately differentiated (post-treatment).
- MICROSCOPIC DEPTH OF INVASION: Tumor invades through the muscularis propria into perirectal soft tissue
- MARGINS: Proximal margin: Negative (tumor is 21 cm from margin). Distal margin: Negative (tumor is 4.5 cm from margin). Circumferential (radial) margin: Negative (tumor is 9 mm from margin, slide A6). Mesenteric margin: Not applicable. Deep margin: Not applicable. Mucosal margin: Not applicable.
- TREATMENT EFFECT (modified Ryan score, scale 0-3): Partial response, score 2.
- LYMPHOVASCULAR INVASION: Not identified.
- SMALL VESSEL LYMPHOVASCULAR INVASION: Not identified.
- LARGE VESSEL (VENOUS) INVASION: Not identified.
- PERINEURAL INVASION: Not identified.
- TUMOR DEPOSITS: Not identified.
- LYMPH NODE STATUS: Number of lymph nodes involved: 4.
- NUMBER OF LYMPH NODES EXAMINED: 12.

ADDENDUM: Microsatellite instability analysis (MSI): Negative, microsatellite stable

2/5/23 Oncology note: begin adjuvant Xeloda

COLORECTAL CASE #1 – Answers

Site/Histology/Grade	Code	Explanation
Primary Site	C20.9	
Histology	8140	
Behavior	3	
Tumor Size Summary	999	
Tumor Size Clinical	999	There was neo-adjuvant therapy prior to surgery. Do NOT use a post-neoadjuvant size to code path tumor size. See SEER Manual pg 117, 22.e
Tumor Size Pathological	999	
Grade Clinical	1	Well differentiation per biopsy
Grade Pathological	9	Neo-adjuvant therapy, code = 9
Grade Post Therapy Clin (yc)	<blank>	Neo-adjuvant therapy complete, no microscopic exam done prior to resection
Grade Post Therapy Path (yp)	2	Moderately differentiated per surgery path
EOD/Summary Stage		
EOD Primary Tumor	400	Per MRI: tumor extends up to mesorectal fascia. Mesorectal fascia is a layer of connective tissue enclosing the perirectal fat (mesorectum) that surrounds the rectum. Perirectal fat invasion is listed under code 400
EOD Regional Nodes	300	
EOD Mets	00	
Summary Stage 2018	4	Perirectal fat + LNs (see explanation for EOD Primary Tumor)

AJCC	T	N	M	Stage	
Clinical	cT3	cN1	cM0	IIIB	
Pathological					Neo-adjuvant therapy, no pathologic staging
Post-Therapy Clin					Neoadjuvant therapy complete, no post-therapy assessment in medical record prior to surgery
Post-Therapy Path	ypT3	ypN2a	cM0	IIIB	Tumor invades pericolorectal tissue, 4 nodes involved

SSDIs	Code	Explanation
Lymphovascular Invasion	9	Unknown prior to neoadjuvant therapy, not identified on surgical path report (see STORE manual pg. 155)
Macroscopic Evaluation of Mesorectum	30	Complete per path report
CEA PreTX Lab Value	8.5	
CEA PreTX Interpretation	1	Elevated
Tumor Deposits	00	
Perineural Invasion	0	
Circumferential Resection Margin	9.0	9mm per path report

KRAS	9	
Microsatellite Instability (MSI)	0	Mismatch repair (MMR) intact, no loss of nuclear expression of MMR Proteins per path report: MLH1 expression: present, PMS2 expression: present, MSH2 expression: present, MSH6 expression: present
BRAF Mutational Analysis	9	
NRAS Mutational Analaysis	9	
Treatment		
Diagnostic Staging Procedure	02	Rectal biopsy
Neoadjuvant Therapy	1	Neo-adjuvant therapy completed according to treatment plan
Neoadjuvant Therapy-Clinical Response	8	Neo-adjuvant therapy complete, response not documented
Neoadjuvant Therapy-Treatment Effect	3	Score 2 per path report
Surgery		
Surgical Procedure of Primary Site	50	Adbominoperineal resection
Scope of Regional Lymph Node Surgery	5	12 LNs examined
Surgical Procedure Other Site	0	
Systemic Therapy		
Chemotherapy	02	Single Agent - Xeloda
Hormone Therapy	00	
Immunotherapy	00	
Hematologic Transplant	00	
Systemic/ Surgery Sequence	4	Xeloda before and after surgery

Radiation	**Phase 1**	**Phase 2**	**Phase 3**
Rad Primary Treatment Volume	86 (pelvis)		
Radiation to Draining Lymph Nodes	06 (pelvic LNs)		
Rad Treatment Modality	02 (photons)		
Ext Beam Rad Planning Technique	05 (IMRT)		
Dose per Fraction	00180		
Number of Fractions	028*		
Total Dose	005040*		
# of Phases of Rad Tx to this Volume	01*		
Rad Treatment Discontinued Early	01		
Total Dose	005040		
Radiation/ Surgery Sequence	2		

*Per STORE Manual pg 57: A new phase begins when there is a change in the target volume of a body site, treatment fraction size, modality, or treatment technique. Although the last three fractions were described as a “boost”, the target volume, modality, planning technique and dose per fraction did not change. Therefore, there is only one phase of radiation.

COLORECTAL CASE #2

Patient with two months of intermittent abdominal pain and black/red stool, no weight loss.

8/30/22 CT A/P: ileocolic intussusception with mesenteric fat seen telescoping into cecum, likely 2nd to occult lead point mass, enlarged pericecal lymph nodes

8/31/22 CT Chest: no evidence of mets

9/1/22 Colonoscopy: malignant appearing large mass in cecum, biopsied

9/1/22 Biopsy Path Report: Adenocarcinoma, moderately differentiated; Microsatellite instability - High

9/3/22 Surgery: Lap assisted right hemicolectomy, omentectomy: probable peritoneal implant on omentum, bulky transmural cecal tumor

10/13/22 Folfox for 12 cycles

9/3/22 Surgery Path Report:

OMENTECTOMY: metastatic adenocarcinoma

COLON/RECTUM SYNOPTIC REPORT:

- PROCEDURE: Right hemicolectomy
- MACROSCOPIC INTACTNESS OF MESORECTUM: Not applicable
- TUMOR SITE: Cecum
- HISTOLOGIC TYPE: Adenocarcinoma; Histologic Type Comments: Focally the tumor shows mucinous features \R\5-10%
- HISTOLOGIC GRADE: G2: Moderately differentiated
- TUMOR SIZE: Greatest dimension (Centimeters): 7.0; Additional Dimension (Centimeters): 4
- TUMOR DEPOSITS: Present; Number of Deposits: 2
- TUMOR EXTENSION: Tumor invades through the muscularis propria into pericolorectal tissue
- MACROSCOPIC TUMOR PERFORATION: Not identified
- LYMPHOVASCULAR INVASION: Present;
  Small vessel lymphovascular invasion
  Large vessel (venous) invasion, intramural
  Large vessel (venoud) invasion, extramural
- PERINEURAL INVASION: Not identified
- TUMOR BUDDING: NUMBER OF TUMOR BUDS: 6; Tumor Bud Score: Intermediate score (5-9)
- TYPE OF POLYP IN WHICH INVASIVE CARCINOMA AROSE: None identified
- TREATMENT EFFECT: No known presurgical therapy
- MARGINS (Centimeters):
  Proximal Margin: Uninvolved by invasive carcinoma; Distance of Tumor from Margin: 5.0
  Distal Margin: Uninvolved by invasive carcinoma; Distance of Tumor from Margin: 9.0
  Radial or Mesenteric Margin: Uninvolved by invasive carcinoma; Distance of Tumor from Margin: 7.0
- NUMBER OF LYMPH NODES INVOLVED:13; Number of Lymph Nodes Examined: 15
- TNM DESCRIPTORS: Not applicable; Primary Tumor (pT): pT3; Regional Lymph Nodes (pN): pN2b; Distant Metastasis (pM): pM1c

COLORECTAL CASE #2 – Answers

Site/Histology/Grade	Code	Explanation
Primary Site	C18.0	Cecum
Histology	8140	Adenocarcinoma
Behavior	3	Invasive
Tumor Size Summary	999	No size during clinical workup
Tumor Size Clinical	070	7cm per path report
Tumor Size Pathological	070	
Grade Clinical	2	MD per biopsy
Grade Pathological	2	MD per surgical resection
Grade Post Therapy Clin (yc)	<blank>	No neo-adjuvant therapy
Grade Post Therapy Path (yp)	<blank>	No neo-adjuvant therapy
EOD/Summary Stage		
EOD Primary Tumor	400	See Note 5 in instructions. Pericolorectal tissue invasion per path report. There is no other information in the Gross description. The cecum is entirely peritonealized, so we know peritonealized pericolic tissue was invaded. Assign code 400.
EOD Regional Nodes	300	
EOD Mets	50	Peritoneal implant on omentum was seen during surgery and confirmed to be metastatic adenocarcinoma in path report.
Summary Stage 2018	7	See EOD mets

AJCC	T	N	M	Stage	
Clinical	cT(blank)	cN(blank)	cM0	99	There was not enough information in the medical record to assign clinical T or N and therefore they are left blank. What the surgeon sees at the start of the surgery is all part of that surgical resection. The surgical guidelines for performing that operation include that evaluation as part of the standard procedure. That is part of the operative findings for pathological staging. X vs Blank Clarification for colon and bile duct - CAnswer Forum (facs.org) Clinical Lymph Nodes - CAnswer Forum (facs.org)
Pathological	pT3	pN2b	pM1c	IVC	Pericolorectal tissue invaded, 13/15 LNs involved, mets to the omentum
Post-Therapy Clin					
Post-Therapy Path					

SSDIs	Code	Explanation

Lymphovascular Invasion	4	LVI, small vessel LVI and large vessel venous invasion per path report
Macroscopic Evaluation of Mesorectum	<blank>	Site not rectum (C209)
CEA PreTX Lab Value	XXXX.9	
CEA PreTX Interpretation	9	
Tumor Deposits	02	2 per path report
Perineural Invasion	0	Not identified per path
Circumferential Resection Margin	70.0	7cm per path report
KRAS	9	
Microsatellite Instability (MSI)	2	High per biopsy
BRAF Mutational Analysis	9	
NRAS Mutational Analaysis	9	
Treatment		
Diagnostic Staging Procedure	02	
Neoadjuvant Therapy	0	
Neoadjuvant Therapy-Clinical Response	0	
Neoadjuvant Therapy-Treatment Effect	0	
Surgery		
Surgical Procedure of Primary Site	40	Rt hemicolectomy
Scope of Regional Lymph Node Surgery	5	15 nodes examined
Surgical Procedure Other Site	0	*In the presentation, this was coded as 2, but the following CAnswer forum post was brought to our attention, in which NCDB states Omentectomy is part of a hemicolectomy and therefore, is included in code 40. So, this has been changed to 0. Appendix Primary with Mets To Other Sites - CAnswer Forum (facs.org)
Systemic Therapy		
Chemotherapy	03	FOLFOX is a multi-agent chemotherapy regimen
Hormone Therapy	00	
Immunotherapy	00	
Hematologic Transplant	00	
Systemic/ Surgery Sequence	3	

Radiation	**Phase 1**	**Phase 2**	**Phase 3**
Rad Primary Treatment Volume	00		

Radiation to Draining Lymph Nodes	00		
Rad Treatment Modality	00		
Ext Beam Rad Planning Technique	00		
Dose per Fraction	00000		
Number of Fractions	000		
Total Dose	000000		
# of Phases of Rad Tx to this Volume	00		
Rad Treatment Discontinued Early	00		
Total Dose	000000		
Radiation/ Surgery Sequence	0		

COLORECTAL CASE #3

Patient presents with a positive hemoccult test.

3/23/22 Colonoscopy: rectal polyp 15cm from anal verge, polyp removed by hot snare

3/23/22 Polypectomy Pathology Report:

FINAL DIAGNOSIS

Colon Polyp, Rectum, Polypectomy: - Invasive Moderately Differentiated Adenocarcinoma Arising In Tubulovillous Adenoma, 0.5 Cm In Greatest Dimension Microscopically. - Tumor InvadingSubmucosa. - No Lymphovascular Invasion Identified. - Resection Margin Negative For Malignancy

SYNOPTIC

- TUMOR Tumor Site: Rectum
- HISTOLOGIC TYPE: Adenocarcinoma
- HISTOLOGIC GRADE: G2: Moderately differentiated
- SIZE OF INVASIVE CARCINOMA: Greatest dimension in Centimeters (cm): 0.5
- TUMOR EXTENT TUMOR EXTENSION: Tumor invades submucosa
- LYMPHOVASCULAR INVASION: Not identified
- TYPE OF POLYP IN WHICH INVASIVE CARCINOMA AROSE: Tubulovillous adenoma
- POLYP SIZE: Greatest dimension in Centimeters (cm): 2.8
- POLYP CONFIGURATION: Sessile
- MARGINS
  Deep Margin (stalk margin): Uninvolved by invasive carcinoma ; Distance of Invasive Carcinoma from Margin: Cannot be assessed: sections with invasive carcinoma do not have resection margin.
  Mucosal Margin: Uninvolved by invasive carcinoma
- ADDITIONAL FINDINGS Additional Pathologic Findings: None identified

ADDENDUM

DNA MISMATCH REPAIR TESTS Testing Performed on: Block: C5, COLON, RECTUM, POLYPECTOMY
Immunohistochemistry (IHC) Results for Mismatch Repair (MMR) Proteins: MLH1 Intact nuclear expression MSH2 Intact nuclear expression MSH6 Intact nuclear expression PMS2 Intact nuclear expression

3/25/22 CEA 1.5 (0.0-3.5)

5/11/22 Surgery: Low Anterior Resection with LND. No findings

5/11/22 Path Report: no residual malignancy. 26 lymph nodes negative for carcinoma. No Tumor Deposits. Margins and radial margin negative

No other treatment.

COLORECTAL CASE #3 – Answers

Site/Histology/Grade	Code	Explanation
Primary Site	C20.9	
Histology	8140	
Behavior	3	
Tumor Size Summary	005	0.5cm per path. Clinical tumor size follows the timing rules for AJCC clinical staging.
Tumor Size Clinical	005	
Tumor Size Pathological	000	
Grade Clinical	2	The grade from the polypectomy is used to assign clinical grade in this case (see explanation under AJCC Stage)
Grade Pathological	2	The grade from the clinical workup can be used for the pathological grade when there is surgical resection of the primary tumor and there is no residual cancer on resection
Grade Post Therapy Clin (yc)	<blank>	
Grade Post Therapy Path (yp)	<blank>	
EOD/Summary Stage		
EOD Primary Tumor	100	Tumor invades submucosa
EOD Regional Nodes	000	
EOD Mets	00	
Summary Stage 2018	1	

AJCC Stage	T	N	M	Stage	Explanation
Clinical	cT1	cN0	cM0	I	The intent of the polypectomy was diagnostic, and it was not intended as definitive treatment. Therefore, information from the polypectomy is used for clinical staging.
Pathological	pT1	pN0	cM0	I	Information from the date of diagnosis through surgical resection can be used to assign pathological TNM. Therefore, even though there was no residual tumor on resection, information from the polypectomy can be used to assign the T category.
Post-Therapy Clin					No neo-adjuvant therapy
Post-Therapy Path					No neo-adjuvant therapy

SSDIs	Code	Explanation
Lymphovascular Invasion	0	
Macroscopic Evaluation of Mesorectum	99	Unknown if TME performed. Neither operative report nor path report indicate if a TME was done.
CEA PreTX Lab Value	XXXX.9	Only CEA prior to polypectomy or resection should be used. The CEA was done after polypectomy.
CEA PreTX Interpretation	9	

Tumor Deposits	00	
Perineural Invasion	9	
Circumferential Resection Margin	XX.1	No residual tumor
KRAS	9	
Microsatellite Instability (MSI)	0	MMR proteins are intact
BRAF Mutational Analysis	9	
NRAS Mutational Analysis	9	
Treatment		
Diagnostic Staging Procedure	00	The polypectomy is considered surgery and not a diagnostic procedure as it meets the criteria for surgery – clear margins
Neoadjuvant Therapy	0	
Neoadjuvant Therapy-Clinical Response	0	
Neoadjuvant Therapy-Treatment Effect	0	
Surgery		
Date of First Surgical Procedure	03/23/2022	The polypectomy was the first surgical procedure, so the date of the polypectomy is recorded in this data item.
Surgical Procedure of Primary Site	30	Low Anterior Resection was the most definitive surgery
Scope of Regional Lymph Node Surgery	5	26 nodes examined
Surgical Procedure Other Site	0	
Systemic Therapy		
Chemotherapy	00	
Hormone Therapy	00	
Immunotherapy	00	
Hematologic Transplant	00	
Systemic/ Surgery Sequence	0	

Radiation	**Phase 1**	**Phase 2**	**Phase 3**
Rad Primary Treatment Volume	00		
Radiation to Draining Lymph Nodes	00		
Rad Treatment Modality	00		
Ext Beam Rad Planning Technique	00		
Dose per Fraction	00000		
Number of Fractions	000		
Total Dose	000000		
# of Phases of Rad Tx to this Volume	00		
Rad Treatment Discontinued Early	00		
Total Dose	000000		
Radiation/ Surgery Sequence	0		