

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 | | |
| Histology | | |
| Behavior | | |
| Tumor Size Summary | | |
| Tumor Size Clinical | | |
| Tumor Size Pathological | | |
| Grade Clinical | | |
| Grade Pathological | | |
| Grade Post Therapy Clin (yc) | | |
| Grade Post Therapy Path (yp) | | |
| | | |
| EOD/Summary Stage | | |
| EOD Primary Tumor | | |
| EOD Regional Nodes | | |
| EOD Mets | | |
| Summary Stage 2018 | | |

| AJCC | T | N | M | Stage |
|-------------------|---|---|---|-------|
| Clinical | | | | |
| Pathological | | | | |
| Post-Therapy Clin | | | | |
| Post-Therapy Path | | | | |

| SSDIs | Code | Explanation |
|--------------------------------------|------|-------------|
| Lymphovascular Invasion | | |
| Macroscopic Evaluation of Mesorectum | | |
| CEA PreTX Lab Value | | |
| CEA PreTX Interpretation | | |
| Tumor Deposits | | |
| Perineural Invasion | | |
| Circumferential Resection Margin | | |
| KRAS | | |
| Microsatellite Instability (MSI) | | |
| BRAF Mutational Analysis | | |
| NRAS Mutational Analysis | | |
| | | |
| Treatment | | |
| Diagnostic Staging Procedure | | |
| Neoadjuvant Therapy | | |

| | | |
|---------------------------------------|--|--|
| Neoadjuvant Therapy-Clinical Response | | |
| Neoadjuvant Therapy-Treatment Effect | | |
| Surgery | | |
| Surgical Procedure of Primary Site | | |
| Scope of Regional Lymph Node Surgery | | |
| Surgical Procedure Other Site | | |
| Systemic Therapy | | |
| Chemotherapy | | |
| Hormone Therapy | | |
| Immunotherapy | | |
| Hematologic Transplant | | |
| Systemic/ Surgery Sequence | | |

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

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:

OMENECTOMY: 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 pericorectal tissue
- MACROSCOPIC TUMOR PERFORATION: Not identified
- LYMPHOVASCULAR INVASION: Present;
Small vessel lymphovascular invasion
Large vessel (venous) invasion, intramural
Large vessel (venous) 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 | | |
| Histology | | |
| Behavior | | |
| Tumor Size Summary | | |
| Tumor Size Clinical | | |
| Tumor Size Pathological | | |
| Grade Clinical | | |
| Grade Pathological | | |
| Grade Post Therapy Clin (yc) | | |
| Grade Post Therapy Path (yp) | | |
| | | |
| EOD/Summary Stage | | |
| EOD Primary Tumor | | |
| EOD Regional Nodes | | |
| EOD Mets | | |
| Summary Stage 2018 | | |

| AJCC | T | N | M | Stage |
|-------------------|---|---|---|-------|
| Clinical | | | | |
| Pathological | | | | |
| Post-Therapy Clin | | | | |
| Post-Therapy Path | | | | |

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| Circumferential Resection Margin | | |
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| Microsatellite Instability (MSI) | | |
| BRAF Mutational Analysis | | |
| NRAS Mutational Analysis | | |
| | | |
| Treatment | | |
| Diagnostic Staging Procedure | | |
| Neoadjuvant Therapy | | |

| | | |
|---------------------------------------|--|--|
| Neoadjuvant Therapy-Clinical Response | | |
| Neoadjuvant Therapy-Treatment Effect | | |
| Surgery | | |
| Surgical Procedure of Primary Site | | |
| Scope of Regional Lymph Node Surgery | | |
| Surgical Procedure Other Site | | |
| Systemic Therapy | | |
| Chemotherapy | | |
| Hormone Therapy | | |
| Immunotherapy | | |
| Hematologic Transplant | | |
| Systemic/ Surgery Sequence | | |

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

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 Invading Submucosa. - 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 | | |
| Histology | | |
| Behavior | | |
| Tumor Size Summary | | |
| Tumor Size Clinical | | |
| Tumor Size Pathological | | |
| Grade Clinical | | |
| Grade Pathological | | |
| Grade Post Therapy Clin (yc) | | |
| Grade Post Therapy Path (yp) | | |
| | | |
| EOD/Summary Stage | | |
| EOD Primary Tumor | | |
| EOD Regional Nodes | | |
| EOD Mets | | |
| Summary Stage 2018 | | |

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| Pathological | | | | | |
| Post-Therapy Clin | | | | | |
| Post-Therapy Path | | | | | |

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| Treatment | | |
| Diagnostic Staging Procedure | | |
| Neoadjuvant Therapy | | |

| | | |
|---------------------------------------|--|--|
| Neoadjuvant Therapy-Clinical Response | | |
| Neoadjuvant Therapy-Treatment Effect | | |
| Surgery | | |
| Date of First Surgical Procedure | | |
| Surgical Procedure of Primary Site | | |
| Scope of Regional Lymph Node Surgery | | |
| Surgical Procedure Other Site | | |
| Systemic Therapy | | |
| Chemotherapy | | |
| Hormone Therapy | | |
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| Systemic/ Surgery Sequence | | |

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| Number of Fractions | | | |
| Total Dose | | | |
| # of Phases of Rad Tx to this Volume | | | |
| Rad Treatment Discontinued Early | | | |
| Total Dose | | | |
| Radiation/ Surgery Sequence | | | |
| | | | |