*Clarifications to the case scenarios were made after the originals were posted prior to the live session. If you completed the case scenarios prior to the live session and would like the answers to the original case scenarios or if you have questions concerning the scenarios below, please contact Jim Hofferkamp jhofferkamp@naaccr.org*

AJCC Staging Case Scenario #1

**History**

2/13/2016 A 57-year-old Latino woman was referred to our hospital because of an increase in abdominal girth. The patient said she was overweight, and had noted a rapid increase in abdominal girth during the last year. Her abdomen was distended and tense, and her abdominal circumference measured 134cm, with dullness to percussion and superficial dilated veins. Examination of her breasts, vulva and vagina did not reveal abnormalities. Her lower limbs showed moderate swelling. She was admitted to the gynecological ward for accurate diagnosis and treatment.

**Laboratory test results**

2/15/2016

* Hematocrit 29%,
* Hemoglobin 9.2g/dL,
* Leukocytes 7000 cells/μL,
* Platelets 478,000/μL,
* CA-125 374.8IU/dL, and
* Carcinoembryonic antigen (CEA) – normal levels
* Alpha-fetoprotein (AFP) – normal levels

**Imaging**

2/15/2016 Chest radiograph showed an upward compression of her diaphragm, and abdominal ultrasonography study showed a voluminous cystic abdominal-pelvic mass with thick walls, strongly suggestive of an adnexal malignancy. A lymphoma or colon primary, while less likely, should also be considered.

2/16/2016 Abdominal ultrasound images showed a normal aspect of the liver, bile ducts, portal and supra-hepatic veins, as well as normal spleen and kidneys. The cystic mass had rough septa and voluminous solid components, occupying the entire abdominal cavity with extrinsic compression of the liver and spleen; discrete blood flux within the tumor and high resistance peripheral blood flow.

2/17/2016 CT images of the abdomen and pelvis revealed a conspicuous and well delineated tumor with heterogeneous attenuation coefficient, predominantly liquid and with coarse septa and some solid internal irregularities. The huge tumor displaced her uterus to the left, compressed her abdominal contents, and extended up to her diaphragm.

**Procedure**

2/29/2016 Due to the main hypothesis of a giant adnexal complex mass, in addition to the high possibility of malignant origin, open laparotomy was chosen to execute the intact removal of the right tumor along with a bilateral salpingo oophorectomy, total hysterectomy, omentectomy, para aortic and pelvic lymph node dissection to stage the disease, and sampling of lymph nodes and of the ascitic fluid for routine tests and cytopathological evaluations.

**Histopathology**

2/29/2016 Histopathology results: Diagnosis was a well-differentiated mucinous cystadenocarcinoma, as the tumor was limited to one ovary, no ascites present containing malignant cells, no tumor on the external surface, and capsule intact. 12 lymph nodes were negative for metastasis.

**Treatment**

6/3/2016 Patient received six cycles of chemotherapy (three weeks apart) with paclitaxel plus cisplatin, under close surveillance on the outpatient section of Clinical Oncology. The option for intravenous chemotherapy in this setting was based on two major concerns. The very large abdominal cavity made it difficult to treat with intraperitoneal chemotherapy with cisplatin, and the persistence of elevated CA-129 after the cytoreduction. The levels of CA-125 were 374.8 and 222IU/mL (before and after the cytoreductive surgery), and post chemotherapy control was 7.1IU/mL.

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| * **What is the primary site?**
* **What is the histology?**
 | * **What is the grade/differentiation?**
 |
| **Stage/ Prognostic Factors** |
| Summary Stage |  |  |  |
| TNM Clin T |  | TNM Path T |  |
| TNM Clin N |  | TNM Path N |  |
| TNM Clin M |  | TNM Path M |  |
| TNM Clin Stage |  | TNM Path Stage |  |

AJCC Staging Case Scenario #2

**Case History:**

1/22/2016 A 70-year-old male with a history of atrial fibrillation, hypertension and benign prostatic hyperplasia (BPH) presented with elevated prostate specific antigen (PSA) of 4.5 ng/ml. He had been followed by his urologist for the previous six years with regular PSA monitoring. He had no family history of prostate cancer and underwent a TURP 2 years prior for BPH. His atrial fibrillation and hypertension were managed by Coumadin, Toprol, Lanoxin and Zestoretic. The patient’s symptoms included nocturia times two and a history of erectile dysfunction. Patient denies a history of dysuria, hematuria, urinary incontinence, urinary urgency, urinary frequency or hesitancy.

Digital rectal examination showed and enlarged, but benign prostate.

**Imaging and Procedure(s)**

1/28/2016 Transrectal ultrasound (TRUS) guided biopsy revealed adenocarcinoma of the prostate in 6 of 12 biopsy cores, all of which were less than 5% positive and a Gleason score of 3 + 3. Tumor was found in both lobes of the prostate.

2/04/2016 CT scan of the abdomen/pelvis was unremarkable.

2/06/2016 Bone scan was negative for metastatic disease.

**Treatment Planning Process**

3/12/2016 Four fiducial markers were placed under intravenous conscious sedation in the prostate by the urologist using a TRUS guided template.

3/14//2016 CT study was performed with the patient in the treatment position using a custom immobilization device. The fiducial locations were identified and the prostate and critical structures (rectum, bladder, and urethra) were contoured. The planning target volume (PTV) included the prostate with a 5-mm margin in all directions except for a smaller 3-mm posterior margin to decrease dosage to the rectum. Treatment planning was designed to encompass 95% of the target volume and minimize dose to critical structures.

**Treatment Rationale**

3/20/2016 Patient was evaluated by Urology and Radiation Oncology for his prostate cancer. Treatment options included surgery, external beam radiation therapy (IMRT, conformal) and CyberKnife monotherapy. The patient wanted a less invasive and convenient therapy in order to continue his work and day to day activities and therefore elected for CyberKnife monotherapy.

**Treatment Details**

4/17/2016 The patient began treatment with a prescription dose of 35 Gy to be delivered in 5 fractions over 5 consecutive days to the 82% isodose line.

5/07/2016 The patient reported mild urinary frequency and mild urgency 5 days after completion of last fraction of radiosurgery and was treated with Pyridium with resolution of symptoms. Overall, the patient tolerated the treatment well.

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| TNM Clin Stage |  | TNM Path Stage |  |

AJCC Staging Case Scenario #3

**History**

4/07/2016 An 82-year-old woman presented in the Emergency Department with abdominal pain, diarrhea and fever, with 24 hours of evolution. At clinical examination, she presented pale, with fever (38.7˚C) and tachycardia, without hypotension. Her abdomen was soft, painful at the right hypochondrium and right flank palpation, without tenderness or guarding.

**Lab results**

4/8/2016 Anemia

* Hemoglobin of 6.8 g/dl
* Elevated C reactive protein (27.12 mg/dl), with no leukocytosis

**Imaging**

4/9/2016 Abdominopelvic CT Scan: Showed a thickening of the right colon wall causing a serious stenosis of the colon lumen, with moderate dilatation of the cecum. This lesion showed no signs of duodenum invasion nor other adjacent structures invasion. The tumor perforated the colon wall, showing a small volume pneumoperitoneum in the scan. There were no liver metastasis, nor alterations in the spleen, pancreas, kidneys nor adrenal glands. There were no abdominopelvic enlarged lymph nodes

**Treatment**

4/10/2016 The patient underwent urgent surgery. Surgery findings were a right colon tumor, adherent to the posterior abdominal wall, with a small amount of pus in right parietocolic gutter. There were no liver metastasis nor peritoneal carcinomatosis. A right hemicolectomy was performed, with a side-to-side mechanical ileocolic anastomosis.

**Histology**

4/11/2016 Histologic diagnosis of the surgical specimen was adenocarcinoma of the colon, with infiltration of the subserosa and perforation of the visceral peritoneum with extension to the abdominal wall. Metastasis was present in 7 of the 17 pericolic lymph nodes isolated, with extra-nodal extension. The patient was not tested for KRAS mutation.

**Imaging**

4/13/2016 CT scan of the thorax: Identified an enlarged lymph node in the left axilla measuring 15 mm in diameter. There were no lung metastasis nor mediastinal enlarged lymph nodes.

**Procedure**

4/17/2016 Biopsy of the axillary lymph node: Histologic evaluation showed structures of adenocarcinoma involving lymphoid parenchyma, with expression of the marker CK 20, compatible with a colon cancer metastasis.

4/28/2016 The post-operative period was complicated with surgical site infection and an anastomotic leak with abscess formation, which was managed conservatively.

**Treatment and Follow up**

6/30/2016 Patient was further evaluated by a multidisciplinary team that decided for palliative chemotherapy. The patient was discharged at 58th postoperative day, with no complaints and with regular bowel movements.

8/05/2016 Patient died at the 3rd postoperative month of disease progression.

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| TNM Clin Stage |  | TNM Path Stage |  |

AJCC Staging Case Scenario #4

**Background**

4/7/16 A 28-year-old nonsmoking woman presented to the emergency department with the complaint of painless gross hematuria for 2 days

Recent routine blood tests, including hemoglobin, hematocrit and coagulation studies, were within normal limits. Her urinalysis revealed microscopic hematuria and was otherwise unremarkable.

**Imaging**

4/19/16 Ultrasound scan revealed multiple space-occupying lesions within the bladder, suggestive of bladder tumors. The kidneys were normal in appearance.

**Procedure(s) and Histopathology**

4/20/16 Cystoscopy confirmed multiple papillary tumors, approximately 10–12 mm in size, located on the posterior and lateral walls of the bladder. The trigone and the bladder neck were not involved, bilateral orifices had clear efflux of urine and there were no other noted mucosal lesions.

4/22/16 Complete transurethral resection (TUR) of the tumors was performed under general anesthesia and sent to pathology.

4/23/16 Surgical Histopathology: Demonstrated a grade 2 invasive transitional cell carcinoma (TCC) with no muscle invasion.

5/24/16 A resection of the former resected sites was performed.

5/25/16 Final No tumors were found in anterior sites of the resection and no carcinoma *in situ* was noted on the edges of the resection areas in both pathology exams.

**Treatment**

5/27/16 – 8/9/16 Intravesical bacille Calmette-Guérin (BCG) immunotherapy was administered in a maintenance schedule after patient consent was obtained. She developed further recurrences after the first six BCG bladder instillations. Then, contact was lost with the patient, despite multiple calls.

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| TNM Clin N |  | TNM Path N |  |
| TNM Clin M |  | TNM Path M |  |
| TNM Clin Stage |  | TNM Path Stage |  |