CLINICAL VIGNETTE

GI Malignancy After Augmentation Cystoplasty

Nimit Sudan, MD

This is a 79-year-old female who was initially diagnosed with stage III uterine cancer and stage I ovarian cancer at age 40. She received curative treatment with hysterectomy and bilateral salpingo-oophorectomy followed by adjuvant chemotherapy and radiation therapy. Unfortunately, she then developed radiation cystitis and enteritis, which led to chronic complications. She developed superficial bladder cancer size years after initial treatment and is status post transurethral resection of bladder tumor and intravesicular chemotherapy. Her course has been complicated by contracted bladder and urinary continence requiring multiple procedure over the years. At age 55, she had a bladder sling procedure done which was complicated by erosions and vaginal stenosis, requiring removal and vaginal wall reconstruction at age 76. She continued with urinary incontinence and decreased bladder capacity of 30-60 cc. Utilizing the right colon, she underwent continent augmentation cystoplasty with creation of catheterizable channel and closure of bladder neck with creation of Martius flap eight years ago. Unfortunately, she continued to have recurrent issues, such as fistula formation, stenosis, strictures, incontinence, recurrent UTI, and hydronephrosis, requiring multiple procedures with revisions and reconstructions over the years.

She eventually developed ureteral stenosis and hydronephrosis, and is s/p cystoscopy earlier this year. Pathology of the bladder debris revealed adenocarcinoma, intestinal type. She underwent en bloc low anterior resection of bladder cancer and creation of end colostomy, radical cystectomy, and limited pelvic lymph node dissection. Complete resection was impossible and seeds were placed to mark areas of focal invasion for potential radiation. Pathology revealed tumor invasion into the right lateral pelvic sidewall, abutting the iliac artery and vein obturator nerve and invasion into the recto-sigmoid colon and lower rectum. Histologic examination was consistent with moderately differentiated adenocarcinoma arising, most likely from the colonic tissue in the augmented bladder, invasion through subserosa and potentially rectum. No lymph node involvement (0/2) was noted. Right ureter was noted to have focal involvement as well. Pathologic staging was T4aN0M0. Multidisciplinary evaluation suggested adjuvant therapy with FOLFOX chemotherapy regimen for 6 months then radiation therapy of focal rectal invasion sites.

Bladder augmentation cystoplasty is utilized for reconstruction of the bladder for various conditions. Ileum is more commonly used for conduits and neobladders than colon. The risk of malignancy can arise from the native bladder tissue as well as the organ used to replace the lower urinary tract. Lifetime risk of colon cancer is approximately 4-5%.[1] The risk of developing cancer in the bladder with colonic bladder augmentations appear to be similar to the risk of developing primary colon cancer.[2] The incidence of malignancy in the bladder of patients with enteric bladder augmentation from ileal or gastric origins appear to be elevated compared to the respective primary organs.[2-4] The mechanism for this increased risk is not completely understood. Currently, there are no standard recommendations regarding management of malignant tumors associated with augmentation cystoplasty. Patients are generally managed with resection followed by adjuvant therapy based on histology.

This patient developed colon cancer from colonic tissue used to reconstruct the GU tract that developed complications from prior radiation therapy, received over three decades prior, for gynecologic malignancy. Data for management is very limited in such cases and there are no clear guidelines. When such malignancy develops, it is generally recommended to treat as the primary tissue. For colon cancer, the standard of care treatment would be resection followed by adjuvant fluorouracil based chemotherapy, usually FOLFOX regimen. This patient was discussed in a multidisciplinary conference. She will receive six months of adjuvant FOLFOX chemotherapy. Given incomplete resection, this patient was also suggested to receive adjuvant radiation therapy as well. Her colon cancer is expected to be curable. Unfortunately, her morbidity from prior Gyn cancer treatment, radiation therapy, has been significant and is expected to continue.

REFERENCES

1. **Siegel RL, Miller KD, Jemal A**. Cancer statistics, 2020. *CA Cancer J Clin*. 2020 Jan;70(1):7-30. doi: 10.3322/caac.21590. Epub 2020 Jan 8. PMID: 31912902.
2. **Husmann DA, Rathbun SR**. Long-term follow up of enteric bladder augmentations: the risk for malignancy. *J Pediatr Urol*. 2008 Oct;4(5):381-5; discussion 386. doi: 10.1016/j.jpurol.2008.06.003. Epub 2008 Jul 23. PMID: 18653384.
3. **Vemulakonda VM, Lendvay TS, Shnorhavorian M, Joyner BD, Kaplan H, Mitchell ME, Grady RW**. Metastatic adenocarcinoma after augmentation gastrocystoplasty. *J Urol*. 2008 Mar;179(3):1094-6; discussion 1097. doi: 10.1016/j.juro.2007.10.089. Epub 2008 Jan 18. PMID: 18206936.
4. **Balachandra B, Swanson PE, Upton MP, Yeh MM**. Adenocarcinoma arising in a gastrocystoplasty. *J Clin*

Pathol. 2007 Jan;60(1):85-7. doi: 10.1136/jcp.2005.035196. PMID: 17213351; PMCID: PMC1860596.