Metastatic esophageal adenocarcinoma to the prostate presenting with bilateral ureteral obstruction

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Carcinoma metastatic to the prostate occurs rarely and is most commonly associated with malignant bladder neoplasms. We present the case of a 73-year-old male with a history of gastroesophageal adenocarcinoma and clinically symptomatic benign prostatic hyperplasia who underwent photoselective vaporization of the prostate and presented several months later with gross hematuria, intermittent urinary retention and bilateral ureteral obstruction causing acute renal failure. After relieving the ureteral obstruction, subsequent transurethral resection of the prostate revealed locally invasive metastatic esophageal adenocarcinoma. To our knowledge, this is the first reported case of metastatic gastroesophageal carcinoma to the prostate.

Key Words: ureteral obstruction, metastasis, prostate, gastroesophageal carcinoma

Introduction

In the United States, esophageal adenocarcinoma remains a rare cancer with an incidence of approximately 20 in 100,000. Typically, metastasis from esophageal cancer occurs via the lymphatics and spreads to cervical, tracheobronchial, mediastinal, gastric, and celiac nodes.[1] While hematogenous metastasis to the liver, lungs, and testes has been reported, there are no existing reports of esophageal metastasis to the urinary tract or prostate.[1] We present a patient with bilateral ureteral obstruction and intermittent gross hematuria following photoselective vaporization of the prostate (PVP) thought initially to be a postoperative complication. However, after relief of bladder and ureteral obstruction, the patient underwent transurethral resection of the prostate (TURP) which revealed abnormal prostate anatomy and prostate chips containing metastatic esophageal adenocarcinoma that was locally invasive and causing ureteral obstruction.

Case report

The patient was a 73-year-old male with a history of adenocarcinoma of his lower esophagus and gastroesophageal junction status post resection, chemotherapy and radiation therapy in 2007. He had a recent positive emission tomography (PET) scan that was negative for systemic disease. The patient presented to an outside urologist's office with a chief complaint of difficulty voiding. He had a long standing

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history of moderate lower urinary tract symptoms that had recently worsened. Office evaluation revealed a likely diagnosis of benign prostatic hyperplasia with bladder outlet obstruction. Digital rectal exam had revealed an enlarged prostate without nodules and his PSA was in the normal range. The patient had been taking an oral alpha blocker and 5-alpha-reductase inhibitor with persistent symptoms and so was taken for PVP in March 2008 by the outside urologist. Postoperatively he had moderate relief of his voiding symptoms. Two months later he presented to an outside hospital with acute urinary retention, elevated serum blood urea nitrogen (BUN) and creatinine levels, and gross hematuria. A catheter was placed to decompress his urinary tract and the patient was discharged in stable condition with an improving creatinine. The catheter was removed in the office and the patient voided adequately.

In August 2008, the patient returned in acute urinary retention and with severe gross hematuria. Laboratory evaluation revealed a BUN of 50 mg/dL and creatinine of 6.2 mg/dL. A catheter was placed and continuous bladder irrigation was initiated. Abdominal computed tomography without contrast revealed bilateral hydroureteronephrosis to the level of the bladder. The patient was taken to the operating room for cystoscopy, evacuation of clots, and prostate fulguration by the outside urologist; a friable, bleeding prostate was noted. An attempt was made to place bilateral ureteral stents, however the ureteral orifices could not be identified. The patient was taken postoperatively for bilateral percutaneous nephrostomy tubes and antegrade ureteral stent placement. His acute renal failure improved and his gross hematuria resolved. A urine cytology was sent and revealed no malignant cells. However, by October the patient again developed urinary retention and recurrent severe gross hematuria and on this admission our urology service was consulted. At this time he was taken to the operating room for evacuation of bladder clots and TURP for treatment of recurrent bleeding. The prostate was noted to have significant regrowth of tissue; the left ureteral stent was entering into the middle of the prostate and the right ureteral stent was just adjacent to the base of the prostate. The hematuria was noted to be prostatic in origin. The patient tolerated the procedure well and there were no complications. The patient's hematuria resolved and the patient was then able to void with low residuals and his serum creatinine levels remained stable.

Pathological analysis of the prostate specimen revealed fragments of acinar adenocarcinoma, Figure 1a, in the fibromuscular stroma and infarcted prostate tissue. The adenocarcinoma was negative for prostate specific markers including PSA, p501S, PSMA, racemase, and CDX2. Immunohistochemical results revealed a similar pattern compared to the patient's previously resected gastroesophageal adenocarcinoma.

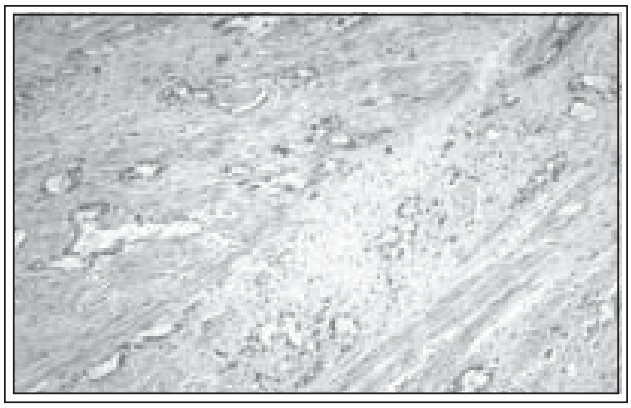

Figure 1a. H&E sections of prostate tissue revealing neoplastic cells arranged in an acinar pattern dissecting in between the muscle bundles.

Following TURP, the patient underwent surgery for placement of a percutaneous endoscopic gastrostomy tube due to severe gastroparesis and anorexia, as well as diagnostic laparoscopy. Laparoscopy revealed lesions adherent to the small intestinal serosa as well as an umbilical mass. These lesions were biopsied and immunohistochemical evaluation was also consistent with metastasis from the previous gastroesophageal carcinoma, Figure 1b. Following the procedure the patient clinically deteriorated and was transferred to the intensive care unit for treatment of aspiration pneumonia. He subsequently expired.

Figure 1b. H&E section from the original gastroesophageal carcinoma. Section of the esophagus above GE junction. Neoplastic glands are present in the muscular layer. Tumor is invading the subserosa of the esophagus.

Discussion

While primary prostate adenocarcinoma is the second most common male cancer in the United States, prostate metastasis from other organs is very uncommon. The most common primary cancer involving the prostate is urothelial carcinoma of the bladder that spreads directly to the prostate.[2,3] While two cases of prostate cancer metastasizing to the esophagus and two cases of esophageal cancer spreading to the testes have been reported, this is the first case of esophageal cancer involving the prostate.[1,4-6] This was likely hematogenous metastasis from the primary esophageal cancer. The patient had a feeding tube placed shortly after TURP at which time abdominal metastases were noted, thus the patient apparently had ongoing systemic disease from his esophageal cancer despite aggressive prior treatment and a recent negative PET scan.

Given the patient's quiescent esophageal cancer, lack of precedent for esophageal metastasis to the urinary tract, and lack of evidence for primary prostate cancer, there was not serious consideration for a process other than BPH. A hematuria evaluation did not include contrast imaging given the patient's renal insufficiency and the clinical context was consistent with BPH. Development of bilateral ureteral obstruction is certainly plausible following PVP if bilateral ureteral orifices were damaged with laser energy leading to fibrosis and stricturing, however this type of complication would be extremely rare.[7]

The eventual diagnosis of locally invasive metastatic esophageal cancer became much more reasonable after the investigation progressed and TUR specimen revealed adenocarcinoma consistent with a primary esophageal tumor that was later found to be widely metastatic leading to the patient's expiration.

This case reinforces the need to consider unlikely causes of obstruction and/or hematuria in patients refractory to standard treatment, particularly with a history of cancer. The eventual diagnosis of metastatic esophageal cancer enabled appropriate treatment despite the poor outcome, as well as appropriate counseling of both patient and family. □

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