

Bladder and Prostate Metastasis from Small Cell Lung Cancer: A Rare Entity

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Case Report

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Abstract

Bladder metastases from lung cancer are extremely rare; in some previously reported cases in which the primitive tumor was a lung adenocarcinoma, the finding of an intact epithelium overlying the bladder tumour was considered suggestive of a secondary lesion. Differentiating primary bladder non-urothelial cancers from metastatic lesions can be difficult. An endoscopic appearance consistent with primary bladder cancer further complicates the differential diagnosis, which heavily relies on pathologic evaluation and specific immunohistochemical staining. Here we describe the first case at our knowledge of bladder metastasis from lung small cell carcinoma, whereby endoscopic appearance was strongly consistent with primary bladder cancer.

Keywords: Lung cancer, Bladder metastasis, Hematuria

Introduction

Primary bladder cancer is the fifth most common diagnosed malignancy, while secondary malignancies of the bladder are rare. They have been classified in 1956 into three groups: those which reach the bladder by direct extension from an adjacent organ, metastases, and lymphomas or leukaemias [1]. Most secondary neoplasms represent direct invasion by tumors originating in adjacent sites, most commonly the female genital tract, prostate and lower gastrointestinal tract, while a smaller proportion are metastases, most commonly from the skin, stomach, breast, or lung [2,3]. However, metastatic bladder tumors caused by blood- or lymph-borne cancers from any part of the body are extremely uncommon (less

than 1% of bladder tumors), and even within this group lung tumors are the origin in a very small number of cases. Moreover, usually diagnosis happens in advanced stages due to the limited symptomatology exhibited. Here we describe the first case at our knowledge of bladder metastasis from lung small cell carcinoma, whereby endoscopic appearance was strongly consistent with primary bladder cancer.

Case Report

A 65 years-old Caucasian man came to our attention because of gross hematuria with acute urine retention

and acute renal failure (creatinine levels 3,5 mg/dl). His past medical history included a small cell neuroendocrine carcinoma of the lungs, treated with radio-chemotherapy a year earlier with an initial good response. Physical examination was within normal limits and digital rectal exploration did not show gross abnormalities. Kidney and bladder ultrasounds showed initial bilateral hydronephrosis. Prostate-specific antigen (PSA) levels were not tested because of the recent catheterization, but a recent PSA assay (3 months before) resulted in normal limits. After an initial period of catheterization until getting clear urine, we performed a urine cytology and a cystoscopy under general anesthesia that revealed the presence of a hyperemic and solid lesion at the bladder neck and trigone, without visualizing ureteral orifices. We also performed a biopsy of the bladder lesion and hemostasis. However, because the persistence of renal failure, the recurrence of hematuria and the flank pain

onset, we also performed a chest-abdomen CT scan with contrast media, showing the presence of multiple pleural metastasis, multiple bilateral adrenal metastasis (the right one compressing the inferior cava vein), multiple retroperitoneal nodal metastasis and pathological tissue with contrast enhancement involving the prostate, the bladder trigone and the left seminal vesicle (Figures 1&2). Histopathology revealed a great surprise: while urine cytology was negative for malignant urothelial cells, histology revealed the presence of a small cell neuroendocrine carcinoma with benign urothelial mucosa showing reactive changes; immunophenotypically, it was positive for cytokeratins (Cam 5.2; AE1/AE3), cytochromogranine, synaptophysine and TTF-1, compatible with pulmonary primitiveness. After this diagnosis and seen the CT report, we addressed the patient to palliative treatment. The patient died 20 days after the diagnosis.

Figure 1



Figure 1: CT contrast scan showing the presence of pathological tissue with contrast enhancement involving the prostate, the bladder trigone and the left seminal vesicle.

Figure 2



Figure 2: CT contrast scan showing the presence of pathological retroperitoneal tissue compressing the inferior vena cava.

Discussion

In general, the bladder is not a favoured site for tumor metastases. In two series of 423 and 162 autopsies of patients with carcinoma of the breast [4,5] and in 250 autopsies of patients with untreated non-small cell carcinoma of the lung [6] no metastases to the bladder were reported. In 67 cases of gastric carcinoma at autopsy, a bladder metastasis was found in only one case [7]. The rarity of bladder metastases from renal cell carcinoma suggests that the theoretical possibility of seeding of tumour cells along the urinary tract is unimportant [8]. Small cell carcinoma (SCC) is a distinct clinicopathologic entity that usually originates from the lung but can also arise in almost any extrapulmonary sites. Extrapulmonary small cell carcinomas (ESCCs) are rare, and have been described most frequently in the urinary bladder, prostate, esophagus, stomach, colon and rectum, gallbladder, larynx, salivary glands, cervix, and skin. Small cell carcinoma of the bladder is a rare, aggressive, poorly differentiated neuroendocrine neoplasm that is similar to small cell carcinoma of the lung in clinical behavior. In fact, bladder small cell

carcinoma is frequently found in conjunction with conventional urothelial carcinoma and/or other histologic variants: squamous and glandular differentiation [9]. In our case, the patient had no history of previous TCC of the bladder or prostate neoplasm, and moreover urinary cytology was negative for malignant transitional cells. Furthermore, the biopsy specimen showed the presence of benign urothelial mucosa. To our knowledge, this is the first case of primary small cell neuroendocrine carcinoma of the lung with metastatic spread to the bladder, prostate and adrenal glands; on the other hand, only four prior cases of primary adenocarcinoma of the lung with metastatic spread to the bladder have been identified in the literature [3]. Often, differentiating primary bladder non-urothelial cancers from metastatic lesions can be difficult. An endoscopic appearance consistent with primary bladder cancer further complicates the differential diagnosis, which heavily relies on pathologic evaluation and specific immunohistochemical staining. In every case, the prognosis is very poor due to the aggressiveness of primary tumor and the advanced stage at diagnosis.

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