Case Report

Small Cell Carcinoma Encountered in a Urinary Bladder Diverticulum

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Keywords: small cell carcinoma, urinary bladder diseases, diverticulum, treatment

Urol J. 2009;6:54-6.
www.uj.unrc.ir

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Received December 2007
Accepted May 2008

INTRODUCTION

Bladder tumors arising within a diverticulum are uncommon and pose a unique diagnostic and therapeutic challenge. The reported incidence ranges from 0.8% to 10.0%, with the most common histological subtype being transitional cell carcinoma followed by squamous cell carcinoma.[1] Additionally, small cell carcinoma of the bladder is a rare and highly aggressive tumor which tends to progress and metastasize within a few months after diagnosis and provides very poor prognosis.[2] It presents with the histopathologic, immunohistochemical, and ultrastructural characteristics and light microscopic features common to all neuroendocrine tumors observed in other organs, especially the lung.[3] Since Cramer and colleagues[4] reported the first case of a small cell carcinoma of the urinary bladder in 1981, nearly 160 cases have been reported.[5] However, small cell carcinoma encountered in a bladder diverticulum has been described in only 5 patients in the literature.[4,6-8] We present a new case of this rare entity disease.

CASE REPORT

A 65-year-old man presented to our department with gross hematuria accompanied by irritative symptoms in November 2005. He did not have any other existing comorbidity or a history of nicotine abuse. Urinalysis revealed numerous erythrocytes, but the urine culture was negative for microorganisms. Abdominal ultrasonography revealed a solid

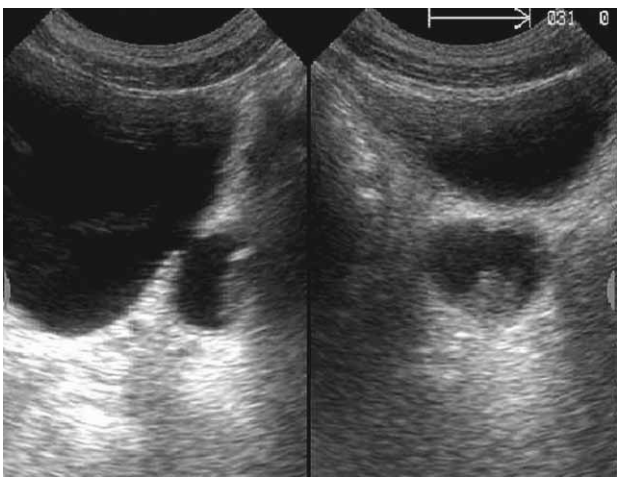

Figure 1. Small cell carcinoma within a bladder diverticulum was located in the left lateral bladder wall.

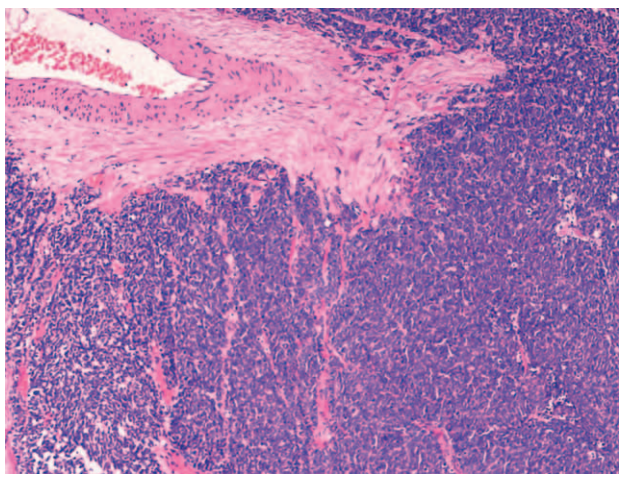

Figure 2. A poorly differentiated muscle-invasive small cell carcinoma was seen (hematoxylin-eosin, × 100).

tumor within a bladder diverticulum located in the left lateral bladder wall (Figure 1). Cystoscopy confirmed this finding and transurethral resection of the tumor was performed. The histopathologic assessment showed a highly cellular poorly differentiated carcinoma with no mixed histology that invaded the detrusor muscle (Figure 2). In immunhistochemical staining, tumor cells expressed neuroendocrine markers, synaptophysin and chromogranin A. A diagnosis of small cell carcinoma with a clinical stage T2 grade 3 was made. After a detailed staging workup, including bone scan and computed tomography of the chest, abdomen, and brain, no metastasis were noted. Knowing that treatment of bladder small cell carcinoma requires a multidisciplinary approach and after discussing with the patient the possible therapeutic approach, a combination of surgery (partial cystectomy with lymph node dissection) coupled with adjuvant chemotherapy and radiotherapy was decided. The final pathology results from the partial cystectomy specimen exhibited small cell carcinoma with a clinical stage T3 grade 3. The patient was then treated with 3 cycles of cisplatin and etoposide, as well as radiotherapy with 60 Gy. The patient passed away 16 months later after being diagnosed with metastases to the bone, liver, and brain.

DISCUSSION

Epidemiologic studies have found that the incidence of small cell carcinoma of the bladder is between 0.35% and 0.70%, making it one of the rarest tumors of the bladder.[9] The clinical presentation does not differ from that of other bladder tumors, and gross hematuria is the most common symptom. Bladder small cell carcinoma tends to follow the metastatic trend of transitional cell carcinoma (TCC), with the most common sites being the regional and distant lymph nodes, liver, and bone.[6]

Bladder tumors originating within a diverticulum are also uncommon and challenging. They occur mainly as a result of increased intravesical pressure secondary to bladder outlet obstruction or may infrequently result from congenital disarrangement of muscle fibers at the ureterovesical junction. Contrary to the normal bladder wall, lack of muscle fibers in the diverticulum makes it difficult to stratify the tumors into superficial and invasive bladder cancer. In addition, the paucity of muscle fibers beyond the mucosa theoretically allows the tumor to invade earlier and more easily than in a normal bladder wall containing thick muscle.

The cause and histogenesis of small cell carcinoma of the urinary bladder is unknown. Ali and coworkers[10] proposed that malignant transformation of bladder neuroendocrine cells gives rise to bladder small cell carcinoma. A second possibility is that these tumors arise from poorly defined submucosal or muscularis cells of neural crest origin. Finally, these tumors may arise through a process of metaplasia from conventional high-grade transitional cell carcinoma. This would explain the common coexistence of TCC in up to two-thirds of patients diagnosed with small cell carcinoma.[11] It is noteworthy that, Choong and colleagues[6] reported on a series of 44 patients treated at their institution, emphasising that 20% of the patients were diagnosed incidentally on follow-up surveillance cystoscopy after resection for TCC and when patients underwent cystectomy for TCC. Macroscopically, these tumors are usually polypoid lesions, frequently ulcerated and ranging in size from 4 cm to 10 cm. They most commonly occur on the lateral walls (54%), followed by the posterior wall (20%), trigone (10%), dome (8%) and anterior wall (8%).[11]

The differential diagnosis of primary bladder small cell carcinoma includes small cell metastasis from other sites (eg, the prostate), a poorly differentiated TCC, and primary or secondary lymphomas.[12] It is very difficult to determine this tumor with imaging studies.[13] Computed tomography imaging features in the first reports were a large, locally aggressive, relatively well-enhancing, broad-based polypoid intramural mass, with possible distant metastasis at the time of diagnosis or during follow-up period.[13] Diagnosis of small cell carcinoma in the bladder depends on histopathological recognition. Immunohistochemical staining presenting tumor neuroendocrine differentiation is helpful.

Neuroendocrine markers, synaptophysin and chromogranin A staining, are typical for small cell carcinoma.[5]

With the recognition of the high metastatic potential with bladder small cell carcinoma, even in the setting of clinically localized disease, the optimal treatment strategy still remains unknown. Abbas and colleagues reported on 106 patients with small cell carcinoma of the bladder, in which the mean survival was 19.6 months, and the 5-year survival was 8%, indicating that surgical treatment alone is unlikely to be curative.[2] Choong and colleagues concluded that all patients with bladder small cell carcinoma should undergo radical cystectomy unless metastatic disease is present.[6] Siefker-Radtke and associates suggested that preoperative chemotherapy followed by radical cystectomy may be the optimal strategy, even in the setting of clinically localized cancer.[14] Although aceptable survival has been reported using an integrated chemo-radiation regimen,[9] Sejima and Miyagawa reported that a successful course of chemotherapy and radiotherapy as determined by pathology did not necessarily correlate with the patient's eventual clinical course.[15] They suggested that combination adjuvant chemotherapy be performed no matter how effective the neoadjuvant therapy plus radical surgery ultimately proves.

We used a combination of partial cystectomy with lymph node dissection and adjuvant chemotherapy and radiotherapy. Partial cystectomy has been earlier used in combination with chemotherapy and/or radiation therapy. Podesta and True[16] reported two cases of pT3 tumors managed with partial cystectomy. One patient received adjuvant radiation therapy and was disease free at 78 months. We believe that treatment of small cell carcinoma of the bladder requires a multidisciplinary approach. A combination of surgery (radical cyctectomy, partial cystectomy, or transurethral resection) coupled with aggressive combination chemotherapy (neoadjuvant and adjuvant) and/or radiotherapy is the treatment of choice.

CONFLICT OF INTEREST

None declared.

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