

Osteoclast-like Giant Cell Carcinoma of the Urinary Bladder

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Extraskeletal osteoclast-like giant cell (OGC) tumors are uncommon and have mainly been found in the breast and pancreas. OGC neoplasms of the urinary tract are extremely rare, and their histogenesis and biologic behavior remain controversial. Gross hematuria is the most common presenting symptom, as in transitional cell carcinoma. The prognosis is poor in patients with extraskeletal OGC tumors. Here, we present the case of a 62-year-old man who received transurethral bladder tumor resection due to painless gross hematuria. Pathology showed OGC carcinoma. Abdominal computed tomography showed tumor invasion over the right lateral wall of the bladder and distal third of the ureter. The patient received radical cystectomy and partial distal ureterectomy with transureteroureterostomy. No local tumor recurrence or distant metastasis was found at the 5-month follow-up. [*J Chin Med Assoc* 2009;72(9):495–497]

Key Words: bladder, osteoclast-like giant cell

Introduction

Primary non-urothelial bladder tumors are uncommon and account for less than 1% of all bladder cancers.¹ Among these tumors, extraosseous osteoclast-like giant cell (OGC) tumors are extremely rare and have mainly been found in the liver, breast, gallbladder and pancreas.² Fewer than 10 cases of this type of carcinoma have been reported in the urinary tract.^{3,4} The most common symptom of these tumors, which present as transitional cell carcinomas, is painless gross hematuria. On pathology, OGC neoplasms of the urinary tract are composed of ovoid or spindle-shaped mononuclear cells with evenly spaced OGCs, and stain positively for CD68 and vimentin immunohistochemically. Here, we report a case of OGC carcinoma of the urinary bladder with right ureter invasion.

Case Report

A 62-year-old man, who had no history of systemic disease, had suffered from painless gross hematuria for

about 3 months. Intravenous pyelography disclosed no filling defect lesion of the urinary tract. Urine cytology revealed no malignancy. Cystoscopy revealed a tumor over the right lateral wall of the urinary bladder. Transurethral tumor resection was performed, and pathology led to the suspicion of OGC carcinoma. Abdominal computed tomography showed irregular right lateral wall thickness of the urinary bladder with right distal ureter partial obstruction (Figure 1). Other images showed no obvious metastasis over the lymph nodes, liver or lungs.

The patient received radical cystoprostatectomy with partial ureterectomy and transureteroureterostomy. Pathology showed OGC undifferentiated carcinoma with marked tumor necrosis (Figure 2) and invasion of the deep muscular layer of the urinary bladder and right distal ureter. The pathologic stage of the disease was stage II (T2bN0M0), without metastasis or angiolymphatic permeation. Immunohistochemical stains were positive for CD68 (Figure 3) and vimentin. The pathological finding was focally positive for factor VIII, CD31 and S-100, and negative for AE1/AE3 (triple), CK7 (twice), CK20 (twice),



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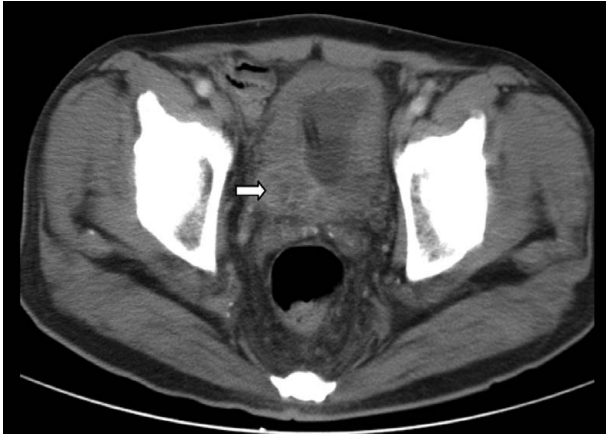


Figure 1. Abdominal computed tomography shows irregular right lateral wall thickness of the urinary bladder with right distal ureter obstruction.

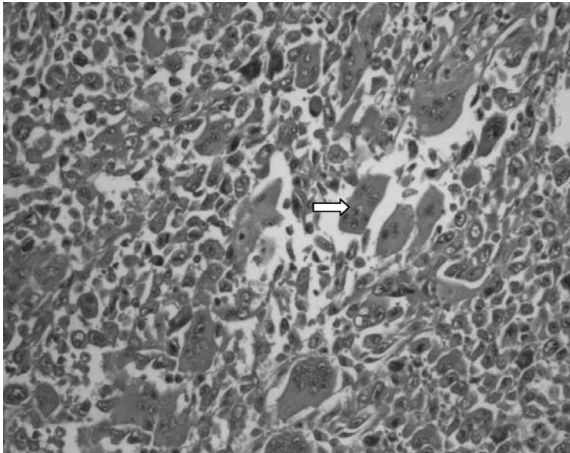


Figure 2. Pathology shows osteoclast-like giant cell undifferentiated carcinoma (arrow) (hematoxylin & eosin; original magnification, 100 \times).

epithelial membrane antigen, chromogranin-A, synaptophysin, actin M851, actin M874 and leukocyte common antigen.

Ten days after the operation, the patient was discharged in a stable condition. At the 5-month follow-up, there was no local recurrence or distant metastasis.

Discussion

Over 90% of bladder tumors originate from the epithelium of the urinary tract. Non-urothelial tumors include squamous cell carcinoma (5%), adenocarcinoma (2%) and anaplastic carcinoma.¹ Extrasosseous OGC carcinoma of the urinary tract is extremely rare and has most frequently been reported in the breast and pancreas. To the best of our knowledge, fewer than 10 cases of OGC carcinoma of the urinary tract

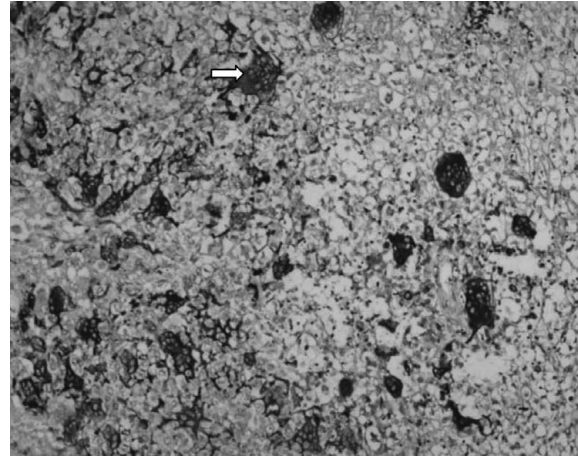


Figure 3. Osteoclast-like giant cell undifferentiated carcinoma (arrow) was positive for CD68 (original magnification, 100 \times).

have been reported in the literature.^{3,4} There has been much controversy regarding the nature and origin of epithelial, histiocytic, and mesenchymal OGCs. One study indicated that these types of OGCs may result from the fusion of mononuclear histiocytes/macrophages attracted to the tumor by growth or chemotactic factors elaborated by neoplastic epithelial cells.⁵ On immunohistochemical analysis in this study, OGCs were positive for vimentin and cell surface proteins CD68 and CD45, and negative for cytokeratin and epithelial membrane antigen.⁶ In our case, the pathological finding was focally positive for factor VIII, CD31 and S-100, and positive for vimentin and CD68. These focally positive reactions may be associated with lesions or prognosis of OGC carcinoma. However, further investigation is needed for a better understanding of this phenomenon.

The symptoms of extrasosseous OGC carcinoma in the urinary tract are nonspecific. As is well-known, hematuria is the most common and frequent initial symptom.⁷ The appearance of OGC carcinoma under cystoureteroscopy is similar to that of other uroepithelial tumors. Such tumors like nephrogenic adenoma of the urinary bladder can only be differentiated by pathological characteristics.⁸ Because of the rarity of OGC tumors of the urinary tract, the prognosis is controversial. According to previous reports, the median survival is less than 2 years.⁴ Surgery is the best choice of treatment. Aggressive management is recommended due to poor prognosis, but no adjuvant treatment has yet been established. Adjuvant radiation therapy may be beneficial, as giant cell tumor of the bone is radiosensitive. Although adjuvant chemotherapy such as MEC (mitoxantrone, etoposide and cyclosporin) has been reported to be beneficial in patients with transitional cell carcinoma of the urinary tract,

a large population-based study is needed to confirm the benefits of such therapy in the treatment of invasive OGC tumors of the urinary tract.⁶ According to past reports, extensive surgical excision appears to be the common consensus for primary or recurrent lesions until the treatment benefits of adjuvant chemotherapy or radiotherapy can be established.⁴

References

1. Hassen W, Droller MJ. Current concepts in assessment and treatment of bladder cancer. *Curr Opin Urol* 2000;10:291–9.
2. Akatsu T, Kameyama K, Kawachi S, Wakabayashi G, Ueda M, Shimazu M. Gallbladder carcinoma with osteoclast-like giant cells. *J Gastroenterol* 2006;41:83–7.
3. O'Connor RC, Hollowell CMP, Laven BA, Yang XJ, Steinberg GD, Zagaja GP. Recurrent giant cell carcinoma of the bladder. *J Urol* 2002;167:1784.
4. Baydar D, Amin MB, Epstein JI. Osteoclast-rich undifferentiated carcinomas of the urinary tract. *Mod Pathol* 2006;19:161–71.
5. Molberg, KH, Heffess C, Delgado R, Albores-Saavedra J. Undifferentiated carcinoma with osteoclast-like giant cells of the pancreas and periampullary region. *Cancer* 1998;82:1279–87.
6. Sarnaik AA, Saad AG, Mutema GK, Martin SP, Attar A, Lowy AM. Osteoclast-like giant cell tumor of the pancreas associated with a mucinous cystadenocarcinoma. *Surgery* 2003;133:700–1.
7. Wen YC, Kuo JY, Chen KK, Lin AT, Chang YH, Hsu YS, Chang LS. Urothelial carcinoma of the urinary bladder in young adults—clinical experience at Taipei Veterans General Hospital. *J Chin Med Assoc* 2005;68:272–5.
8. Chen CS, Cheng CL. Nephrogenic adenoma of the urinary bladder: clinical experience and review of the literature. *J Chin Med Assoc* 2006;69:166–8.