A case of primary mucosa-associated lymphoid tissue lymphoma of the prostate

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Abstract

We report a case of primary mucosa-associated lymphoid tissue (MALT) lymphoma of the prostate. A 67-year-old man presented with urinary obstruction and an elevated prostate-specific antigen (PSA) level. A physical examination revealed mild prostate enlargement and no lymphadenopathy. A needle biopsy and immunohistochemical studies of the prostate were performed, which revealed marginal zone B-cell MALT-type lymphoma. A bone marrow aspiration and biopsy did not show involvement by lymphoma. Magnetic resonance imaging (MRI) of the abdomen and the pelvis revealed no lymphadenopathy or ascites. There was no involvement of other sites by lymphoma. The patient was diagnosed and staged as extranodal marginal zone B-cell MALT-type lymphoma of the prostate, low grade and stage I. The patient received external beam radiation therapy to the prostate with a total dose of 3600cGy in 22 fractions, and became free of disease within the following 15 months.

Introduction

Low-grade B-cell mucosa-associated lymphoid tissue (MALT) lymphoma rarely presents as a primary tumor in extranodal sites other than in the stomach, which is the most common site.[1] To date only seven cases of primary prostatic MALT lymphoma have been reported in the literature to our knowledge.[2-8] We report here a new case that had an elevated prostate-specific antigen (PSA) level and was treated successfully by external beam radiation therapy alone.

Case Report

A 67-year-old man presented with urinary obstruction. A physical examination revealed mild prostate enlargement and no lymphadenopathy or hepatosplenomegaly. Transrectal ultrasonography showed a 4.3x3.2 cm prostate with high echoic spots in the transition zone. The laboratory data showed that the serum PSA level was 7.53 ng/mL (normal: <4.0 ng/mL). A transrectal ultrasound-guided prostate needle biopsy was performed and the prostatic tissues of the biopsy demonstrated diffuse lymphoid infiltrations extending in most areas in 12 of 12 biopsy specimens. The lymphoid cells invaded the prostate glandular epithelium and the characteristic lymphoepithelial lesions were seen (Figure 1).

The lymphoid cells in these areas were uniform in size and shape. They were each characterized by a scanty, clear cytoplasm and a round, slightly cleaved nucleus. The morphologic features were those of centrocyte-like cells (Figure 2).

In addition, cells with plasma cell differentiation were seen. The immunohistochemical analysis showed that the lymphoid cells were positive for CD79a and partially positive for CD20, and that a small number of cells were positive for CD3. These histological results confirmed a low-grade MALT lymphoma of the prostate. A bone marrow aspiration and biopsy did not show involvement by lymphoma. Magnetic resonance imaging (MRI) of the abdomen and pelvis revealed no lymphadenopathy or ascites. Positron emission tomography (PET) images showed abnormal uptake only in the prostate. There was no involvement of other sites by lymphoma. The patient was diagnosed and staged as a marginal zone B-cell MALT-type of non-Hodgkin's lymphoma of the prostate, low grade and stage I.

The patient received external beam radiation therapy to the prostate with a total dose of 3600cGy in 22 fractions. A follow-up biopsy of the prostate was performed 12 months after the radiation therapy. The immunohistochemical analysis showed that a small number of lymphocytes were more dominantly positive for CD3 than CD20 and CD79a, and negative for CD10, Bcl2, and CD20. Light chain restriction staining also showed no κ- and λ–reactivity. These findings confirmed no recurrence of MALT lymphoma of the prostate. The patient was free of disease within the following 15 months.

Discussion

The criteria for primary prostatic lymphoma includes disease limited to the prostate and adjacent soft tissue, absence of lymph node involvement, and a systemic lymphoma-free interval of at least one month.[9] Primary prostatic lymphoma is rare. It accounts for 0.1% of newly diagnosed lymphomas and comprises less than 0.09% of all prostate neoplasms.[10]

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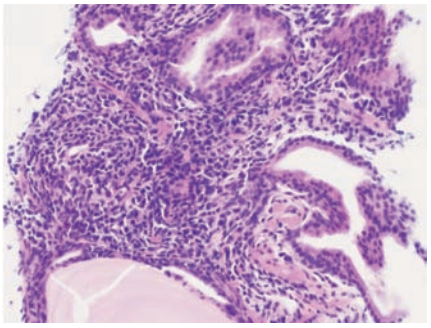

Figure 1. Lymphoid cells invading the prostate gland-ular epithelium.

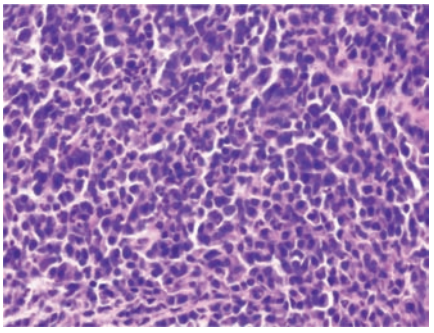

Figure 2. Cells with scanty clear cytoplasm and a round, slightly cleaved nucleus.

Primary prostatic MALT lymphoma is extremely rare and its clinicopathological features are not well clarified. To our knowledge only seven cases have been reported previously. Clinical features of these seven cases, as well as that of our case, are shown in Table 1. The patients were elderly men with a mean age of 73 years (57-87 yr). The most frequent symptom was urinary tract obstruction. Three patients had elevated PSA levels (>4.0 ng/mL). The diagnosis of prostatic MALT lymphoma was made by transurethral resection (TUR) in seven patients and a trans-rectal needle biopsy in

Table 1. Clinical features of eight primary prostatic MALT lymphoma.

Case	Age (years)	Symptom	Laboratory findings	Clinical stage	Treatment	Response	Outcome	Follow-up (months)	Reference
1	75	Hematuria, pyuria	Normal	II	TUR, Cx	CR	AW	12	2
2	57	Urinary obstruction	Normal	I	TUR, Cx	CR	AW	18	3
3	84	Urinary obstruction	Elavated PSA	I	TUR	CR	DOC	24	4
4	67	Prostatism	Normal	I	TUR, Rx	CR	AW	36	5
5	87	Urinary obstruction	Normal	I	TUR	NR	NR	NR	6
6	79	Urinary obstruction	Normal	I	TUR	CR	AW	108*	7
7	70	Disuria	Elevated PSA	I	TUR, Cx	CR	AW	5	8
8	67	Urinary obstruction	Elevated PSA	I	Rx	CR	AW	15	Present case

*Relapse was noted 7 years after the initial treatment; AW, alive and well; CR, complete remission; Cx, chemotherapy; DOC, died of other causes; MALT, mucosa-associated lymphoid tissue; NR, not recorded; PSA, prostate-specific antigen; Rx, radiotherapy; TUR, transurethral resection.

one patient. All patients had clinical stage I disease except for one case with tumor involvement in the epididymis and spermatic cord. Seven patients underwent TUR, three had additional chemotherapy, and one had additional radiotherapy. Our patient was treated by radiotherapy alone according to the non-Hodgkin's lymphoma (NHL) medical guideline. The clinical course in each case was favorable, although one patient died of other causes. Another site of marginal zone B-cell lymphoma of the MALT type was characterized by a high frequency of localized extranodal disease and a prolonged survival, whereas nodal marginal zone (monocytoid) B-cell lymphoma more often occurred with advanced-stage disease and had a worse survival rate.[1] However, in case 2, a tumor relapse was detected seven years after the initial TUR. It seems that long-term follow-ups and more reports are needed to clarify the clinical characteristics and pathogenesis of this disease.

References

1. The Non-Hodgkin's Lymphoma Classification Project. A clinical evaluation of the international lymphoma study group: classification of Non-Hodgkin's lymphoma. Blood 1997;89:3909-18.
2. FrancoV, Florena AM, Quinini G, et al. Monocytoid B-cell lymphoma of the prostate. Pathologica 1992;84:411-7.
3. Tomikawa S, Okumura H, Yoshida T, et al. Primaly prostatic lymphoma of mucosa-associated lymphoid tissue. Intern Med 1998;37:628-30.
4. Tomaru U, Ishikura H, Kon S, et al. Primary lymphoma of the prostate with features of low grade B-cell lymphoma of mucosa-associated lymphoid tissue: a rare cause of urinary obstruction. J Urol 1999; 162:496-7.
5. Jhaver S, Agerwal JP, Naresh KN, et al. Primaly extranodal mucosa-associated lymphoid tissue (MALT) lymphoma of the prostate. Leuk Lymphoma 2001;41:445-9.
6. Tissier F, Badoual C, Saporta F, et al. Prostatic lymphoma of mucosa-associated lymphoid tissue: an uncommon location. Histopathology 2002;40:111-3.
7. Li C, Hibino M, Komatsu H, et al. Primary mucosa-associated lymphoid tissue lymphoma of the prostate: tumor relapse 7 years after local therapy. Pathol Int 2008; 58:191-5.
8. Kawamoto K, Takeshita T, Iwasaki H, et al. Extranodal marginal zone B-cell lymphoma of mucosa-associated lymphoid tissue (MALToma) of prostate; a case report. J Diag Pathol 2008;25:43-6.
9. Mermershtain W, Benharroch D, Lavrenkov K, et al. Primary malignant lymphoma of the prostate: a report of three cases. Leuk Lymphoma 2001;42:809-11.
10. Sarris A, Dimopoulos M, Pugh W, et al. Primary lymphoma of the prostate: good outcome with doxorubicin-based combination chemotherapy. J Urol 1995;53: 1852-4.