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Case Report

Primary Diffuse Large B-cell Lymphoma of the Prostate: A Case Report

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Abstract ***Background:*** **Primary malignant lymphoma of prostate is extremely rare.**

Objective: **The objectives are to report a case of primary lymphoma of the prostate, result of the treatment and review of the literatures.**

Case report: **A 73-year-old Thai male initially presented with gross hematuria and acute urinary retention. Abdominal computed tomography demonstrated a mass in left lobe of prostate gland. Diffuse large B-cell lymphoma was diagnosed by transrectal prostatic biopsy and bone marrow staging was positive. The patient underwent 6 cycles of chemotherapy resulting in complete remission on follow-up at 24 months after diagnosis.**

Conclusion: **Although primary lymphoma of prostate gland is extremely rare, it should be included in the differential diagnosis for all patients who present with lower urinary tract symptoms and/or hematuria.**

Keywords: Lymphoma, B-cell, Prostate

INTRODUCTION

Primary malignant lymphoma of prostate is extremely rare with less than 100 reported cases in the world literature. The most common type is diffuse large B-cell lymphoma. Patients frequently present with urinary retention, lower urinary symptoms, hematuria or even nonspecific symptoms. Prostate-specific antigen (PSA) is usually within normal range in most patients. Chemotherapy has been the primary treatment with variable response rates. Herein, we reported a case of elderly Thai male with primary lymphoma of prostate gland.

CASE REPORT

A 73-year-old Thai male was admitted to Siriraj Hospital, Mahidol University Bangkok, Thailand on October, 2005 with acute urinary retention. He had a history of obstructive voiding symptom for 6 months and gross hematuria for 2 months. Foley catheter was indwelled and continuous bladder irrigation was performed due to gross hematuria.

The physical examination revealed mild pallor and no superficial lymphadenopathy. Rectal examination showed enlarged prostate gland about 3 fingerbreadth in size with nodular surface and hard

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consistency. Screening laboratory tests including liver function tests, electrolytes, blood urea nitrogen, creatinine, lactate dehydrogenase and prostatic surface antigen (PSA) were within normal ranges. Transrectal ultrasonography (TRUS) of the prostate showed multiple small hypoechoic lesions and prostate volume was approximately 30 ml (Fig. 1). Additional cystoscopy revealed trilobar enlargement of prostate gland and bullous edema of bladder neck and trigone.

TRUS guided prostatic biopsy was performed. The prostatic tissue was infiltrated by large lymphoma cells. Most of them had centroblastic nuclear features but some had immunoblastic nuclear features (Fig. 2A). Lymphoma cells expressed CD20 (Fig. 2B), but not CD3. Thus, the diagnosis of diffuse large B-cell lymphoma was made. Bone marrow aspiration staging was positive for lymphoma.

Chest x-ray was normal and computed tomographic (CT) scans of chest and brain were unremarkable. Whole abdominal CT scan demonstrated an eccentric 2 × 2 × 1 cm mass confined within the left lobe of prostate gland, an enlarged left seminal vesicle and thickened mucosal fold along both sides of urinary bladder base but there was not any lymph node or other visceral organ enlargement (Fig. 3). No evidence of bony metastasis was detected on bone scan.

After a complete clinical staging, the patient was diagnosed of primary prostatic lymphoma stage IVA and referred to hematology clinic for definitive treatment. CHOP regimen chemotherapy (cyclophosphamide, doxorubicin, vincristine, presnisolone) was given. After 6 cycles of chemotherapy, the patient could have spontaneous urination and did not have any significant complication. Digital rectal examination revealed soft consistency, smooth surface of the prostate. Reduction of prostate volume from 30 ml to

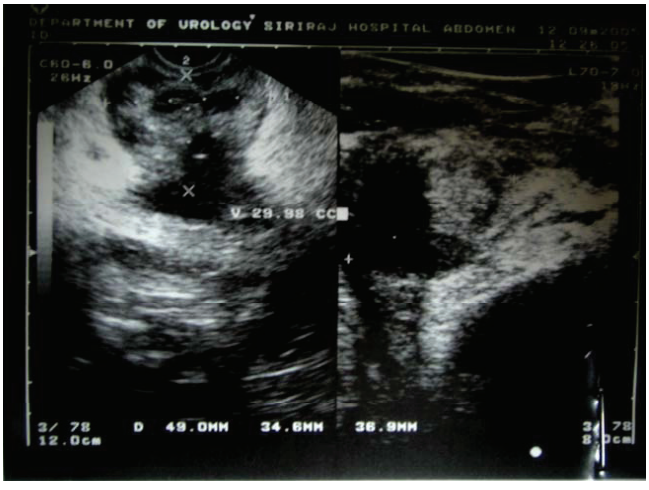

Figure 1 Transrectal ultrasonography demonstrates multiple small hypoechoic nodules of prostate.

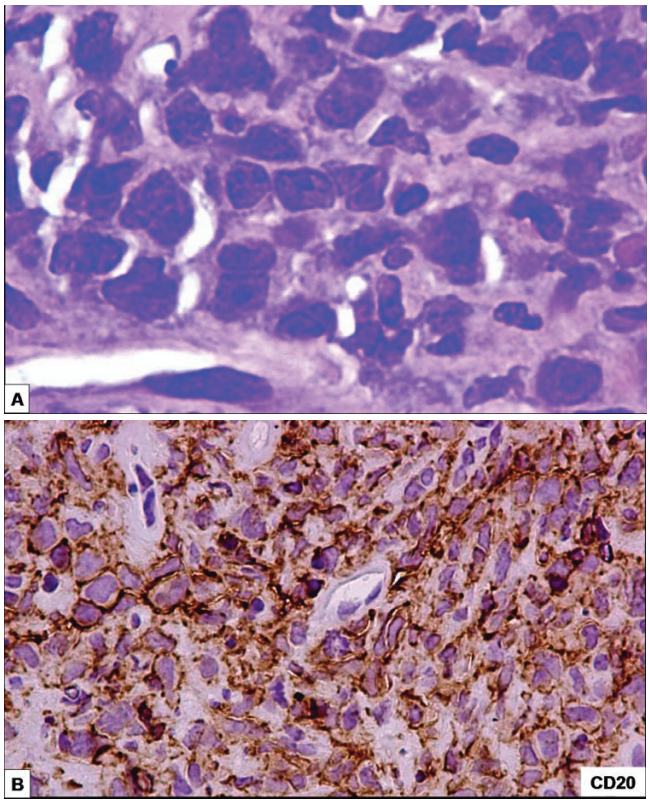

Figure 2 Primary diffuse large B-cell lymphoma of prostate. A) Note the centroblastic feature in most lymphoma cells. Also noted are some lymphoma cells with immunoblastic nuclear feature like the one at the right lower corner. B) CD20+ lymphoma cells. Note the typical membrane staining immunoreactivity.

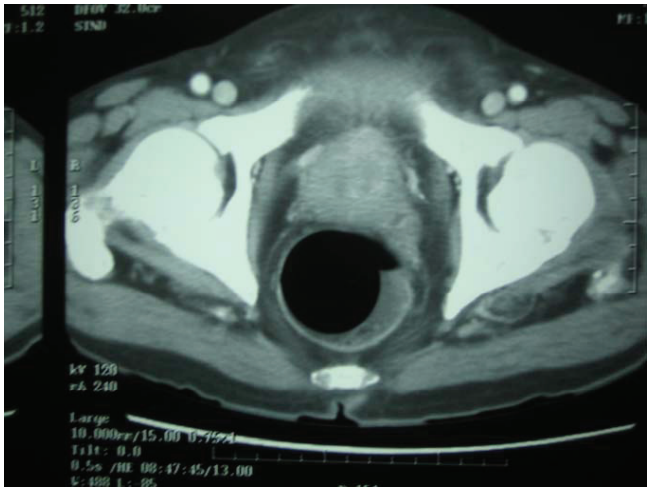

Figure 3 Post contrast computed tomographic scan shows non enhanced hypodense solid mass at left lobe of prostate.

17 ml with normal echogenicity was demonstrated by TRUS. No bone marrow involvement was found on repeated biopsy. Complete remission of lymphoma was observed at 24-month follow-up after the diagnosis.

Discussion

Primary prostatic lymphoma is an uncommon cancer while secondary lymphoma of prostate gland is more common.[1] The incidence of primary prostate lymphoma is less than 0.1% of all prostatic malignancies. These rare tumors are classified by the criteria of Bostwick et al. in 1998.[2] Armed Forces Institute of Pathology (AFIP) recently defines primary lymphoma of the prostate for that localized in the prostate proper only and the patient should not have any evidence of involvement of other lymphoid tissue including blood within 1 month after making a diagnosis of primary lymphoma of the prostate.[3]

The clinical findings of primary lymphoma of prostate are variable, sometimes mimicking any prostatic tumors. The usual clinical presentations are lower urinary tract symptoms, acute urinary retention or hematuria with or without other constitutional symptoms. Most of them occur in the elderly men. A few cases of concomitant prostate and bladder lymphoma are reported in the literatures.[4] Serum PSA is normal. Most of the diagnoses are made from transurethral resection of prostate gland or TRUS biopsy of prostate gland. All types of lymphoma have been described, but diffuse large B-cell lymphoma is the most common. Non-Hodgkin lymphoma is much more common than Hodgkin lymphoma. The appearance on CT scan is non specific but may help in staging. TRUS of the prostate is useful to monitor the structure and volume of the prostate after treatment.

The recommended treatment is chemotherapy with CHOP regimen commonly given at least six to eight cycles which is considered to be enough for curative intent.[5] Surgery or radiation is used only for palliative treatment of local symptoms or in combination with chemotherapy.[6,7] In general, the prognosis is poor and median survival is around 23 months after diagnosis.[2] In the AFIP series, median survival is only 9.8-12.7 months.[3] There is no difference in survival rate between primary and secondary lymphoma of prostate.

Morphology of lymphoma in this case may be misleading since there is sclerotic change creating distorted artifacts that make some lymphoma cells look spindly. If pathologist fails to recognize well preserved lymphoma cells that are typical of centroblastic or immunoblastic feature, misdiagnosis of spindle cell sarcoma may occur since lymphoma cells can show immunoreactivity with vimentin, an intermediate filament commonly found in mesenchymal cells. Poorly differentiated prostatic carcinoma and high grade urothelial carcinoma are excluded by the lack of immunoreactivity with AE1/AE3 cytokeratins.[8] The large lymphoma cells and CD20 expression render the diagnosis of diffuse large B-cell lymphoma, centroblastic variant, according to the WHO classification.[9]

Based on the Siriraj Hospital series of malignant lymphoma studied during 1993-2002, only 3 cases of lymphoma involving prostate glands were found among 1,090 cases of lymphoma with extranodal involvement (0.3%). The patients aged 46, 55 and 69 years. All had B-cell NHL: 1 case of diffuse large B-cell lymphoma (DLBCL) and 2 cases of intravascular large B-cell lymphoma. The only case of DLBCL was a 46-year-old HIV positive patient. Lymphoma also invaded urinary bladder and produced a mass located between urinary bladder and rectum so that it could not be confirmed as the case of primary lymphoma of prostate similarly to our case report.[8]

Conclusion

Although primary lymphoma of prostate gland is rare, it should be regarded for the differential diagnosis in all patients who present with lower urinary tract symptoms and/or hematuria.

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