Primary non-metastatic extra-nodal diffuse large B-cell lymphoma of the prostate and seminal vesicle

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ABSTRACT

Extra-nodal lymphoma accounts for 30–50% of non-Hodgkin lymphoma, and most of the cases are of the diffuse large B-cell lymphoma (DLBCL) type. Primary malignant lymphomas of the prostate are extremely rare, representing 0.09% of prostate neoplasms. Prostatic cancers can be classified into various subtypes, which have distinct molecular pathologies and clinical features. Lymphoma is seldom considered as a differential diagnosis of prostatic enlargement considering the low incidence. We present a case of an 85-year-old gentleman diagnosed with Primary Extra-nodal DLBCL of the Seminal Vesicle and Prostate.

1. Introduction

Lymphomas frequently involve extra-nodal structures in the abdomen, though rarely pelvic organs. Epithelial Tumours such as Prostate adenocarcinoma still represents about 90% of cases with few incidences of lymphoma of the prostate, the majority of which are diffuse large B-cell Non-Hodgkin subtype. Criteria by Bostwick and Mann for primary prostatic lymphoma involvement 1) symptoms attributable to prostatic enlargement, 2) the prostate as the predominant site of involvement, and 3) the absence of involvement of liver, spleen, or lymph nodes within one month of diagnosis.

2. Case presentation

An 85-year-old male was referred to a Urologist after an incidental finding of a left-sided large peri-prostatic mass involving seminal vesicle on Computed tomography (CT) Imaging. A haematologist was investigating the patient for splenomegaly and lymphadenopathy in the setting of newly increased ferritin levels of 1328 mg/L, globulin 14g/L, transferrin saturation of 18% and monoclonal IgM Kappa light chain level of 6g/L. The patient did not report any constitutional symptoms of weight loss, night sweats or fevers and no bone pain. There was no complaint of worsening of Lower Urinary tract symptoms (LUTS) or haematuria. The patient complained of incomplete sensation of defecation; however, there was no change in stool frequency or consistency. Examination (DRE) revealed a mildly enlarged but benign feeling prostate.

Past medical history includes Hypertension, Dyslipidaemia, Left cataract and LUTS. The patient’s medications include telmisartan/amlopidine 80/10mg daily, dutasteride/tamsulosin 0.5/0.4mg daily and ranitidine 150mg daily. He was an ex-smoker and drank 1–2 glasses of wine a week. The patient still lived at home with his wife. He was very active, exercising daily. He immigrated from Vietnam over 30 years ago.

Full Blood count showed a haemoglobin level of 114g/L, White Cell Count of 10.6 × 10^9/L and Platelets of 437 × 10^9/L. Prostate-Specific Antigen 0.54 μg/L.

CT abdomen/pelvis showed no signs of splenomegaly or lymphadenopathy. Incidental note is made of soft tissue mass-like lesion just above the anorectal junction on the left of uncertain nature. A Magnetic resonance imaging Prostate showed an asymmetric enlargement of the posterior aspect of the peripheral zone more marked on the left extending between 3 o’clock and 8 o’clock continuous with the seminal vesicle. In addition, there is a large soft tissue mass measuring 37 × 55 × 47mm in diameter inferior to the left seminal vesicle abutting the posterior aspect of the prostate gland and displacing the rectum anterolaterally to the right (Fig. 1).

The patient underwent an Ultrasound guide Transperineal biopsy of Prostate and Seminal Vesicle under General Anaesthetic. Targeted core biopsies of the prostate and mass were taken and sent for Histology. Microscopic examination showed confluent infiltrates of lymphocytes. No epithelial malignancy is detected. Immunostains yield the following...
immunophenotype for the large atypical lymphoid cells: CD3 -, CD10 -, CD20 +, bcl-2 +, bcl-6 +, MUM-1 +, c-myc + (50%), cyclin-D1 -. The Ki67 index is approximately 70% of all nucleated cell. These findings indicate a diffuse large B-cell lymphoma diagnosis, ABC subtype, with dual expression of bcl-2 and c-myc (Fig. 2).

The patient was discussed at an Uro-Oncology Multidisciplinary meeting, and the outcome was to commence an R–CHOP regimen with the patient’s referring oncologist based on case reports. The patient began a course of R–CHOP in conjunction with prednisolone and pegfilgrastim.

The patient has experienced mild side effects with treatment. A PET scan was performed to assess response after the third cycle. A complete metabolic response was found, and the patient was switch to surveillance. All side effects from the chemotherapy have mostly been resolved.

3. Discussion

The mean age at diagnosis for primary and secondary prostatic leukemia/lymphoma is in the seventh decade. Primary prostatic lymphoma frequently obstructs the lower urinary tract. It is not uncommon for haematuria to also be a frequent finding. DRE findings may mimic BPH, with most cases demonstrating a diffusely enlarged or nodular prostate. However, the PSA level is typically not elevated. In our case study, the patient denied any worsening LUTS, which is unusual as almost all patients diagnosed with prostatic lymphoma, whether primary or secondary, present symptoms of lower urinary obstruction. However, this predominantly extra-prostatic mass with minimal prostatic urethral distortion explains for his absence of LUTS and normal DRE. The patient did complain of a full rectum post defecation. This sensation can likely be explained by the soft tissue mass seen on imaging, causing displacement and compression of the rectum.

There are no consensus guidelines for the management of this rare tumour. The treatment modalities for primary NHL of the prostate include surgery, chemotherapy and/or radiotherapy. Bostwick et al. concluded that before adequate chemotherapy/radiotherapy, 5-year survival of 33% in a retrospective review of 62 patients. However, more recent case studies have reported good outcomes with rituximab or doxorubicin-based chemotherapy, such as the R–CHOP regime. A review of 23 Japanese patients with primary lymphoma of the prostate by Fukutani et al. reported that 11 out of 16 cases that received chemotherapy alone or associated with other treatments had a complete response. In contrast, three of five patients treated with radiotherapy or radical prostatectomy had evidence of disease progression and died. The R–CHOP regime has shown improved disease-free survival in primary DLBCL compared to disease with nodal involvement or extensive disease.

4. Conclusion

The incidence rate of lymphomas in locations other than the lymph nodes, is very low. Clinical presentation of primary extra-nodal prostate lymphoma is often diagnosed as LUTS secondary to BPH. Non-epithelial prostate tumour subtypes such as DLBCL should be considered a differential diagnosis in patients presenting with large prostatic or peri-prostatic mass, LUTs resistant to medical therapy, and normal PSA. Diagnosis is based on the immunophenotype of histology specimens, as there is no characteristic imaging appearance to assist with diagnosis. Targeted biopsies of the mass extending beyond the normal contour of the prostate were critical for accurate diagnosis. Lastly, there is no consensus for the management however, case studies have shown overall survival with the inclusion of chemotherapy treatment.

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Fig. 1. Images A&B. CT Axial and coronal images are showing a Left seminal vesicle mass. C&D. T2 weighted MR images showing a left seminal vesicle mass in coronal and axial section.
Author contributions

Frances Harley: Writing - Original Draft, Writing - Review & Editing, Visualisation. Brendan Dias: Conceptualisation, Supervision. Jason Ooi: Supervision. Christopher Dow: Resources.

Declarations of competing interest

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References

1. Ezekwudo DE, Ogunleye F, Gbadamosi B, et al. Primary extranodal diffuse large B-cell lymphoma of the prostate: a case report. Case Rep Oncol. 2017;10:199–204. https://doi.org/10.1159/000457117.
2. Bostwick DG, Iczkowski KA, Amin M, Discigil G, Osborne B. Malignant lymphoma involving the prostate: report of 62 cases. Cancer. 1998 Aug 15;83(4):732–738. https://doi.org/10.1002/(SICI)1097-0142(19980815)83:4<732::AID-CNCR15>3.0.CO;2-T.
3. Tamang TGL, Singh P, Garellek J, Malhotra S, Chandra AB, Solomon W. Prostatic lymphoma masquerading as urinary retention and hematuria with review of literature. World J Oncol. 2017;8(4):132–135. https://doi.org/10.14740/wjou1055w.
4. Fukutani K, Koyama Y, Fujimori M, Ishida T. [Primary malignant lymphoma of the prostate: report of a case achieving complete response to combination chemotherapy and review of 22 Japanese cases. Nihon Hinyokika Gakkai Zasshi. 2003;94(6):621–625. https://doi.org/10.5980/jpnjurol1989.94.621.
5. Rao RN, Bansal M, Raghuvanshi S, Ansari MS, Neyaz Z. Diffuse large B-cell non-Hodgkin lymphoma of the prostate presenting with urinary outlet obstruction: a case report. Urol Ann. 2015;7(1):100–103. https://doi.org/10.4103/0974-7796.148637.

Fig. 2. Immunohistochemistry stains. A. H&E Stain. B Ki67 Stain. C. CD3 Stain. D CD 20 Stain.