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WORD COUNT 2284
TIME SUBMITTED 10-JAN-2023 04:00PM
PAPER ID 95372853

Name of Journal: *World Journal of Clinical Cases*

Manuscript NO: 81991

Manuscript Type: CASE REPORT

Prostate lymphoma with renal obstruction: reflections on diagnosis and treatment: Two cases

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Abstract

BACKGROUND

Lymphoma of prostate origin is very rare, the disease progresses rapidly and is highly misdiagnosed. We report two cases of lymphoma of prostate origin, one of which died of progressive disease two months after diagnosis, while the other was promptly rescued and the tumour was significantly controlled at six months follow-up. We summarise the literature on the identification and treatment of these patients and conclude that early nephrostomy to relieve the obstruction plus chemotherapy is the most convenient and effective treatment option for the patient.

CASE SUMMARY

We report two cases of prostate lymphoma admitted to our hospital, and this report discusses a rare case of primary prostate lymphoma causing bilateral renal obstruction and hydrophilia. Prostate lymphoma has no characteristic clinical symptomatology. Currently, the clinical case reports of this disease are relatively rare. The disease develops rapidly and is not sensitive to conventional treatment. Renal function injury caused by the untimely removal of hydronephrosis may often be one of the main causes of physical discomfort and rapid deterioration of the disease. These two cases of rare prostate lymphoma were reported to provide reference for clinical decision-making.

CONCLUSION

Analysis of the data shows that prostate lymphoma is often seen as benign prostate disease during its pathogenesis. Primary prostate rapidly and diffusely enlarges with invasion of surrounding tissues and organs, PSA is not elevated and is not specific. There are no significant features in a single imaging, but during dynamic observation of imaging it can be found that it is diffusely enlarged locally and that systemic symptoms metastasize rapidly. Dynamic review of the disease has some significance for the diagnosis. The majority of patients can discomfort symptoms during the progression of the disease often to urinary tract obstructive disease for the first time, the lack of knowledge of the disease pair often leads to delayed treatment. Misdiagnosis time window and abandonment of treatment are negative predictors of prognosis, active diagnosis and chemotherapy can relieve the affected symptoms timely control the progress of the disease and improve the prognosis.

INTRODUCTION

Lymphoma is a relatively common clinical malignancy with a wide range of lesions, usually originating in the lymph nodes, and more rarely in the prostate. Primary prostate lymphoma (PPL) is an extra-nodal lymphoma. Pathologically, lymphomas are divided into Hodgkin disease (HD), which is more common, and non-Hodgkin lymphoma (NHL), which is a heterogeneous malignancy caused by allogeneic B lymphocytes, T lymphocytes or natural killer cells.

In contrast, PPL is extremely rare, accounting for only 0.09% of prostate tumour [1] and 0.1% of all NHL [2]. The majority of cases are NHL, whose main pathological type is Diffuse Large B-cell Lymphoma (DLBCL). To date, only a few cases have been reported in the literature. Due to the rarity of PPL, patients always seek for help from doctors for non-special low urinary tract symptoms. It is easy to be highly misdiagnosed for lacking of specific signs. and the optimal diagnosis and treatment time of patients is delayed.

Therefore, we report two cases of prostate lymphoma admitted to our hospital. One of them was a 41-year-old male patient who experienced delayed diagnosis followed by refusal of further treatment and unfortunately died 3 mo later. The other 70-year-old male patient was treated aggressively after diagnosis and his tumor was rapidly controlled during a six-month follow-up. To avoid similar unfortunate events, we summarized the disease characteristics and treatment of prostate lymphoma by reviewing the literature.

CASE PRESENTATION

Chief complaints

A 41-year-old Chinese male presented to a urology clinic with a complaint of obstruction during urination.

History of present illness

Diagnosed with intestinal obstruction in the emergency room for constipation 2 wk before the onset of symptoms. Examination revealed an enlarged prostate referred to urology.

History of past illness

+ADw-html+AD4APA-p+AD4-A 41-year-old young male patient presented to our hospital with lower urinary tract symptoms with constipation. (Figure 1) Computed tomography (CT) scan revealed thickening of the bladder wall, unclear structure of the bladder-bilateral seminal vesicle-prostate area, and isointense masses with unclear demarcation with the adjacent perirectal area, bilateral pelvic wall, and bilateral ureters, with bilateral kidney and bilateral ureteral effusion. On September 13, 2013, a double nephrostomy was performed to relieve the obstruction, and the creatinine decreased to normal after surgery. on October 22, 2013, a right hemicolectomy +- ileostomy +- abdominal, pelvic and bladder tissue biopsy was performed for intestinal obstruction (Figure 2). postoperative pathology suggested B-cell non-Hodgkin's lymphoma,

consistent with diffuse large B-cell lymphoma (germinal center subtype). Immunohistochemistry of bladder tissue: immunohistochemistry: CD10 (+-), CD20 (+-), CD3 (+-), Ki67 (80+ACU- +-), CD30 (-), Pax-5 (-), TDT (-), ALK (-), CD34 (-), MUM-1 (-), CD15 (-), Bcl-6 (+-), EBER (-). The patient subsequently refused treatment and died on November 25, 2013 due to disease progression.+ADw-/p+AD4APA-/html+AD4-

Personal and family history

The patient denied any family history of malignant tumours.

Physical examination

Physical examination: temperature, 36.5°C; blood pressure, 117/68 mmHg; heart rate, 82 beats per minute; respiratory rate, 19 breaths per minute. In addition, finger-anal examination was performed and enlarged prostate tissue was palpated, which was soft in texture and did not stain with blood on withdrawal of the finger-prick.

Laboratory examinations

Levels of serum tumour markers were normal (carcinoembryonic antigen, 4.3 ng/mL; carbohydrate antigen 19-9, < 2 U/mL; alpha-fetoprotein, 3.1 ng/mL). No abnormality was found in routine blood and urine analyses.

Imaging examinations

(Figure 1) The computed tomography (CT) scan revealed thickening of the bladder wall, indistinct structure of the bladder-bilateral seminal vesicle-prostate area, and an isointense mass shadow with indistinct demarcation with the adjacent perirectal area, bilateral pelvic wall, and bilateral ureters, with bilateral kidney and bilateral ureteral effusion. Therefore, a provisional diagnosis of urinary tract obstruction was made.

case2

Another 70-year-old male, who had been seen repeatedly for lower urinary tract symptoms, was considered to have an enlarged prostate and was not taken seriously. six months later the patient came to our hospital with worsening symptoms and constipation. on 23 April 2022 (Figure 2) the patient's CT scan showed significant bladder wall thickening with prostatic hyperplasia involving bilateral ureteral openings, surrounding fatty infiltration and multiple enlarged lymph nodes in the pelvis and retroperitoneum, with both hydronephrosis and hydroureteronephrosis. The patient's biochemistry suggested a creatinine of 669umol/L and was considered to have bilateral renal obstruction, so we performed a double nephrostomy to drain the patient, after which the creatinine decreased to normal. As the disease was progressing very rapidly and had much in common with the previous patient, we immediately thought of lymphoma and further refined MRI for examination (Figure 3) suggested that we were considering a malignant occupying lesion of the prostate involving the bladder with surrounding fatty infiltration and multiple enlarged lymph nodes in the pelvis and retroperitoneum. However, biochemical tests suggested that the patient had a normal prostate specific antigen (PSA） and an elevated Lactate Dehydrogenase (LDH） of 304 U/L. To verify the nature and origin of the tumour, on 6 May 2022 the patient underwent transrectal core prostate biopsy and electrosurgery of the bladder mass for pathological biopsy, which was confirmed a few days later as DLBCL (germinal centre subtype) with immunohistochemistry CD20 (+), CD79a (+), CD3 (partial +), CK (-), GATA3 (-), P63 (partial weak +), Ki67 (90% +), CD10 (-), Bc1-6 (+), MUM-1 (+). Postoperatively the patient later underwent PET-CT suggesting a malignant prostate tumor with invasion of the bladder and multiple lymph node metastases. The patient then underwent an R-chop chemotherapy regimen and was followed up six months later with PET-CT for significant tumour shrinkage and no abnormal lymph node invasion (Figure 4).

MULTIDISCIPLINARY EXPERT CONSULTATION

To relieve the obstruction, the patient agreed to undergo right hemicolectomy + ileostomy + abdominal, pelvic and bladder tissue biopsy, and postoperative pathology suggested B-cell non-Hodgkin's lymphoma consistent with diffuse large B-cell lymphoma (germinal center subtype).Immunocoding:

FINAL DIAGNOSIS

Primary prostate lymphoma

TREATMENT

The patient refused treatment. The patient subsequently refused treatment and died on November 25, 2013 due to disease progression.

OUTCOME AND FOLLOW-UP

The patient refused treatment. The patient subsequently refused treatment and died on November 25, 2013 due to disease progression.

DISCUSSION

The etiology of DLNCL is unclear and patients usually present with rapid growth of tumour in one or more lymph nodes or extra-nodal organs. The clinical diagnosis of the disease currently relies on pathology and most cases are found accidentally, with extra-nodal sources or even prostate sources being extremely rare, which inevitably delays the patient's treatment. The current consensus diagnosis of primary prostate cancer lymphoma (PPL) is based on 1) tumour confined to the surrounding soft tissues, 2) no lymph node involvement, and 3 no systemic lymphoma detected at least 1 mo apart from the diagnosis of the primary tumour. The prognosis for either primary or secondary lymphoma is poor, with a median survival time of 23 mo after diagnosis [2].

The clinical presentation of lymphoma depends on the site of the lesion. Lymphoma of the urinary tract usually presents with lower urinary tract symptoms, and one is particularly alert to differentiate its diffuse proliferation on imaging from

benign prostatic disease. The common clinical signs and symptoms of PPL include dyspareunia, dysuria, frequency and urgency, anal prolapse and dysuria, and lower urinary tract symptoms are similar to those of prostate cancer, but the PSA values of primary prostate lymphoma are generally A summary of the disease characteristics of a large sample of patients suggests that PSA is usually within 4ng/mL [4,5], which is the point of differentiation from general prostate cancer.

Rectal palpation is the simplest and most direct method of examining the prostate. Previous literature suggests that most patients have a diffusely enlarged prostate on rectal palpation, without pressure, with a hard or moderately hard texture and loss of the central groove, with or without a palpable nodular pattern [4,6]. The cystoscopic findings are indistinguishable from prostatic hyperplasia and are seen as narrowing and narrowing of the prostatic urethra and, in advanced cases of extensive infiltration, causing distortion of the urethra, bladder neck and triangle. However, the progression of NHL disease is usually accompanied by an increase in LDH, which is significant in patients with diffuse prostatic hyperplasia but normal PSA, suggesting that we should very much consider more subtypes of prostate neoplasia, especially for a differential diagnosis of lymphoma.

Integrating the imaging features of diffuse large B lymphoma of the prostate reported in several clinics, CT\MR of lymphoma of the extra-junctional urinary tissues mostly shows diffuse hyperplasia [7] and is alert for heterogeneous masses on imaging [8]. MRI presentation has been reported to show mainly equal or slightly low signal on T1WI and slightly high signal on T2WI, which is lower than other prostate malignancies. Due to the dense cells within the tumour, DWI generally shows significant high signal and most of them are mild to moderate homogeneous delayed enhancement on enhanced scans, and necrotic non-enhancing areas may appear in the centre when the tumour is large [9]. This is consistent with the present case report.

In addition, in cases reported both nationally and internationally, PET-CT is more specific and sensitive for the diagnosis of non-Hodgkin's lymphoma, demonstrating hypermetabolic prostatic lesions in cases, and can assist in the localisation and staging

of primary prostate lymphoma. PET-CT is therefore recommended for the management and prognosis of this group of patients where available. It helps in the early diagnosis of PPL and demonstrates the presence of abnormal metabolic foci in any other lymph nodes or organs [10,11]. Based on previous reports suggesting that imaging is not yet specific for the presentation, examination of PSA is recommended as an adjunct [12].

The diagnosis of DLBCL usually relies on pathological and immunohistochemical findings for staging. Routine immunohistochemical (IHC) markers include CD19, CD20, PAX5, CD3, CD5, CD79a, CyclinD1, Ki-67, usually showing CD19 (+), CD20 (+), PAX5 (+), CD3 (-). Immunohistochemical examination shows diffuse expression of CD79a and CD20 in tumour cells, which is typical of DLBCL. Based on the immunophenotype and gene expression profile, DLBCL can be classified into two types: germinal centre-like B cells and non-germinal centre-like B cells [13]. Usually, CD3-positive and diffusely expressed as Mum-1 indicates that the tumour cells originate from B cells. Negative CK suggests non-epithelial malignancy and combined with negative PSA, excludes the possibility of prostate cancer.Rituxan is a chimeric monoclonal antibody to CD20, a cell surface protein that is one of the typical features of DLBCL and can specifically target the CD20 antigen in B-cell lymphomas and is characterised by R-CHOP as a first-line chemotherapy regimen[14],It now appears that that the specific choice of chemotherapy regimen depends on the histological classification [15].

Due to the rarity of prostate lymphoma, its characteristics are still being explored. The above disease characteristics and differential diagnosis may help clinicians in the evaluation and treatment of prostate lymphoma. Through the above analysis, we conclude that patients with abnormal prostate enlargement with urinary tract obstruction or intestinal obstruction and no specific elevation of PSA should be closely observed to be alert for the occurrence of prostate lymphoma to avoid delaying treatment and delaying therapy, and an aggressive chemotherapy regimen to benefit patient survival.

CONCLUSION

In summary, this report presents a rare case of PPL with an early clinical presentation that is not significantly different from LUTS secondary to BPH but is resistant to conventional drug therapy, with very rapid tumour progression, and where early identification is a hope for patient survival.

ACKNOWLEDGEMENTS

The authors thank the Department of Radiology and Pathology, The Second Affiliated Hospital of Guangzhou University of Chinese Medicine, for providing the imaging data and pathological data.

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