

HYDRONEPHROSIS: A CASE OF URETERAL METASTASIS OF PROSTATE CANCER

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ABSTRACT

Hydronephrosis is among the common urinary complication encountered in outpatients setting. A mass obstructing in the urinary pathway is among the causes, which could be originated from anywhere in the pelvic cavity. This article reports a case of a 71-year-old man with underlying benign prostatic hyperplasia presented with abdominal mass and deranged renal profile, which was later found to be hydronephrosis. Further investigation leads to the diagnosis of advanced prostate cancer with metastasis to the bone, lymph nodes, bladder, and distal ureter. The patient was treated conservatively in view of advanced disease and the patient's life expectancy.

Keywords: Prostate Cancer; Ureteral Metastasis; Hydronephrosis

INTRODUCTION

Urinary retention is among the common symptoms encountered by primary care physicians. It is described as an inability to completely empty the bladder and may result in the accumulation of the urine in the renal calyces and pelvis (hydronephrosis). Though it is not always caused by obstruction, it could be the result of the distension of the collecting system itself (Morin & Baker, 1979). The causes of hydronephrosis are divided based upon the location of the obstruction. It ranges from stones alongside the urinary tract, infections, tumors or carcinoma, urethral stricture, prostatic enlargement as well as trauma.

CASE STUDY

A 70-year-old man was seen by a family physician for a palpable abdominal mass and deranged renal profile. He has underlying hypertension, dyslipidemia, and benign prostatic hyperplasia (BPH) and was on Tab amlodipine 10mg daily, Tab simvastatin 20mg daily, and Tab terazosin 2mg daily. The patient has been having lower urinary tract symptoms for 10 years which was initially attributed to the BPH. The symptom has been worsening over the past few months with intermittent constipation. He had no family history of malignancy. He was compliant with his medications and was generally well. The physical examination

discovered a palpable mass at the right iliac fossa, which was firm, non-tender and there were no overlying skin changes. The digital rectal examination revealed enlarged, nodular prostate and hard in consistency. Laboratory investigation revealed no microscopic hematuria. However, his renal function had declined from eGFR of 68 mL/min/m² to 34 mL/min/m² in two-year times. Ultrasonographic examination demonstrated right hydronephrosis with mildly thinned and echogenic cortices, prostatomegaly with heterogeneous echogenicity. There was an oval-shaped right pelvic mass measuring 8.6 x 8.1 x 7.2 cm, which caused compression to the right distal ureter. To identify the nature and origin of the mass, a further evaluation with computed tomography (CT) was conducted. CT abdomen later revealed a prostatic mass possibly infiltrating the bladder base and the distal right ureter which causing hydronephrosis. Multiple right pelvic mass likely matted adenopathies. There were present of multiple osteolytic skeletal metastases. His prostate-specific antigen (PSA) was 7380 ng/mL. The transrectal ultrasound (TRUS) guided prostate biopsy revealed bilateral acinar adenocarcinoma with a Gleason score of 9 (4+5), and the total percentage of cancer (TPC) was 88.7%. The patient was treated conservatively with leuprorelin acetate and the latest PSA has reduced to 2316 ng/mL.



Figure 1: Abdominal computed tomography of prostate cancer with ureteral metastasis (axial view)

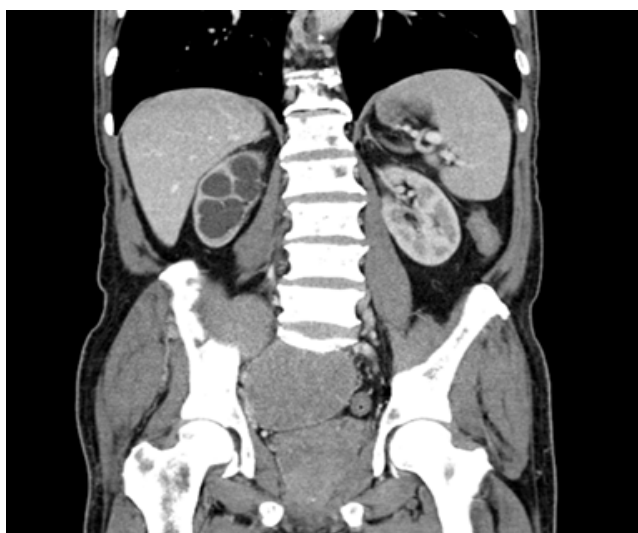


Figure 2: Abdominal computed tomography showing left ureteral mass with hydronephrosis (coronal view)

DISCUSSION

Prostate cancer is one of the most common malignancies among men worldwide, estimated 1.6 millions incidents annually and more than 300 thousand death reported . The clinical spectrum of disease ranges from asymptomatic detection at the screening to clinically aggressive, advanced stage of the disease. Most prostate cancers are diagnosed asymptotically. However, when presents, they are often attributed to the metastatic sites. The common sites of metastasis in prostate cancer are lymph nodes, bone, lungs, and liver, which was reported in a large

autopsy study. Metastasis to the ureter is rare, with only 44 cases reported .

Ureteric metastases can manifest in a variety of ways, including acute urinary retention, flank pain, and hematuria. Huang, et al. described a case presented with lower urinary tract symptoms and flank pain, with a high Gleason score . Lower urinary tract symptoms however commonly related to BPH than prostate cancer. Hydronephrosis caused by prostate cancer can occur as a result of the primary tumor directly invading the ureter or due to metastatic lymph nodes compressing the ureter externally. Both conditions were demonstrated in this case. Although BPH was initially thought to be the cause of hydronephrosis due to the obstruction of the ureterovesical junction, further investigation leads to a much devastating diagnosis.

Physical examination remains the most important tool in detecting abnormalities, especially in primary care settings. Inadequacy in the physical examination could delay diagnosis and treatment which number equates to 76% and 42% respectively. The alarming sign, in this case, was not only the deranged renal profile but the presence of abdominal mass upon palpation. Digital rectal examination (DRE) is compulsory for patients presenting with lower urinary tract symptoms. Although it is not a recommended screening tool for prostate cancer, abnormality detected during DRE warrants further evaluation. The sensitivity and specificity of DRE performed by primary care physician was 51% and 59% respectively .

PSA is valuable for the early detection of cancer though it is not specific for malignancy. With a higher PSA value, the risk of prostate cancer increases. For PSA cut-off of 4ng/mL, the sensitivity for detecting prostate cancer is 20.5% with a high specificity of 93.6%. A normal PSA value however does not exclude prostate cancer. The decision to biopsy is usually based on the PSA value, the DRE findings, and the imaging result. In the older patient, it might be appropriate to not proceed with biopsy due to the shorter life expectancy. However, it is rather shared decision-making with the patient than the clinician alone. The majority of case studies found that primary prostate cancer metastatic to the ureter had a Gleason score (GS) ≥ 7 . TRUS guided biopsy, in this case, revealed a high-grade prostate cancer with a GS of 9 (4+5).

American college of surgeons recommended screening

patients with BPH for men age 50 years old at average risk for prostate cancer whose life expectancy is at least 10 more years, men age 45 years old at high risk for prostate cancer, and men age 40 years old at very high risk (those with more than one first-degree relative who had prostate cancer at an early age). In this case, further evaluation for prostate cancer was made after discussion with the patient and the complication that has occurred.

CONCLUSION

Prostate cancer is the third most common cancer among males in Malaysia with a mortality rate of 3.0%. The risk and benefit of prostate cancer screening should be discussed with patients. Detection of prostate cancer is the responsibility of healthcare providers from primary care to tertiary level, in which the possible diagnosis may be made from physical examination or to the much invasive procedure such as biopsy. The presence of hydronephrosis should raise suspicion of ureteric metastasis of prostate cancer although the incidence is rare. The surgical or conservative treatment options should be a shared decision between the practitioner and the patient.

Conflict of Interest

The authors declare that there are no conflicts of interest relevant to this article.

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