Journal of Experimental and Clinical Medicine
https://dergipark.org.tr/omujecm

Case Report

J. Exp. Clin. Med., 2019; 36(2): 63-65
doi: 10.5835/jecm.omu.36.02.006

Bilateral testicular metastasis of prostate adenocarcinoma: A case report

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ARTICLE INFO

Article History
Received 24 / 11 / 2019
Accepted 30 / 11 / 2019
Online Published Date 25 / 12 / 2019

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Keywords:
Bilateral
Metastasis
Prostatic neoplasms
Testis

ABSTRACT

Prostate cancer is one of the most common solid organ tumors to metastasize testis. However testicular metastases, especially bilateral testicular metastases, are rarely seen cases. We present this rare case report about a 68-year-old patient with prostate cancer presented with complaints of swelling in the testis. Physical examination and radiological imaging revealed testicular metastasis of prostate cancer. As a result we believe that if patient presents with active complaints or a mass in the testicle, we should evaluate further with scrotal ultrasonography at the time of diagnosis and follow-up. Following those, testicular biopsy or orchiectomy should be performed if seen necessary.

1. Introduction

Prostate cancer is one of the most common solid organ malignancies in male population and often metastasizes to iliac lymph nodes, bone, lungs, rarely to testes and other genitourinary system (Patel et al., 1989; Dutt et al., 2000). Among the primary foci of testicular metastases; lung, prostate, melanoma and gastrointestinal system tumors are the most common ones. In the course of prostate cancer, there has been cases reported as unilateral testicular metastases which are relatively uncommon; bilateral metastases have also been reported but more rarely. Metastatic testicular tumors need to be differentiated from testis seminoma, because in microscopical examination they retain testicular parenchyma in the intratubular, intertubular and nodular pattern. Histopathological or radiological methods are used in the differentiation of primary and metastatic testicular tumors.

2. Case report

A 68-year-old male patient who had no previously known diseases, presented our clinic with hematuria for about 2 months. In the digital rectal examination, a grade 1 nodular lesion was detected in the prostate. In laboratory findings, prostate-specific antigen (PSA) value was determined as > 100 ng/ml.. The patient

underwent prostate needle biopsy with transrectal ultrasonography. Histopathological findings are reported as prostate adenocarcinoma with Gleason score 9 (4 + 5).

The patient's abdominal computed tomography (CT) revealed a large number of lymph nodes thought to be metastatic, with a central cystic (necrotic) appearance, observed in the paraaortic area at the infrarenal level and conglomerates in both main and external iliac groups. The largest one is found within the external iliac lymph nodes, with 52*30 mm diameter. Bone scintigraphy revealed no metastasis.

The patient was started on LHRH agonist + antiandrogen therapy. After the treatment, patient's PSA values decreased to 3.94 ng / ml. After receiving the maximum androgen blockade (MAB) for 2.5 years, the patient stopped coming to examinations for 1 year.

At the first admittance to clinic after 1 year period, an increase in PSA levels was observed. Widespread abdominal lymph nodes and bone metastasis in the T7 vertebrae were detected. Docetaxel chemotherapy was inititated.

After 3 cycles of docetaxel, abdominal magnetic resonance imaging (MRI) showed minimal progression and the treatment was completed with 6 cycles. After 6 cycles of treatment, due to progression detected in abdominal MRI, enzalutamide treatment was started. After 3 month of therapy, abdominal MRI was repeated which showed increased size of the lymph nodes in the abdomen, and additionally suspicious lesions were found in the right lower lobe of the lung. As a result, cabazitaxel treatment was initiated.

After 3 cycles of treatment, abdominal MRI revealed new lesion in the abdomen and pelvis in addition to previous lesions, and LUTESIUM-177 PSMA treatment was started. 3 cycles were given. After a significant progression was detected in all foci of PET, current therapy was replaced with mitoxantron chemotherapy.

While receiving mitoxantron chemotherapy, the patient admitted to our clinic with painless mass in both testes and right groin pain in October 2018. Physical examination revealed a rigid mass in the upper lobe of the left testis and hydrocele in both testes. The patient's tumor markers (α-FP, β-HCG) were within normal limits and the PSA value was 1761 ng/ml. In ultrasonography (USG), a 5x4 mm diameter lesion in the right testis and a large sized hypoechoic lesion with a lobulated contour and rough calcifications of 11x10 mm in the left testicle were found. Because the patient had history of malignancy and no significant increase in blood flow of the testis was shown, the lesions were evaluated in favor of possible metastases.

Abdominal MRI was performed on the patient. MRI findings are similar to USG, the lesions identified in both testes were contrasted and diffusion-T2 weighted images had hypointensity similar to the present prostate lesions'. Axial T2 and T1 images showed hypointense in T2, isointense in T1, and no-limiting lesions were contrasted (arrows) (Fig. 1-6).

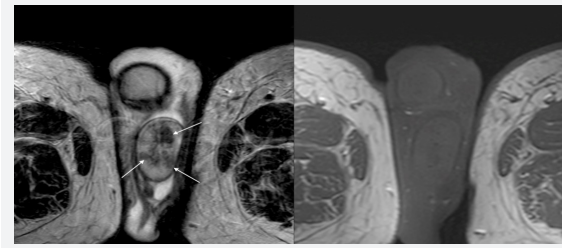

Fig. 1. Prostate cancer testis metastasis T2 T1 sequence (indicated by arrow).

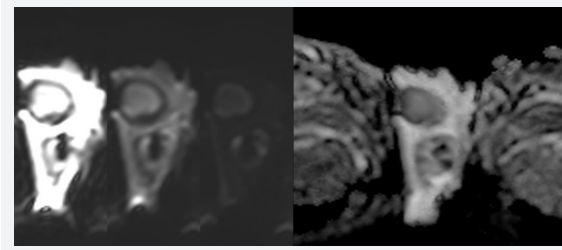

Fig. 2. Diffusion imaging of testis parenchyma.

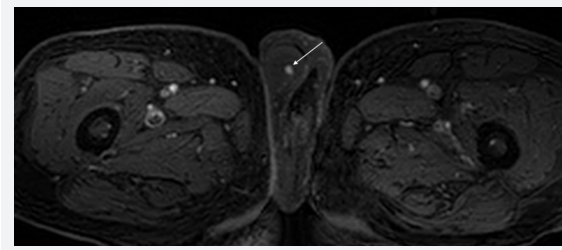

Fig. 3. Metastasis of the right testis (indicated by arrow).

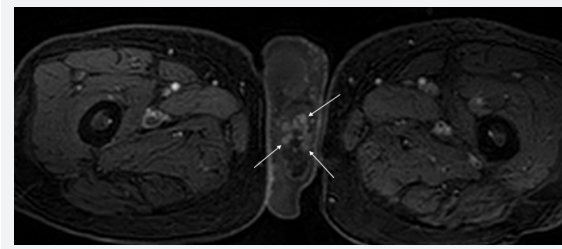

Fig. 4. Metastasis of the left testis (indicated by arrow).

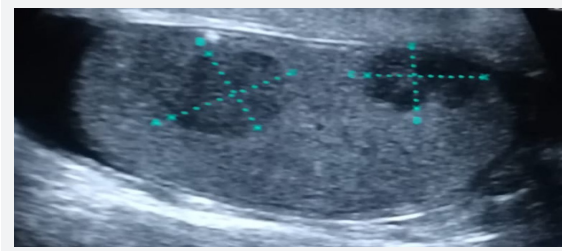

Fig. 5. USG image of left testicular lesions.

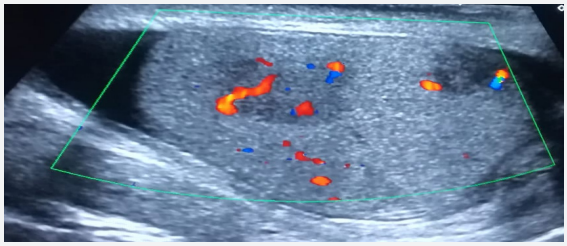

Fig. 6. Doppler USG image of the lesions in the left testis.

The lesions in the testis were concluded to be viewed as metastasis, because the primary disease was widespreadly metastatic, and the lesions in the testis had similar MRI signal characteristics and the lesions were bilateral.

Bilateral inguinal orchiectomy was not performed because it would not cause change of the treatment protocol. The current treatment of the patient was continued without making any changes.

We believe that concerning the patients with prostate cancer, who have active complaints or unusual mass in the testicle, evaluation with scrotal ultrasonography at the time of diagnosis or follow-up may be beneficial. If further investigation investigation is needed, testicular biopsy or orchiectomy could be chosen to be performed.

3. Discussion

Although prostate cancer is a common malignancy in mele popullation and has frequent metastasis, the metastasis of the testis is uncommon because of its blood-testicular barrier. Testicular metastasis of prostate cancer is rarely seen as bilateral metastasis (Richie and Steele, 2002; Manikandan et al., 2006). Frequently testicular metastasis of prostate cancer is a diagnosis found out in autopsies, since androgen blockade was not performed as often as it used to be (Grigron et al., 1896). The most common tumors metastasizing to the testis are lung, prostate, melanoma and gastrointestinal tract tumors. A study in 2000, involving 200 cases of testicular tumors, had found only 14% of the patients had metastatic tumors. In another study, the primary focus of metastases were determined as prostate in 57.1%, seminal vesicles in 7.1%, lung in 13.6% and gastrointestinal system in 14.2% (Menon et al., 2010). A seperate study examining 4012 autopsy data, showed that within all metastatic cases only 0.1% were observed in testis. In the same study, prostate was found as the primary source in 36% of the metastases in the testes (Patel et al., 1989). The metastatic spread of prostate cancer is mainly mediated by lymphovascular route (Dutt et al., 2000). The most common metastasis target of the prostate carcinoma is regional lymph nodes and the second most common being the bones. In a study of 4012 autopsy data, only 4 of 193 prostate cancer cases were found to metastasize to the testis (Patel et al., 1989).

Although testicular metastasis of prostate cancer is an uncommon clinic, it presents offen with a relatively common complaint, a non-palpable mass in the testis (Lyngdrof and Nielsen, 1987) which is also the case in our patient.

The average life expectancy of patients with prostate cancer is approximately 6-18 months, due to poor prognosis. Usually testicular metastasis occurs during the course of pre-existing cancer. Metastasis to testes may be the first finding of an undiagnosed cancer; may also be a finding of relapse after partial remissions of prostate cancer. The reason why advanced-stage prostate cancer metastasizes to an atypical location such as testicles despite being given treatment, as in our patient who had received 2 and half years hormonal therapy which was followed by 1 year of uncooperation to therapy, could be explained by the probability of the presence of resistant tumor cells which rather metastasize to atypical locations. It should be kept in mind that bone metastasis and peripheral organ metastasis as well as testicular metastasis may be rare in patients diagnosed as advanced-stage prostate cancer at the time of diagnosis.

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