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# Case report of metastatic prostate cancer to testicles: An ominous sign of advanced disease

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ABSTRACT

Prostate cancer is the most common cancer in men in the United States and the second leading cause of mortality in this population. Those diagnosed may undergo a variety of treatments ranging from radiation to chemotherapy to surgery. Although metastases commonly first appear in bone, it is important to consider rare locations of metastasis such as the testicles. We present the case of a 56 year old male who presented with diffusely worsening back pain along with scrotal swelling who was ultimately diagnosed with metastatic prostate cancer to the bilateral testicles.

## Introduction

In the United States, prostate cancer is the second leading cause of death among men. As men age, they are at an increased risk of developing prostate cancer. Patients with undiagnosed prostate cancer may present with symptoms such as increased urinary frequency and straining with urination. Metastases may be present, typically in the axial skeletal region.[1] To date, few patients have presented with metastases to the testicles. We present the case of an adult male with diagnosed prostate cancer who presented with worsening symptoms and subsequently diagnosed bilateral testicular metastases.

## Case presentation

A 56-year-old male patient presented to urology as a hospital consult from the emergency department. He complained of diffusely worsening pain back unresponsive to oral pain medication. Patient was a poor historian with history of non-compliance. He had been diagnosed with prostate cancer with metastases to the bone approximately 5 years ago at an outside location in another state. Serum prostate specific antigen at initial diagnosis and Gleason scoring are unknown. He had received radiation for the metastases alongside courses of bicalutamide and abiraterone over a year prior to encounter. Lately, he described that his pain has worsened and that he had been experiencing fatigue, episodes of confusion, and swelling of his testes over the past 2 weeks. He stated that there were no relieving or exacerbating factors for his presenting symptoms and that the pain is constant. The patient had no past surgical history. Medications include leuprolide, oxycodone, and oral morphine. The patient admitted to smoking in the past and that he drinks alcohol. He denied any social drug use.

On physical exam, the patient appeared very uncomfortable and was markedly cachectic. He exhibited significant tenderness at the level of the lower lumbar spine, paraspinal muscles, and sacroiliac joints bilaterally. Significant left testicular swelling and pain was noted as well.

X-ray of the pelvis showed no pelvic fractures. However, an ill-defined 1 cm sclerotic focus within the left femoral head was noted as a possible representation of metastatic disease. X-ray of the lumbar spine showed no acute compression fracture, mild multilevel degenerative disc disease, and no gross blastic osseous metastasis.

A testicular ultrasound was performed, which revealed bilateral heterogeneous testicles containing calcifications and multiple masses (Fig. 1 and Fig. 2). A primary neoplasm of the testicles was suspected. In addition, a hydrocele was noted on the left. Color Doppler flow was present in both testicles. PSA was noted to be markedly elevated at 335.10 ng/mL.

CT and bone scan were performed which showed extensive metastatic disease throughout the axial and appendicular skeleton along with multiple calvarial lesions. A hyperdense lesion was partially visualized within the left scrotum, likely correlating to the testicular mass with heterogeneous nodular enhancement along the left spermatic cord.

The patient was admitted from the emergency department. Based on the results of CT and bone scans, it was recommended that the patient undergo bilateral orchiectomy, continue leuprolide, and receive

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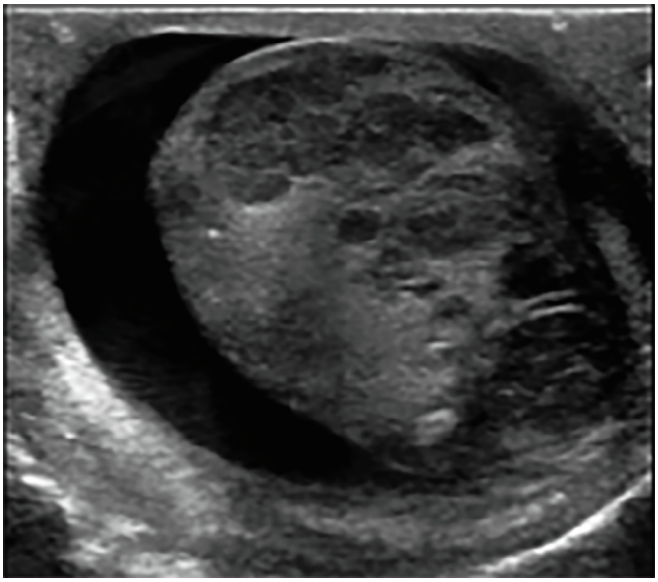

**Fig. 1.** Ultrasound of the left testis, transverse view.

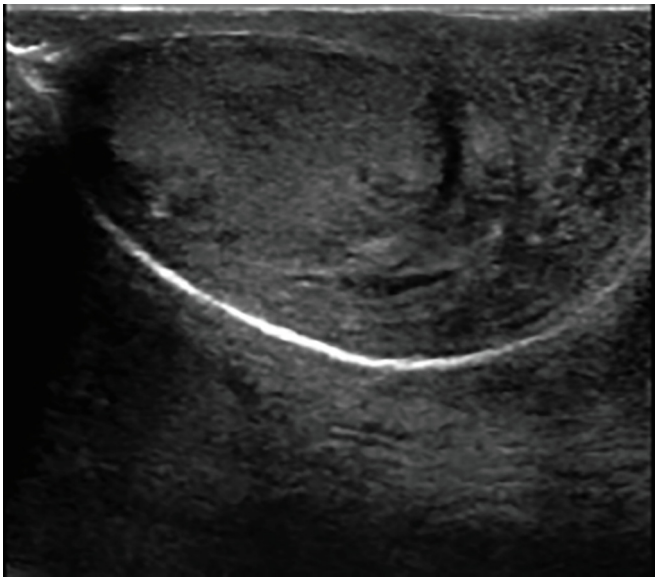

**Fig. 2.** Ultrasound of the right testis, transverse view.

palliative radiation therapy. The following morning, the patient underwent a bilateral orchiectomy without complications. Postoperatively, the patient had palliative radiation therapy with no complication and denied any difficulty voiding, hematuria, or dysuria. Oral bicalutamide was resumed.

Pathology following orchiectomy showed bilateral testicular involvement of metastatic high-grade prostatic adenocarcinoma, with greater involvement in the left testicle (Fig. 3). Per the pathologist's comments, the immunophenotypic features were that of a metastatic high-grade prostatic adenocarcinoma, thus excluding a primary testicular neoplasm.

The patient was discharged and instructed to follow up with his primary care physician and return to the emergency department if his symptoms worsened. Ultimately, the patient passed due to the advanced stage of the underlying cancer.

## Discussion

Prostate cancer typically presents with metastases to the bone, distant lymph nodes, liver, and thorax.[1] Patients with metastases to the testis typically present with a lump in the testis in the presence of an underlying known primary malignancy.[2] The reported incidence of secondary neoplasms of the testis is rare, ranging from 0.02 to 2.5%.[3]

In patients with secondary neoplasms of the testes, the most common primary site of these metastases is the prostate at approximately 15%.[3] Other common primary sites of testicular metastases include lung, skin, colon, and kidney.[3] Metastatic lesions due to prostate cancer are usually found elsewhere in the body, especially in the bone. This may seem unusual, given the proximity of the prostate gland to the testicles.

Most of the patients who develop secondary metastases to the testis are in their sixth or seventh decades of life. This is in stark contrast to primary testicular germ cell neoplasms, which typically present in younger men.[1] Therefore, masses seen on ultrasound at older ages in patients with primary cancers should raise concern for possible metastases.

Prostate cancer may spread to the testis due to retrograde venous extension, embolism, arterial embolism, lymphatics, or endocanalicular spread.[3] In a 2008 review of 26 cases of testicular metastases, the prostate was the primary site in 11/26 cases. Out of these 11 patients, 7 developed clinically apparent masses. Our patient developed significant swelling that was clinically apparent, thus necessitating the use of ultrasound.[4]

Typically, once testicular metastases are diagnosed, prognosis is not favorable. This is usually a sign of advanced disease. The long-term outcome of bilateral orchiectomy in these patients is not known and further research is needed.

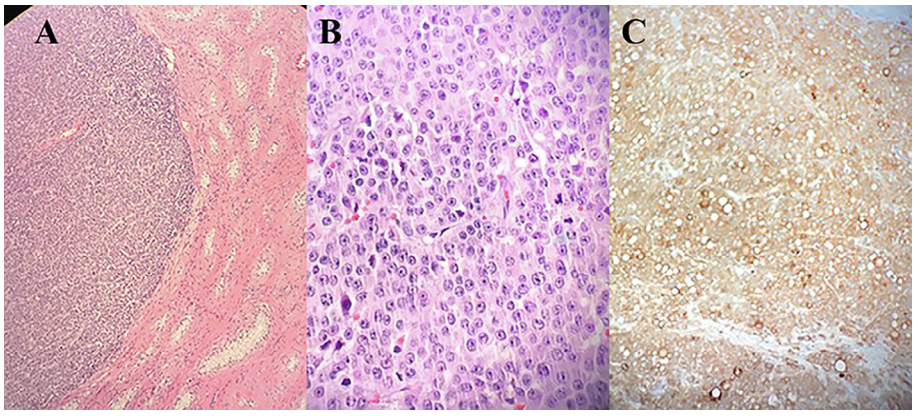


**Fig. 3.** A. Right half showing normal testis vs. left half showing tumor B. High power view of tumor. Mitotic figures are visible C. PSA immunostain positive.

## Conclusion

Testicular metastases secondary to diagnosed prostate cancer are very rare. It is important to monitor patients with prostate cancer for painless lumps or swelling of the testis. The mechanism of spread from the prostate to the testis is questionable and may vary. Patients typically present with these metastases later in life and may have unfavorable prognosis. Our patient was treated via bilateral orchiectomy and discharged home following pain control. Ultimately, the patient passed due to his advanced metastatic disease. This case demonstrates that prostate cancer may metastasize to rare locations such as the testes, requiring further surgical intervention.

## Abbreviations

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