Case - Non-metastatic castration-resistant prostate cancer in a transgender woman

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INTRODUCTION

Prostate cancer remains one of the most prevalent cancers in Canada.[1] While traditionally associated with cisgender males, there remains a demographic often overlooked in medical research and clinical practice, in which the risk of prostate cancer remains — transgender women. As individuals born male but identifying as female, trans women may undergo hormone therapy and/or surgical procedures as part of their gender affirmation, which can significantly impact their risk profile and presentation of prostate cancer.[2]

The interplay between gender identity, hormone therapy, surgical intervention, and prostate cancer risk underscores the complexity of this issue. Testosterone, the main hormone implicated in prostate cancer development, is often suppressed in trans women directly through surgical orchiectomy, in addition to anti-androgen hormone therapy or estrogen supplementation.[3] While this hormonal manipulation logically reduces the risk of prostate cancer, it may not completely eliminate it. The long-term effects of exogenous estrogen on prostate cancer incidence, aggressiveness, and outcomes are poorly studied, necessitating thoughtfulness to the screening, diagnosis, and treatment of this disease in trans women. Furthermore, women undergoing pelvic gender-affirming surgery have resultant altered anatomy, in combination with the prostate itself remaining, yielding treatment difficulties if prostate cancer should be detected.

This case report highlights one such woman.

CASE REPORT

Our patient is a 70-year-old trans woman who was referred by primary care to urology for prostate cancer evaluation. This was done in the context of repeatedly elevated prostate-specific antigen (PSA) (Table 1). This patient had gender-affirming bottom surgery in 1982, including bilateral orchiectomy, with no operative report available. She additionally had been on concurrent hormonal treatment of estrogen and progesterone for over 40 years. She had a positive family history of prostate cancer in her father. An intentional dialogue was initiated with the patient surrounding language and terminology. It was decided that rather than "prostate cancer," the term "perivesicular cancer" or "pelvic cancer" would be used in all documentation and discussions with her and her partner, who was unaware of her being trans.

At the time of presentation, her PSA was noted to be 89 ng/mL, with repeat of 87 ng/mL by her primary care physician. Given the concern for prostate cancer, a transrectal biopsy was arranged, which demonstrated grade group 5 prostate cancer in all 12 cores. A bone scan failed to show any evidence of diffuse bone pathology, and computed tomography (CT) of the abdomen and pelvis similarly could not demonstrate any evidence of metastatic disease. Repeated PSA at six months was 93 ng/mL. Given the above clinical workup, and 40+ year history of hormonal therapy, her working diagnosis/status was non-metastatic castration-resistant prostate cancer. While theoretically an option, prostatectomy was ultimately not offered owing to the fact of her altered anatomy and previously operated on pelvic tissue (Figure 1).

Resultant to her grade group 5 disease, paired with a lack of evidence showing metastatic disease, her case was discussed at multidisciplinary rounds with radiation oncology and medical oncology. Per medical oncology, she did not qualify for androgen receptor axis-targeted therapy (ARAT) given her PSA doubling time >10 months and non-metastatic status. Radiation oncology additionally did not offer treatment for the same reasons prostatectomy were not — altered anatomy and prior surgery of the pelvis, with poor tissue delineation.

Given the lack of available treatment options in the context of non-metastatic disease, a prostate-specific membrane antigen-positron emission tomography (PSMA-PET) scan was performed, and again, lacked

Table 1. Serial PSA measures	
Date	PSA (ng/mL)
November 2022	89.8
December 2022	87.2
June 2023	93.3
March 2024	147
September 2024	323
October 2024	322
December 2024	25.9
April 2025	0.8

PSA: prostate-specific antigen.

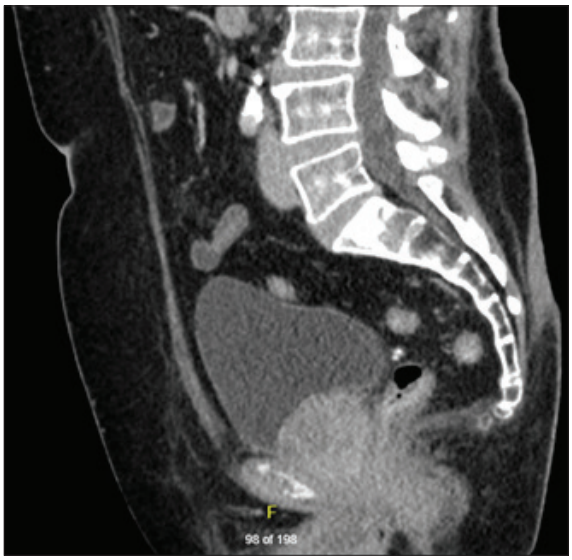

Figure 1. Sagittal pelvic computed tomography.

evidence of metastatic disease. Referral was then made internally within the same institution for consideration of focal therapy (cryotherapy). A pelvic magnetic resonance imaging (MRI) was performed in anticipation of possible treatment planning; a 4.6 cm Prostate Imaging-Reporting & Data System (PI-RADS) 5 lesion and a gross extracapsular extension likely invading the bladder wall, rectal wall, right seminal vesicle, and prostatic urethra, were reported. Given the locally advanced nature found on MRI, cryotherapy was not offered, and repeat PSA was planned to reassess doubling time.

Approximately nine months from previous testing (93 ng/mL), PSA was found to have risen to 147 ng/mL; however, doubling time had not reached the level of ARAT qualification. Repeat bone scan once again did not reveal any metastatic disease, and so further observation was decided. The subsequent PSA of 323 ng/mL six months later did, however, qualify her for ARAT initiation,[4] with darolutamide started thereafter. She responded quite well from an objective perspective, with PSA reaching 0.8 ng/mL, and remaining asymptomatic with no side effects. She currently remains on darolutamide with ongoing surveillance.

DISCUSSION

Prostate cancer care is a dynamic field of urology. A research boom within the last 20 years has led to thousands upon thousands of men enrolled in randomized controlled trials, yielding novel drugs and algorithmic approaches to the most common solid organ malignancy in Canadian men.[5,6] While there have been a few unique case reports and reviews examining prostate cancer in women, no guidelines or consensus statements exist.[7]

The trans community in Canada is estimated at 100 000 individuals; this is a large population that may be met with any number of challenges to healthcare delivery.[8] From a urologic perspective, the paucity of data and lack of overall expertise are areas to be further explored. With this case, we aimed to illustrate our approach to trans female care, both from a clinical perspective and for maintaining the CanMEDs framework of patient-centered care.

As trust is a pillar of any therapeutic relationship, we began by using patient-driven language, such as "pelvic cancer/perivesicular cancer," and ensuring proper pronouns were consistently verbalized, as well as documented in her chart. The additional complexity of her partner not knowing her to be trans underscored the social complexities of this case; we continued to return to a patient-centered approach in all interactions.

Further, a thorough history to ascertain hormone and surgical status was paramount in establishing treatment options. As an example, her castrate status, because of previous orchiectomy, eliminated the typical option of ADT that most men receive. Additionally, her previous bottom surgery precluded radiation and surgical treatment. Throughout this patient's care, we also sought multidisciplinary involvement; given the unique nature of this woman's presentation, decision-making was reliant on consensus among urologists, oncologists, pharmacists, etc. Ultimately, once eligible, she was initiated on ARAT therapy with success and continues to do well.

CONCLUSIONS

This is a unique case of non-metastatic castration-resistant prostate cancer in a transgender woman. Given our patient's previous bottom surgery, we ultimately surveilled her until she was eligible for ARAT initiation, with resultant excellent response. While developing patient-centered care through trust-building and appropriate language selection, we also recognized the importance of evidence-based treatment options using a multidisciplinary consensus approach.

COMPETING INTERESTS: The authors do not report any competing personal or financial interests related to this work.

This paper has been peer-reviewed.

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