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## Case Report

# Prostate cancer in a 16-year old — Is there a new shift?

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### ABSTRACT

Prostrate cancer is predominantly known to be a cancer affecting elderly men with a median age of presentation being 68 years. So, most current guidelines suggest screening for prostrate cancer in men over 50 years. But, with changes in the environment and due to genetic factors prostrate cancer is nowadays being reported even in young men. However, patients with early onset prostrate cancer pose unique challenge as the clinical guidelines and prognosis of it in them is not well-defined. Here in we report a case of a 16-year-old boy who presented to us with lower urinary tract symptoms and was diagnosed to have advanced stage prostrate cancer.

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## 1. Introduction

Prostate cancer is most common malignancy in men, with presentation mostly in elderly males.<sup>1</sup> but today over 10% of new diagnoses occur in U.S. men  $\leq 55$  years. Early onset prostate cancer, i.e., diagnosed at  $\leq 55$  years, differs from prostate cancer in older men in several ways. Among men diagnosed with high grade and stage prostate cancer those with early onset prostate cancer are more likely to die of their cancer with higher cause-specific mortality than all others except those diagnosed over age 80. This suggests that important biological differences may exist in early onset disease compared to late onset disease.<sup>2</sup> In younger age group it is generally undifferentiated and is associated with poor prognosis.<sup>1</sup> We here in report case of prostrate cancer in a 16-year old young boy, one of the rarest case reported so far thus breaking the common notion that prostrate cancer is a disease of older men and it should be kept as a differential when treating young males with lower urinary tract symptoms.

## 2. Case Report

A 16-year-old boy presented to our out patient department with complains of lower abdominal pain, weak urine stream, nocturia, urinary hesitancy and urgency since past 2 months along with low back ache. He had no complaints of blood in urine or semen and denied of fever or any other constitutional symptoms. He did not report of burning micturition, change in bowel habits, erectile dysfunction or painful erection. The patient had no other co-morbidities and did not have a history of urinary tract infection, nephrolithiasis, any neurological deficit or malignancy in the past general and systemic examination was unremarkable, however digital rectal examination revealed a hard non tender multinodular prostrate with irregular surface. His laboratory investigations revealed a normal blood count, urine analysis, urine culture and serum electrolytes were normal. Renal function tests revealed a serum creatinine value of 2.68 mg/dl and serum urea value of 101 mg/dl. Prostate specific antigen level was 2.154 ng/ml.

A pelvic sonography was done which demonstrated a grossly enlarged prostate with multiple right iliac lymph

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nodes and bilateral moderate hydronephrosis for which patient underwent bilateral per cutaneous nephrostomy (PCN) following which the serum creatinine levels returned to the normal range. Contrast enhanced computed tomography (CECT) of the abdomen and pelvis was done later which revealed grossly enlarged prostate with loss of fat planes with rectum, bilateral seminal vesicles and bladder along with multiple enlarged lymph nodes in the common iliac, external iliac and internal iliac regions. Rest of the abdominopelvic viscera was normal. A transrectal ultrasound guided prostatic biopsy was taken which revealed adenocarcinoma of prostate with a gleason's score of 4+5 =9. Whole body PSMA PET — CT scan was done which revealed an enlarged prostate gland with significant prostate specific membrane antigen (PSMA) expression both in prostate and in multiple retro peritoneal and pelvic lymph nodes. There was no significant expression in any of other organs. Our patient was then planned for radiation treatment, and he received radiation treatment to the local site and nodal regions for a total dose of 30 gray in 10 fractions with three gray per fraction by external beam radiation therapy (EBRT) following which his obstructive symptoms got relieved and the patient was symptomatically better. Bilateral PCN removal was done, and then he was started on hormonal treatment. At present our patient is on hormonal treatment with no clinical or biochemical relapse of disease till date.

### 3. Discussion

Prostate adenocarcinoma is a condition that mostly affects older men. Males younger than 50 years account for approximately 1% of all patients diagnosed.<sup>3</sup> In a study by Huang et al.<sup>3</sup> patients younger than 50 years accounted for 0.55% of all patients with prostate cancer, which was less than described in the previous reports. It has been estimated that approximately 43% of early onset disease (in those younger than 55 years) is of the inherited form.<sup>4</sup> PSA level is usually lower in them due to the poorly differentiated histopathological nature. So in poorly differentiated carcinoma, PSA level is not indicative of prostate cancer.<sup>1</sup> Existing reports provide conflicting views regarding the clinical characteristics of prostate cancer in young men. Tjaden et al.<sup>5</sup> reported with their experience in 56 patients that patients younger than 50 years have a very poor clinical outcome. Johnson et al. observed the same biologic aggressiveness of prostate cancer in 26 patients who were younger than 50 years.<sup>6</sup> Early onset prostate cancer is considered a different clinical entity from late onset prostate cancer which is diagnosed at an older age. A number of large population based studies have demonstrated poor survival among patients < 50 years of age with advanced prostate cancer or unknown stage disease as compared to older patients.<sup>7</sup>

To the best of our knowledge, the literature on prostate cancer contains < 30 reported cases of prostate cancer among men ≤ 40 years of age, with an incidence of 0.8–1.1 %.<sup>8</sup> Patients diagnosed with high grade tumors (Gleason score of 8–10) at ages 35–44 have higher chance of succumbing to prostate cancer as compared to patients aged 65–74 years whereas Benson et al. reported their experience with 14 patients aged 45 years or younger with prostate cancer, that similar outcomes are seen both in the younger and older population.<sup>9</sup> A strong genetic component has been associated with early onset prostate cancer.<sup>1</sup> Lange et al.<sup>10</sup> in their study reported that men with early onset prostate cancer are more likely to have a greater number of genetic variants putting them at an increased risk of prostate cancer, as compared to older patients. Eventhough a majority of patients with early onset prostate cancer are diagnosed with moderately differentiated disease, the management of patients with early onset prostate cancer is a unique clinical challenge.<sup>1</sup>

Cases with organ limited prostate cancer may benefit from prostatectomy which is not the same with locally advanced or metastatic prostate cancer. Patients who are diagnosed with prostate cancer with associated lymph node involvement are broadly categorized into 2 groups: patients with detectable lymph nodes on imaging (dN+) and those with no detectable lymph node involvement on imaging but who have node positive disease at time of surgery (pN+).<sup>1</sup> According to the 2022 National Comprehensive Cancer Network guidelines, patients with dN+ disease should be managed with Androgen Deprivation Therapy (ADT) or RT-ADT (preferred).

### 4. Conclusion

With the current increased emphasis on PSA screening, a large number of young men with prostate cancer is being detected. Given, the longer life expectancy at present, prompt treatment initiation rather than a wait and watch should be initiated. Hence, we report this case, which is to the best of our knowledge one of the youngest case of prostate cancer reported so far in India and the world.

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### 6. Conflict of Interest

The author declares that there is no conflict of interest.

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