

Review Article

Prostate cancer in Amazon native Indian: a case report

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ABSTRACT

Background: Prostate cancer is highly prevalent worldwide and its incidence shows marked disparities between different countries and races. Age, race/ethnicity, and family history are the strongest known risk factors for this neoplasm. The aim of the present report is to describe the clinical and prostatic characteristics in Amazon Indian men, belonging to the Yanomami ethnic group, which is one of the few indigenous groups in which incidence and prevalence rates of prostate cancer are the lowest in the world.

Case presentation: A 47-year-old native Indian male of the Yanomami ethnic presented with obstructive voiding symptoms including intermittency, hesitancy and sensation of incomplete bladder emptying. He was not on medication and was otherwise in good health. Physical examination revealed normal genitalia; no hernias. Digital rectal exam showed 25 g prostate without nodularity. Urinalysis revealed parameters within clinically normal ranges.

Conclusion: Though the incidence and prevalence of prostate cancer is the lowest among native American Indians, the novelty of the presented case lies less in the case being an incidence of prostate cancer, than in the case being diagnosed with the disease. It might be difficult for these indigenous people, leaving in a knit community with strong cultural beliefs, to travel to a diagnostic centre far away from the village, in a strange and perceivably intimidating environment. Nonetheless, the case definitely emphasizes that the cases of prostate cancer might be under-reported in these areas, due to socio-economic and geographical difficulties, and difficulty in accessing healthcare facilities, making diagnosis – and not incidence – rare.

Key-words: Prostate cancer, Indians, Epidemiology, South American.

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Introduction

Prostate cancer is the second most common malignancy affecting men worldwide, and is the fifth cause of death by malignant tumors in the male population¹. Compared with other major cancer sites such as colon/rectum and lung, prostate cancer incidence shows important racial/ethnic variations². In Brazil, a multi-ethnic country, prostate cancer is among the leading neoplasms in men, with about 60,000 cases in 2012³. Although marked differences in its incidence have been reported between country regions, racial disparities in prostate cancer profile, incidence, and mortality have been insufficiently investigated in the Brazilian population or among the indigenous groups in Brazil³.

Variations in the prostate cancer frequency among Caucasians, Alaska Natives, and Indians are well-documented in the United States⁴. However, data on prostate cancer incidence and the prevalence of associated risk factors are scarce for the Brazilian Indian population, as only a few studies have assessed the clinical and anthropometric characteristics of this population.

In this paper, we report a case of prostate cancer in a native Indian (of the Yanomami ethnic), who came from the Amazon forest complaining of lower urinary tract symptoms.

Case presentation

L.Y, a 47-year-old native Indian male of the Yanomami ethnic, was presented to the urology clinic for evaluation of obstructive voiding symptoms including intermittency, hesitancy and sensation of incomplete bladder emptying. He was not on medication and was otherwise in good health. Physical examination revealed normal genitalia; no hernias. Digital rectal exam showed 25 g prostate without nodularity or induration. Urinalysis revealed parameters within clinically normal ranges. Prostate specific antigen (PSA) was 21.6 ng/ml. Transrectal ultrasound-guided biopsy of the prostate was performed. Gleason score was 3 + 3 in all biopsy cores from both sides. Management options for localized prostate cancer were offered to the patient, but he refused treatments because of their cultural beliefs. The patient returned to his region of origin without treatment and follow-up loss.

Discussion

Marked differences in racial/ethnic temporal trends for prostate cancer have been observed in studies conducted worldwide⁴, many of them exploring comparisons with American Indians, but data on the prevalence and risk factors for this neoplasm are currently scarce for the native Brazilian Indian population. With approximately 230 different ethnic groups, 37.4% of the Indian communities are located in the north region of Brazil.

The Yanomami are South American Indians living in Southern Venezuela, in a distant forest of the Orinoco river basin, and in northern Brazil, in the northernmost regions of the Amazon River basin.

The total Yanomami population is expected to be about 32,000 individuals. They grow tobacco and cotton, and live in temporary villages⁵.

Prostate cancer is diagnosed most commonly between the age of about 65 and 74 years, with a median age of 66 years at diagnosis and 80 years at death due to disease. SEER estimates that there must have been 238,590 new cases of prostate cancer in the year 2013, amounting to about 14.4% of all new cancer cases, and 29,720 deaths amounting to about 5.1% of new cancer cases, in the US. The prevalence of prostate cancer in men in the year 2010 in US was about 2,617,682. SEER estimates that about 15.3% of men in the US have a lifetime risk of prostate cancer. The incidence and prevalence varies widely with race/ethnicity. While the age-adjusted number of new cases per 100,000 males is estimated to be the highest (about 228.5) among black men, it is the lowest among American Indians/Alaska natives (about 77.8). There is an optimistic trend observed though, with the incidence rate and death rate falling on average 2% and 3.3%, respectively, each year since about the past 10 years⁶.

However, such data among indigenous people is scarce. In a survey in the late 1950s, no cancer case was found among the indigenous groups of the Amazon river region in Brazil⁷. Contrastingly, prostate cancer was once identified as the most commonly diagnosed neoplasm and the leading cause of cancer death among native American Indian men⁸.

The most apparent risk factors for prostate cancer are thus, age and ethnicity. Other factors include family history and genetic susceptibility, diet, and hormonal factors. Studies have earlier attributed diet, especially saturated fat and red meat, and high body mass index (BMI), with a higher risk of prostate cancer, whereas, consumption of lycopene- or selenium-containing products with a decreased risk⁴.

Many of these risk factors may contribute to race-related disparities in prostate cancer risk, including difference in diet, exposure, and disease detection⁹. The role of diet, physical activity, BMI and migration patterns in the development of prostate cancer has been the focus of many studies trying to explain the disparities found between countries and ethnic groups.

Environmental and lifestyle factors, especially changes in diet, nutritional habits and patterns, are pointed out as the most probable contributors for disparities in the risk of prostate cancer among different regions in Brazil and worldwide. In this regard, changes in lifestyle and nutritional habits are believed to have an important impact as an increase of three to seven times in the incidence of prostate cancer has been reported in the first generation of Japanese- and Chinese-Americans whose parents migrated to the US¹⁰. Studies suggest that prostate cancer rates shifts towards the rates found in the host country⁹.

Treatment options of prostate cancer include watchful waiting or active surveillance, surgery, radiation therapy, hormonal therapy, chemotherapy, biologic therapy, bisphosphonate therapy, or targeted therapy. Surgery is limited to only those patients who are in good health. The options for surgery include radical prostatectomy (retropubic or perineal), pelvic lymphadenectomy, and transurethral resection of the prostate (TURP). Though some surgery options offer nerve-sparing treatment, which retains erection capacity, impotence and shortening of the penis are problems, which can be encountered after surgery. In the presented case, these factors might have been responsible for the patient declining treatment.

Though the incidence and prevalence of prostate cancer is the lowest among native American Indians, the novelty of the presented case lies less in the case being an incidence of prostate cancer, than in the case being diagnosed with the disease. For indigenous people – with strong cultural beliefs and a closely-knit community – it might be difficult to expend money to travel to a diagnostic centre far away from the village, in a strange and perceivably intimidating environment. Nonetheless, the case definitely emphasizes the fact that the cases of prostate cancer might be under-reported in these areas, due to socio-economic and geographical difficulties, which indigenous people face in accessing healthcare facilities, making diagnosis – and not incidence – rare. The fact that the patient in the presented case refused treatment due to his cultural beliefs only stresses the scenario where digital rectal examination and prostate-specific antigen screening is the established norm for screening and diagnosis.

Our observation does not contradict the findings of SEER¹¹), which report racial differences in treatment patterns, with black men more likely than white men to receive radical prostatectomy for clinically localized prostate cancer, while preferring radiation therapy.

Conclusions

This case underscores the public health implications, warranting the need for early diagnosis programs, and treatment options adapted and customized to the conditions prevalent in the lifestyle of indigenous people. The need for adequate screening procedures cannot be over-stressed.

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References

- 1 Hsing AW, Tsao L, Devesa SS. International trends and patterns of prostate cancer incidence and mortality. *Int J Cancer*. 2000; 85: 60-67.
- 2 Crawford ED. Understanding the epidemiology, natural history, and key pathways involved in prostate cancer. *Urology*. 2009; 73: S4-S10.
- 3 Facina, T. Estimativa 2012 – Incidência de Câncer no Brasil. *Revista Brasileira de Cancerologia*. 2011; 57: 557.
- 4 Crawford ED. Epidemiology of prostate cancer. *Urology*. 2003; 62: 3-12.
- 5 Encyclopædia Britannica Inc. Yanomami
<http://www.britannica.com/EBchecked/topic/651918/Yanomami>
- 6 Cancer of the Prostate - SEER Stat Fact Sheets <http://seer.cancer.gov/statfacts/html/prost.html>
- 7 Sebastián MS, Hurtig AK. Cancer among indigenous people in the Amazon basin of Ecuador, 1985-2000. *Rev Panam Salud Pública*. 2004; 16: 328-333.
- 8 Gilliland FD, Key CR. Prostate cancer in American Indians, New Mexico, 1969-1994. *J Urol*. 1998; 159: 893-898.
- 9 Bostwick DG, Burke HB, Djakiew D, Euling S, Ho SM, Landolph J, Morrison H, Sonawane B, Shifflett T, Waters DJ, Timms B: Human prostate cancer risk factors. *Cancer* 2004; 101: 2371-2490.
- 10 Muir C, Nectoux J, Staszewski J: The epidemiology of prostatic cancer: geographical distribution and time-trends. *Acta Oncol* 1991; 30: 133-140.
- 11 Stanford JL, Stephenson RA, Coyle LM, et al. Prostate Cancer Trends 1973–1995, SEER Program, National Cancer Institute. NIH Pub. No. 99-4543. Bethesda, MD, 1999.