



## Modes of Presentation of Patients with Suspected Prostate Cancer Disease in Two Nigerian Semi-Urban Referral Health Facilities

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### Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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### ABSTRACT

**Background:** Prostate cancer is the most commonly diagnosed cancer in men and the second leading cause of cancer mortality after lung cancer worldwide. The incidence of this disease is high among men of African descent. The modes of presentation of patients with prostate cancer are varied. In this paper, we present an overview of the modes of clinical presentation of men with suspected prostate cancer and their relationship with the histological diagnosis of prostate cancer.

**Materials and Methods:** This was a prospective and hospital-based study. Patients who had a prostate biopsy done due to elevated serum prostate-specific antigen (PSA) levels, abnormal digital rectal examination (DRE) findings of the prostate gland, or a combination of both were included in this study. Their biodata, modes of presentation, and other clinical and histological information were recorded in a pro forma. Data analysis was done using the statistical programming for social sciences (SPSS) version 21. For all statistical tests,  $P < 0.05$  was regarded as significant.

**Results:** One hundred and thirty-two patients were recruited into this study. The mean age of the patients was  $69.75 \pm 9.15$  years. Most participants (75%) were in their seventh and eighth decades of life. The mean serum PSA level was  $35.01 \pm 8.52$  ng/ml (range: 6 to 164 ng/ml), while the mean prostate volume was  $101.4 \pm 91.4$  ml (range: 10–635 ml).

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Lower urinary tract symptoms (LUTS) were the most common mode of presentation accounting for 97.7% (n=129) of the cases studied. This was followed by haematuria (34.1%, n=45), low back pain (25.8%, n=34), weight loss (22.7%, n=30), and paraplegia/paraparesis (7.6%, n=10). Bone pains and paraparesis/paraplegia significantly correlated with the diagnosis of adenocarcinoma of the prostate.

**Conclusion:** The majority of men with suspected prostate cancer were found to be symptomatic at presentation. The modes of presentation were varied with LUTS being the most common. Low back pain and paraparesis/paraplegia were positive predictors of prostate cancer disease.

*Keywords: Prostate cancer; modes of presentation; health facility; prostate-specific antigen.*

## 1. INTRODUCTION

Prostate cancer is one of the most rampant cancers in men worldwide, with over one and a half million new cases annually [1]. Black men are more likely to be diagnosed at an earlier age, have advanced disease at that time of diagnosis, with the incidence generally rising with age [2,3]. They also have a greater risk of advanced and metastatic disease at presentation [4]. Whereas Asian countries have a low prevalence of prostate cancer, high incidence rates have been reported among Africans [5,6]. Also, within the African continent, there have been reports of varying incidences of prostate cancer [6,7].

Prostate cancer presents in various ways. While early prostate cancer may be asymptomatic and incidentally discovered, advanced or metastatic prostate cancer may present with lower urinary tract symptoms, weight loss, low back pain, paraparesis, or paraplegia [6,7,8]. In sub-Saharan Africa, late presentation is rampant with the majority of patients presenting with complications ranging from haematuria, urinary retention, to paraparesis and paraplegia. Various studies across Nigeria reported late presentation as the pattern of presentation with more than 60% of the prostate cancer patients having metastatic disease at the time of presentation [6,9,10].

This study, therefore, was aimed to assess the modes of presentation of patients with suspected prostate cancer in our health facilities, a tertiary health center that offers care for prostate cancer patients and to correlate the various modes of presentation with the histological diagnosis of prostate cancer.

## 2. MATERIALS AND METHODS

This is a prospective study carried out on 132 men who were investigated for prostate cancer on account of elevated serum PSA or abnormal DRE findings between June 2016 and May 2019

at Irrua Specialist Teaching Hospital and Central Hospital Auchi between October 2019 and April 2021, both within Edo State, Nigeria. Patients who fulfilled the selection criteria were recruited into the study. The purpose of the study was explained to each patient at the time of enrolment.

All patients underwent digitally-guided transrectal needle biopsy of the prostate (TNBP) on an out-patient basis using an 18G trucut biopsy needle mounted on an automatic spring-loaded gun. The biopsy needle was introduced into the rectum with the assistance of a gloved left index finger after adequate rectal lubrication with 2% lidocaine gel. Biopsy was performed in the day case theatre 2 hours after patients had taken 500mg of oral ciprofloxacin and 400mg of metronidazole (this was continued for three days after the procedure as per unit protocol). No form of bowel preparation was done, though patients were instructed to empty their bowel in the morning of the day of the biopsy. The prostate tissues were kept in 10% formaldehyde and sent for histological examination.

A structured pro forma was used to collect relevant patients' information including the demographic data, indication/indications for biopsy, preoperative serum PSA level, DRE findings, prostate volume, and histological results. The data obtained were analyzed using the Statistical Package for the Social Sciences (SPSS) for Windows program (version 21.0, SPSS Inc., Chicago, Illinois, USA.). Frequency distribution for the variables was presented in tables and bar charts. The level of significance of the variables was ascertained using Pearson's Chi-square test. For all statistical tests,  $P < 0.05$  was regarded as significant.

## 3. RESULTS

One hundred and thirty-two patients who had elevated serum PSA and/or abnormal DRE were included in this study. The mean age of the study

participants was 69.75±9.15 years while the age range was 51 to 100 years. Fig. 1 shows the percentage distribution of the various age groups of the study participants.

In all, 126 (95.5%) patients had elevated levels of serum prostate-specific antigen with a mean total PSA of 35.01±8.52ng/ml (range: 6 to 164ng/ml) while 82 (62.1%) had abnormal DRE findings. The means of the prostate volume and Gleason score were 81.83±35.09 (range: 25.5 – 175.6cm<sup>3</sup>) and 6.99±1.42 (range: 4 to10) respectively. About a third of the patients presented through the accident and emergency unit with either acute urinary retention or haematuria while 92 (69.7%) patients were seen at the urology outpatient clinic.

One hundred and twenty-nine (97.7%) patients presented with lower urinary tract symptoms

making it the most common mode of presentation in this study. This was followed by haematuria which was seen in about a third (34.1%) of the patients. The various modes of presentation of all the study participants are shown in Table 1.

Of these presenting symptoms, low back pain and paraparesis/paraplegia were found to be linked to a histological diagnosis of prostate cancer (Table 2).

Out of the 132 patients, 84 (63.3%) had a histological diagnosis of adenocarcinoma. A quarter of the patients with histological diagnosis of prostate cancer had a Gleason score of 8 and above. All patients diagnosed with adenocarcinoma of the prostate in this study had androgen deprivation therapy.

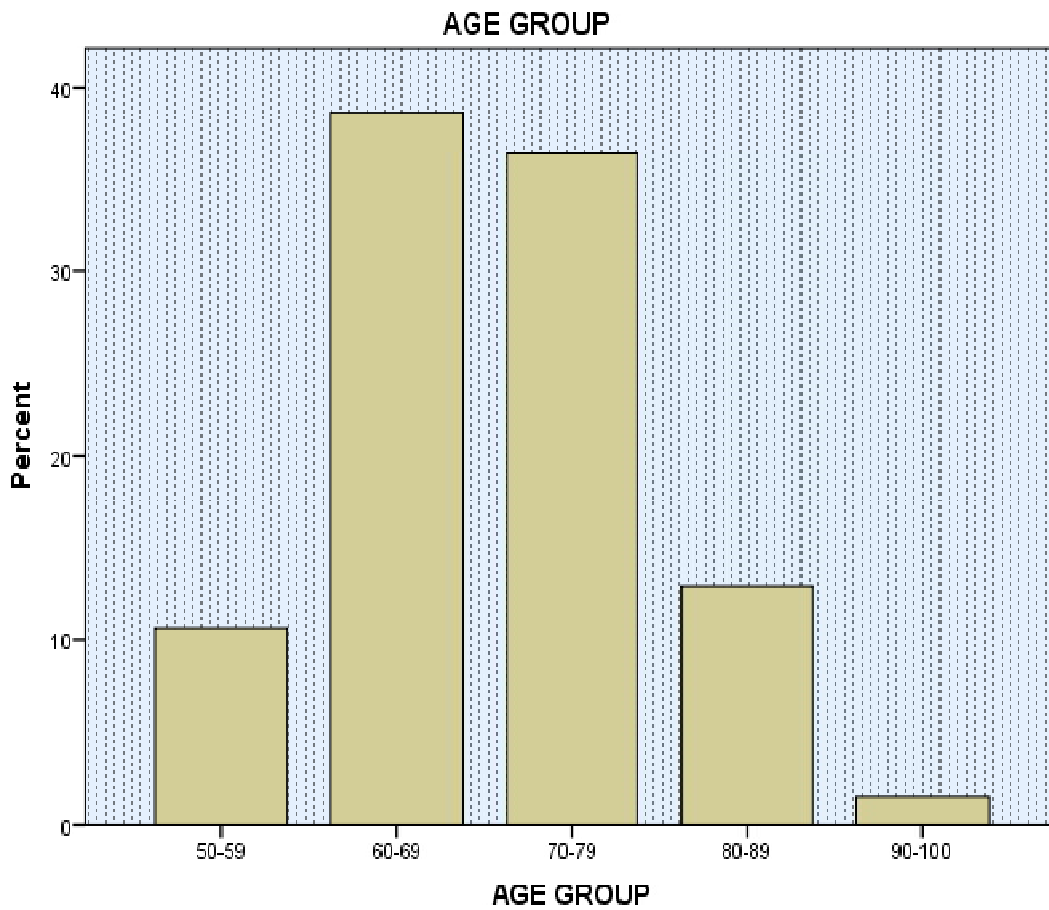


Fig. 1. Percentage distribution of the various age groups of the study participants

**Table 1. Mode of presentation of respondents with prostate cancer**

	Frequency (N)	Percentage (%)
<b>Lower urinary tract symptoms</b>		
Yes	129	97.7
No	3	2.3
<b>Low back pain</b>		
Yes	34	25.8
No	98	74.2
<b>Weight loss</b>		
Yes	30	22.7
No	102	77.3
<b>Haematuria</b>		
Yes	45	34.1
No	87	65.9
<b>Paraparesis/paraplegia</b>		
Yes	10	7.6
No	122	92.4

**Table 2. The relationship between modes of presentation and histological diagnosis**

Variable	Total number of patients	Histology malignant		X <sup>2</sup>
		Yes	No	
Lower urinary tract symptoms	129	84	45	0.140
Low back pains	34	28	4	0.001
Weight loss	30	24	6	0.197
Haematuria	43	31	12	0.539
Paraparesis/paraplegia	10	10	0	0.039

#### 4. DISCUSSION

Prostate cancer is a major health challenge with insufficient data in Africa [11]. The majority of prostate cancer is diagnosed because of their presentation with symptoms and is usually confirmed by histological examination of the prostatic tissues. A transrectal ultrasound-guided biopsy is the widely favoured means of obtaining prostate tissues. In the developed nations where more facilities are available, trans-perineal template biopsies including targeted biopsies are being undertaken pursuant to magnetic resonance imaging (MRI) scan of the prostate gland to improve upon the accuracy of diagnosis of adenocarcinoma of the prostate gland and to reduce cases of false negative prostate biopsies for adenocarcinoma of the prostate gland as well as prostate biopsy related infections[8]. Our study looked at the various modes of presentation of 132 patients with suspected prostate cancer and their correlation with the eventual histological diagnosis in our health facilities.

The modes of presentation of patients with suspected prostate cancer are varied ranging

from lower urinary tract symptoms, haematuria, weight loss, low back pain to paraparesis/paraplegia.

In this study, lower urinary tract symptoms were the most common mode of presentation accounting for 97.9% of the study participants. Most researchers both within and outside sub-Saharan Africa have reported similar findings [12,13]. Lower urinary tract symptoms in the elderly have been regarded as an indicator of possible prostate cancer by patients [14] and have been linked to prostate cancer by many clinicians [6,7,9,15]. To this end, screening for prostate cancer using a prostate-specific antigen test has been recommended by some authors [15,16]. In sub-Saharan Africa, where the majority of the patients present in the advanced stage of the disease with many having metastatic features, [6,7,16] screening for prostate cancer in all elderly men presenting with lower urinary tract symptoms will enhance early detection and prompt management of prostate cancer.

Haematuria resulting from benign prostatic hyperplasia or adenocarcinoma of the prostate is a common urological condition accounting for 8-

27% of all cases of gross haematuria [17]. The etiology may be due to the prostate pathology itself or as a side effect of the prostate disease treatments [12,17,18]. The management of haematuria with blood clots does entail catheterization with a 3-way urethral catheter and urinary bladder wash outs with a syringe as well as irrigation of the urinary bladder until the haematuria completely settles following which the urethral catheter is removed. In order to establish the primary source of the haematuria, contrast-enhanced computed tomography (CECT) scan tend to be undertaken for individuals who had good renal function to ascertain if the urinary bleeding is coming from a kidney lesion, a lesion within the renal pelvis, the ureter, the urinary bladder [8]. Flexible cystoscopy under local anaesthesia is also undertaken as part of the investigation of haematuria and during the procedure, the urethra as well as the urinary bladder are inspected to be sure no lesion is found in the lower urinary tract to account for the haematuria [8,17]. Routine haematology and biochemistry tests are undertaken on all individuals who present with visible haematuria and if the individual is found to be anaemic the anaemia would be treated including blood transfusion of individuals who have significant anaemia [17]. All patients with haematuria in this study had conservative management with satisfactory outcome.

Paraplegia and paraparesis are debilitating symptoms of metastatic prostate cancer disease. They often result from spinal cord compression. It is often a sign of delayed presentation as most patients with paraplegia and paraparesis usually have advance prostate cancer [6,7]. One possible explanation for this, is the poor health care delivery system including the lack of prostate cancer screening policy in our environment. Generally, it is recommended that men above 50 years should be screened with digital rectal examination and serum PSA estimation. Some scholars have, however, questioned the effect of early detection on the outcome of treatment particularly in sub-Saharan Africa with limited modalities of treatment available [7,17].

A significant number of patients with histological diagnosis of adenocarcinoma of the prostate in this study presented with advanced stage of the disease as about 25% of the participants had a Gleason score of eight and above. Delay in presentation with symptoms among patients with cancer is likely to contribute to late-stage

diagnosis and, by extension, poor survival. [19]. Reports from all regions emphasize late presentation as the pattern in Nigerian prostate cancer patients with the majority presenting with metastatic disease [20,21]. A recent report implicated financial barriers, lack of or poor health insurance, and/or poor health-seeking behaviour as being responsible for the delayed presentation [22]. This is further corroborated by the fact that in the developed economy with good health insurance coverage, presentation is usually at an early stage of the disease with most men being asymptomatic at the time of diagnosis [23].

Furthermore, we examined the relationship between the various modes of presentation and the diagnosis of prostate cancer. Low back pain and paraplegia/paraparesis were the only positive predictors of the histological diagnosis of prostate cancer. Most of these patients have a high Gleason score, an indicator of advanced disease and poor prognosis [12]. This finding is in agreement with the works of many scholars who reported advanced stage of prostate cancer at the time of presentation with attendant poor prognosis [6,7,9,10,11].

## 5. CONCLUSION

The majority of patients in our district and country which contains a large population of sub-Saharan Africa were symptomatic at presentation. The modes of presentation of patients with suspected prostate cancer in our study were varied with lower urinary tract symptoms being the most common. Low back pain and paraparesis/paraplegia were independent predictors of prostate cancer disease. In order to improve upon the outcome of prostate cancer in our district and in Nigeria, there is the need to establish steps to diagnose adenocarcinoma of the prostate gland at an early stage through educational programmes for early presentation and investigation of prostate cancer disease by the government, the West African College of Surgeons, and the Pan African Urological Surgeons Association.

## DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for

any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

### CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the author(s).

### ETHICAL APPROVAL

The ethical approval for this study was given by the Ethical and Research Committee of Irrua Specialist Teaching Hospital, Irrua, Edo State, Nigeria with approval number: ISTH/HREC/2016/MARCH/27.

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### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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