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Research Paper

An 8 year review of histopathologically confirmed prostate cancers in men attending a tertiary health centre in Aba south Eastern Nigeria.

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***ABSRACT**: Prostate cancer is the most common cancer among African-American men. It is rarely diagnosed before the age of 50 years. Recently, there has been an increased incidence attributed to increasing awareness of the disease and awareness of its screening techniques especially the estimation of serum PSA*
The objective of this study was to review the characteristics of prostate cancers established by biopsy and histopathology. This study was a retrospective study spanning 8 years from January 2015 to December 2023. About 202 cases where reviewed. The least age was 40 years while the eldest was 95 years the median age was 65years, while the mean age was 69.5 years.
All the cases were adenocarcinoma. The age range with the highest number of cases was 71-80 years. Out of the 202 cases, high grade cancers were 156 giving a percentage of 77.2%. The gleason scoring group with the highest incidence was 4+4= 8/10 with 52 cases (25.4%) followed by 5+4= 9/10 with 35 cases (17.3%)
Prostate cancer is the commonest male cancer and the commonest cause of cancer death in Aba. Most of the cases are high grade cancers.
***KEYWORDS:** prostate cancer, characteristics, adenocarcinoma and Aba*

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I. INTRODUCTION:

Prostate cancer is the most incident and prevalent non-cutaneous malignancy in the USA and the second most common cause of cancer death in the USA
However, men of African ancestry have higher incidence, morbidity and mortality.
In Nigeria, prostate cancer is the most common cancer among Nigerian men (ikueworo etal 2013) with increasing morbidity and mortality
In Nigeria, most of these cancers present at an advanced stage (mohammed and mohammed 2011)
Factors responsible for increased morbidity and mortality in men of African ancestry may include;

- Tumour specific bology
- Access to health care
- Presence of medical co-morbidities

The incidence of prostate cancer is expected to grow with increase in aging population.
The most commonly used tools of diagnosis include;

- PSA testing
- Digital rectal examination
- Ultrasound guided biopsy and histopathological gleason grading.

Of all these, only PSA is classified as a biomarker.

But PSA is limited in predicting prognosis and this limitation leads to either over treating with its side effects and under treating with grave consequences.

Ribonuclease 4 is up-regulated in prostate cancers and correlates with disease aggressiveness, can distinguish between healthy states, BPH and prostate cancers and can independently predict biopsy outcome.

A study by Nil vanli etal in 2022 found out that ribonuclease 4 acts as a biomarker as well as a therapeutic target. Its plasma level can be used to predict biopsy outcome, aggressiveness and prognosis. It stimulates prostate cell proliferation, induces tumor angiogenesis and activates receptor tyrosine kinase. Prostate cancer patients with the same gleason grade but showing completely different morbidities and course maybe due to

- Differences in host immunity
- Differences in the level of plasma RNASE 4 elaborated.

II. METHODOLOGY

The study was a retrospective review of all the histopathologically confirmed prostate cancers within a period of 8 years between January 2015 and December 2023. Their case files were withdrawn and essential information retrieved.

Their characteristics including; Age, clinical presentation, DRE findings, PSA levels indications for biopsy and histopathological results with gleason grading where obtained.

All the biopsies were transrectal, digitally guided with extended sextrant approach

INCLUSION CRITERIA

Patients above 40 years of age who had under gone prostate biopsy and had histopathologically confirmed prostate cancers.

III. RESULTS:

The study was a retrospective study covering the period of 8 years from January 2015 to December 2023. Two hundred and two (202) cases of histopathologically confirmed prostate cancer were evaluated. All the cases were adenocarcinoma.

About (n= 202) cases where reviewed. The least age was 40 years while the eldest was 95 years the median age was 65years, while the mean age was 69.5 years (variance =6.9) + or_ 3SD.

Table 1 shows the age group characteristics of the cases. The lowest incidence was found in the extremes of ages 40-50 age group and 91-100 age groups with 3 cases each. The age range with the highest incidence was 71-80 age group with 78 cases (38.6%) closely followed by age range 61-70 with 74 cases (36.7%). The age range between 61-80 years was the peak period for prostate cancer with a quick decline after 80 years.

Table 2 shows the indications for prostate biopsy. Elevated PSA with PSA level more than 10ng/ml had the highest indications of 90 cases (44.6%) followed by abnormal prostate findings on DRE had 42 cases (20.8%). Cases with both elevated PSA and abnormal prostate findings were 40 (20.2%)

Table 3 showed the symptom pattern of the cases. Lower urinary tract symptoms had the highest occurrence with 90 cases (44.6%) followed by lower back pain with 60 cases (29.7%). Pathological fracture was seen in only one case (.49%)

Table 4 shows the original Gleason assessment of the risk groups. Of the 202 cases, 156 were high grade cancers (77.2%). Group 4=+4= 8/10 had the highest incidence of 52 which is 25.4% closely followed by group 5+4 = 9/10 with 35 cases (17.3%).

Table 5 showed the ISCP/WHO group grading. The high grade cancers were 52 (25.7%) while the very high grade cancers were 83 (41.1%)

Table 6 showed the age group distribution of the risk groups. The highest Gleason grade 5+5= 10/10 was found to be highest in the age group 71-80 with 13 cases closely followed by age range 81-90 with 10 cases. At the extremes of the age range 40-50 and 91-100, all the cancers were high grade.

TABLE 1

Showing age group/ range characteristics

S/N	AGE RANGE	NUMBER	PERCENTAGE
1	40-50 years	3	1.5%
2	51-60 years	16	7.9%
3	61-70 years	74	36.7%

4	71-80 years	78	38.6%
5	81-90 years	28	13.9%
6	91-100 years	3	1.5%
	TOTAL	202	100%

Figure 1: showing the age group distribution of the prostate cancers

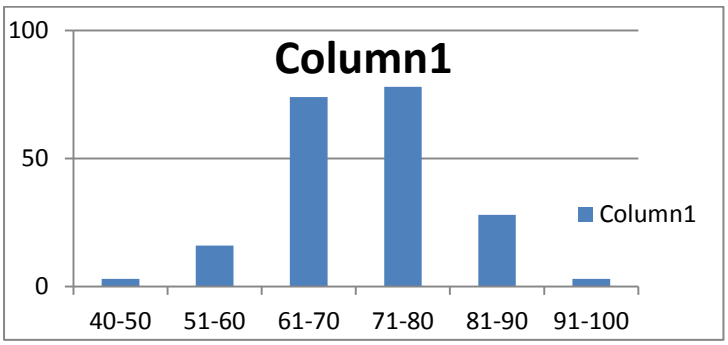

Table 2: table showing indications for prostate biopsy

S/N	INDICATIONS	NUMBER	PERCENTAGE
1	Elevated PSA PSA more than 10ng/ml	90	44.6%
2	Abnormal prostate findings on digital rectal examination(DRE)	42	20.8%
3	Elevated PSA and abnormal prostate findings on DRE	40	20%
4	Other indications including High Grade Pin, rapidly rising PSA and PSA elevation less than 10 but in men with strong family history of prostate cancer	30	14.8%
	TOTAL	202	100%

TABLE 3:

Table showing clinical symptoms on presentation

S/N	SYMPTOMS	NUMBER	PERCENTAGE
1	Lower urinary tract symptoms(luts)	90	44.6%
2	Lower back pains	60	29.7%
3	Gross heamaturia	15	7.4%
4	Gross weight loss	12	5.9%
5	Lower limb weakness	10	4.9%
6	Bone pains	8	3.9%
7	Asymptomatic	6	2.9%
8	Pathological fracture	1	.49%

	TOTAL	202	100%

Figure 2: showing indications for prostate biopsy

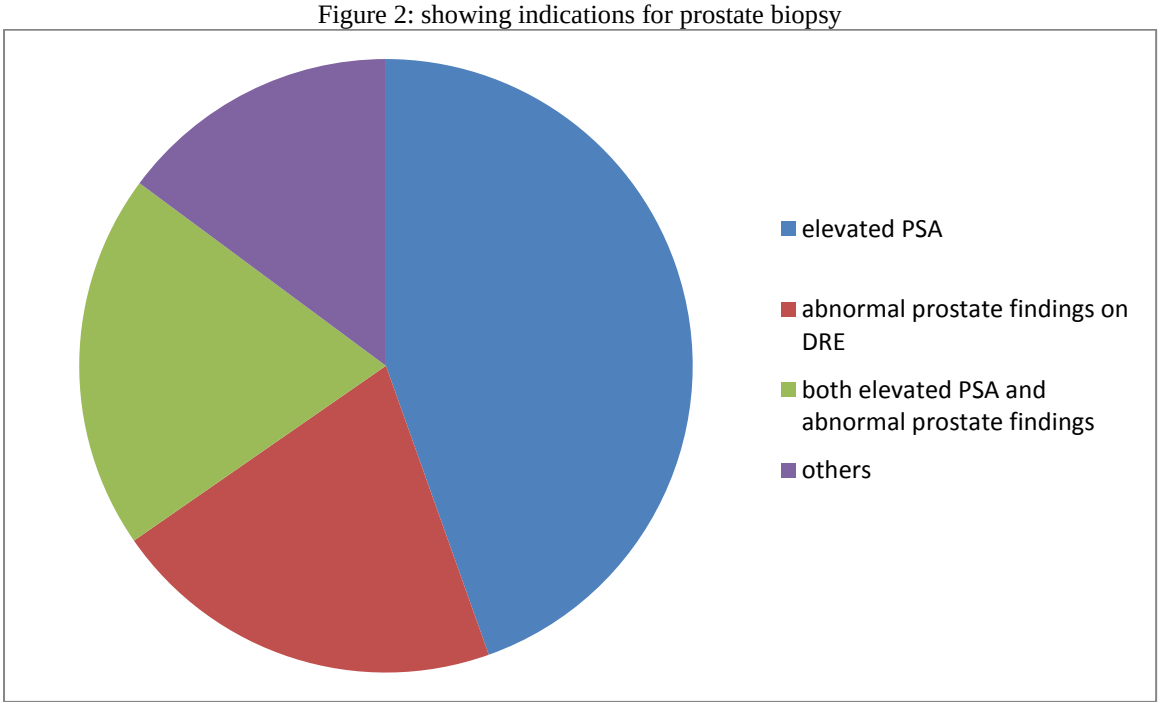

Figure 3: showing clinical symptoms on presentation

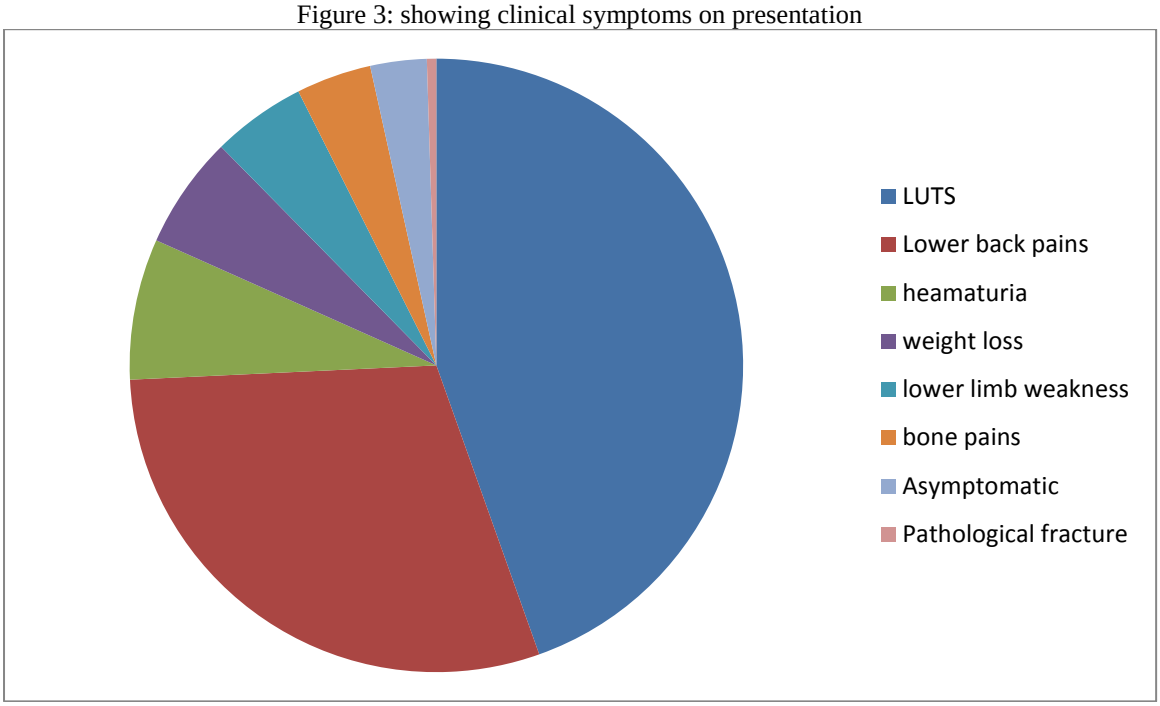

TABLE 4: original Gleason assessment of risk groups

S/N	GLEASON SCORE AND SUM	GRADE	NUMBER	PERCENTAGE
1	3+3= 6/10	Low	17	8.4%
2	3+4 = 7/10	Intermediate	29	14.4%
3	4+3 = 7/10	High	21	10.4%

4	4+4 = 8/10	High	52	25.4%
5	4+5 = 9/10	High	16	7.9%
6	5+4 = 9/10	High	35	17.3%
7	5+5 = 10/10	High	32	15.8%
	TOTAL		202	100%

TABLE 5: showing ISUP/WHO group grading

S/N	GLEASON SCORE + SUM	GROUP GRADE	RISK GROUP	NUMBER	PERCENTAGE
1	3+3= 6/10	1	Low/ very low	17	8.4%
2	3+4= 7/10	2	Intermediate & Favourable	29	14.4%
3	4+3= 7/10	3	Intermediate & Unfavourable	21	10.4%
4	4+4= 8/10	4	High	52	25.7%
5	4+5= 9/10 5+4= 9/10 5+5= 10/10	5	very High	83	41.1%
	TOTAL			202	100%

TABLE 6: age group distribution of the risk groups

S/N	AGE GROUP	3+3	3+4	4+3	4+4	4+5	5+4	5+5	TOTAL
1	40-50			1	2				3
2	51-60		3		5	3	4	1	16
3	61-70	8	9	10	23	6	12	6	74
4	71-80	8	13	8	19	7	10	13	78
5	81-90	1	4	2	3		8	10	28
6	91-100						1	2	3
	TOTAL	17	29	21	52	16	35	32	202

IV. Discussion:

Prostate cancer incidence gas been on an increase over the years due to

1. Increasing awareness of the disease
2. Awareness and availability of the diagnostic facilities
3. Increasing age of the population

In a study by the author in a 5 year review of prostate biopsies done at Abia state university teaching hospital Aba from January 2015 to December 2023, we found a peak incidence in the 6th decade of life a little variance from this study with peak incidence in the 7th decade.

In a similar study done at the Ahmadu Bello university zaria, which involved a 10 year study of prostate cancer specimens from January 1991 to December 2000, they found a peak incidence in the 7th decade of life similar to our findings in this study.

Prostate cancer grading using the Gleason grading system is a key component of prostate cancer diagnosis and infarct one of the most powerful predictors of outcome. It is very useful in assessing the behavior of prostate cancer.

The higher the Gleason score, the more likely the cancer will grow and spread and re-occur after primary therapy. A score of 6 describes cancers that look a bit similar to normal cells and described as well differentiated. A score of 7 suggest intermediate risk and described as moderately differentiated. A score of 8

and above suggest high grade cancers with high risk of spread and re-occurance and greater morbidity and mortality. They are described as poorly differentiated.

According to David G Bostwick, for Gleason score 7, it is important to separate predominant pattern 3 from predominant pattern 4- 3+4 = 7/10 and 4+3 = 7/10. Primary pattern 4 is associated with high tumor stage, high spread and higher PSA recurrence after primary therapy.

Rasiah etal found out that patients with grade 4 and 5 cancer were more likely to have seminal vesicle extension, extra prostatic extension and a much shorter time to cancer recurrence.

The new prostate cancer grading system ISUP/WHO grading is an extension and modification of the traditional Gleason system designed to give a simplified and more accurate stratification than the old system.

It focuses on the better representation of low grade disease with Gleason sum of 6 and with deletion of lower Gleason scores to reduce unnecessary treatment of indolent cancers.

It subdivides the prostate cancers into 5 groups or categories using pathological characteristics.

V. CONCLUSION

Prostate cancer is the most common cancer in Aba south Eastern Nigeria. Over 75% of the cancers are of the high grade variety. The Gleason group 4+4 = 8/10 is the commonest. The age range 60-80 years is the peak period of prostate cancer incidence in Aba. Therefore a lot of premium and suspicion should be placed so as to institute early investigative protocols and treatment so as to reduce morbidity and mortality.

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