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Histological pattern of prostate biopsy specimens at a private hospital in South Southern Nigeria

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Abstract

Introduction: Prostatic diseases are common causes of morbidity and mortality amongst adult male population worldwide. Commonly seen in clinical practice are benign prostate hyperplasia (BPH) adenocarcinoma of the prostate (CAP) and prostatitis.

Several studies have been done in the past to determine the prevalence of these prostatic diseases in different parts of the world with most studies revealing BPH as the commonest while prostatitis particularly granulomatous prostatitis as the least common.

This study aims at studying the histological pattern of prostate biopsy specimens done at Lily Hospitals Limited, Warri, Delta state, Nigeria.

Materials and Methods: This is a retrospective study of histology results following prostate biopsy done at Lily Hospitals Limited, Warri, Delta State, Nigeria between April 1, 2020 to May 2, 2021.

Relevant data were entered in a structured proforma and analyzed using SPSS version 20.0.

Results: A total of 30 prostate biopsy procedures were done during the study period. The patients' age ranged from 46 to 93 years with mean age of 68.8 years. The commonest indication was prostate specific antigen (PSA) greater than 10ng/ml. Majority of the prostate biopsies were done by digital guided prostate biopsy accounting for 63.3% of all cases done.

The commonest histological pattern was CAP accounting for 40% of all the specimens. The BPH to CAP ratio was 1:1.2 and the peak age range of occurrence of BPH was 70-79 years while for CAP, it was 60-69 years.

Conclusion: The commonest histological pattern of prostatic diseases is CAP with the commonest gleason score of 9. BPH to CAP ratio is 1:1.2 with the peak age of occurrence of CAP being 60-69 years. More efforts should be made at early diagnosis of CAP to reduce morbidity and mortality from the disease.

Keywords: Prostate, biopsy, CAP, BPH

Introduction

Diseases of the prostate are substantial sources of morbidity and mortality among adult male population worldwide and are one of the commonest cases seen by urologists [1, 2]. Of the diseases which affect the prostate, the most commonly encountered in clinical practice are BPH, CAP and prostatitis [3]. BPH is an extremely common condition in men over the age of 50 years and shows remarkable racial and geographical variations in incidence and mortality [4]. Globally, BPH affects 210 million males [5]. The development of histologic features of BPH is dependent on the bioavailability of testosterone, and its metabolite, dihydrotestosterone [6].

Prostate cancer is globally the second most frequently diagnosed cancer and the sixth leading cause of cancer death in males [7]. Worldwide, the incidence is rising rapidly mostly due to intensified effort in early detection and screening [8]. In Nigeria, prostate cancer has assumed the number one position constituting 11% of all male cancers [8, 9]. Prostatitis may be acute or chronic bacterial prostatitis, chronic abacterial prostatitis or granulomatous prostatitis [10].

The objective of this study is to review the histologic pattern of prostate biopsy specimens following prostate biopsy procedure at Lily Hospitals Limited, Warri, Delta state, Nigeria.

Materials and Methods

This is a retrospective study of the histology results of prostate biopsy specimens after prostate biopsy procedure at Lily Hospitals Limited, Warri, Delta state, Nigeria between April 1, 2020 to May 2, 2021.

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Relevant data were retrieved from the establishment computer database, entered in a structured proforma and analyzed using SPSS version 20.0. Results were presented as mean of patients' age, age range, standard deviation and frequency distribution tables.

Results

A total of 30 prostate biopsy procedures were done during the study period. Patients' age ranged from 46-93 years with mean age of 68.8 years (\pm standard deviation 11.8)

The commonest indication for prostate biopsy was PSA greater than 10ng/ml accounting for 73.3%, this was followed by suspicious digital rectal examination findings (16.7%) while PSA density greater than 0.15 accounted for 10% of all indications (Table 1)

Table 1: Indications for Prostate Biopsy

Indication	Frequency	Percentage (%)
PSA > 10ng/ml	22	73.3
Suspicious DRE Findings	5	16.7
PSA Density > 0.15	3	10.0
Total	30	100.0

Majority of the prostate biopsy procedures were done by digital guided prostate biopsy accounting for 63.3% of all cases done while Tran's rectal ultrasound (TRUSS) guided prostate biopsy accounted for 36.7% of all cases done (Table 2)

Table 2: Prostate Biopsy Procedure

Procedure	Frequency	Percentage (%)
Digital Guided Prostate Biopsy	19	63.3
TRUSS Guided Prostate Biopsy	11	36.7
Total	30	100.0

The commonest histological pattern seen was CAP accounting for 40% of all the prostate biopsy specimens, followed by BPH (33.3%) with BPH to CAP ratio of 1:1.2 while prostatitis accounted for 26.7% of all the specimens submitted (Figure1) The commonest gleason score amongst specimens with CAP was 9(33.3%) followed by scores 7 and 8 accounting for 25% respectively while gleason scores 6 and 10 accounted for 8.3% respectively.

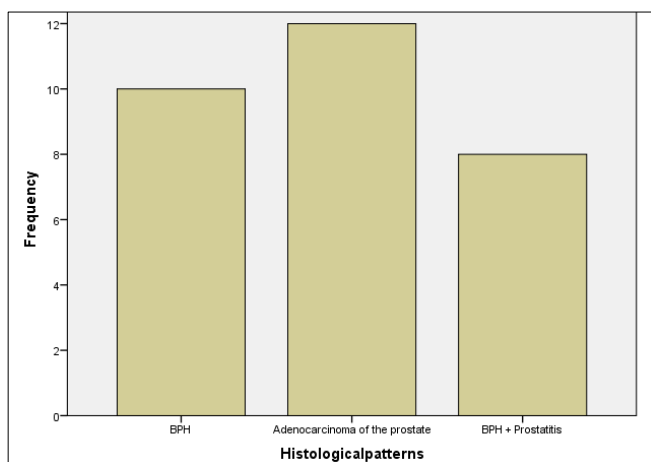


Fig 1: Histological Pattern of Prostate Biopsy Specimens

The commonest type of prostatitis seen was chronic bacterial prostatitis accounting for 87.5% of the total cases

of prostatitis seen while the granulomatous prostatitis accounted for 12.5%.

The peak age range of occurrence of BPH from this study was 70-79 years, followed by 60-69 years while for CAP, the peak age range of occurrence was 60-69 years followed by 80-89 years. The peak age range of occurrence of BPH with prostatitis was 60-69 years followed by both 50-59 and 90-99 age ranges with the same frequency of occurrence (Table 3)

Table 3: Histological sub-types and Age Distribution of Prostate Biopsy Specimens

Histological sub-type	40-49	50-59	60-69	70-79	80-89	90-99	Frequency
BPH	1	2	3	4	0	0	10
Adenocarcinoma of the Prostate	0	2	5	1	4	0	12
BPH + Prostatitis	0	2	3	0	1	2	8
Total	1	6	11	5	5	2	30

Discussion

The age range of the patients who had prostate biopsy was between 46 and 93 years with mean age of 68.8 years in keeping with well-known documented fact that prostatic diseases start from the age of 40. Histologic evidence of BPH can be seen in approximately 20% of men by 40 years of age, a figure that increases to 70% by age 60 and 90% by age 80 [10]. The commonest indication for prostate biopsy was PSA greater than 10ng/ml from this study. Even though other diseases affecting the prostate such as prostatitis can increase the PSA above 10ng/ml, it's still pertinent to follow the well documented indications for prostate biopsy which includes PSA greater than 10ng/ml in other to increase the likelihood of diagnosing prostate cancer when present as early diagnosis can lead to cure.

Majority of the prostate biopsy procedures were done by digital guided biopsy as opposed to the internationally accepted procedure which is TRUSS guided prostate biopsy procedure. All the patients were presented with both options with detailed discussion of pros and cons of each. The only factor that can be attributed to why most still opted for digital guided prostate biopsy was cost as the TRUSS guided prostate biopsy was more expensive than the digital guided biopsy procedure. Possibility of reducing the cost of TRUSS guided prostate biopsy with the assistance of various health insurances can help increase the number of patients accepting the TRUSS guided biopsy procedure with chances of abolishing digital guided biopsy which is not the current acceptable way of performing prostate biopsy worldwide.

Adenocarcinoma of the prostate seen as the commonest histological pattern with a rate of 40% was in contrast to the rate reported from other studies which was 12.5-30.9% [2, 11, 12, 13, 14, 15, 16, 17, 18].

Most Nigerian studies reported a rate of at least 22.4% [2, 14, 15, 16, 19]. The BPH to CAP was also in contrast to what was reported from other studies with a study done in Benin reporting 2.3:1, 2.5:1 reported by a study in Lagos, 3:1 reported by another study in Benin, 3:1 in Jos and 3.5:1 reported in Kano while 4.6:1 was reported in Saudi Arabia [2, 11, 14, 16, 17, 18]. The higher incidence of CAP from this study can be attributed to intensified efforts at early detection and screening, although the incidence is rising worldwide, most studies have not reported CAP to be commoner than BPH.

The number of patients involved in this study and duration of the study may also contribute to this finding, so a longer duration of study with more patients involved is pertinent to buttress this finding. The commonest gleason score of 9 seen from this study revealed that most cases of CAP diagnosed were aggressive with higher risk of mortality from the disease. The paucity of granulomatous prostatitis seen was similar to what was reported by some Nigerian series [19, 20].

The peak age range for occurrence of BPH from this study was similar to what was reported by some studies where peak age range of 6th and 7th decades were reported for those affected [2, 11, 12, 13, 14, 15, 16, 17, 18]. The peak age range for occurrence of CAP on the other hand from this study was in contrast to what was reported from some studies where 8th decade was reported [21, 22]. The earlier age of occurrence of CAP from this study may be attributed to the commoner higher gleason scores that are more aggressive with poorer prognosis. It may also portray improved health seeking behavior of the patients as the earlier they present for routine screening, the higher the chance of diagnosing CAP early in them.

Conclusion

The commonest indication for prostate biopsy is PSA greater than 10ng/ml. Adenocarcinoma of the prostate is the commonest histological pattern seen with the commonest gleason score being 9. The BPH to CAP ratio is 1:1.2. More effort should be made at early diagnosis of CAP to decrease the morbidity and mortality from the disease. All patients coming for prostate biopsy should be encouraged to accept TRUSS guided prostate biopsy procedure as that is the accepted procedure for prostate biopsy worldwide.

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