ORIGINAL ARTICLE

Histopathological spectrum of prostatic diseases at a Tertiary Care Hopsital of Southern Punjab.

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ABSTRACT… Objective: To see the spectrum of prostatic lesions at a tertiary care hospital of Southern Punjab. **Study Design:** Retrospective study. **Setting:** Department of Histopathology, Quaid-e-Azam Medical College, Bahawalpur. **Period:** 2nd June, 2021 till 31st December, 2021. **Material & Methods:** Retrospective descriptive study was conducted in the Department of Histopathology, Quaid-e-Azam Medical College, Bahawalpur. The data was collected from the histopathological files and from already diagnosed from June 2021 till December 2021. Statistical analysis was done using SPSS with the confidence interval of 95% and p-value of ≤0.05 was considered as significant. Chi-square was applied to find association with age and year of diagnosis. **Results:** Total of 126 patients were documented from June 2021 till December 2021, out of which 92 (73%) were of Benign Prostatic Hyperplasia, commonly diagnosed in the age group of 60 years and above. Prostatic Adenocarcinoma having Gleason scores of 6 and below were frequent in our study in the same age group of 60 years and above. **Conclusion:** In our study, there was a higher prevalence of Benign Prostatic diseases (73%) as compared to the other prostatic lesions and most commonly occurring in the age group of 60 years and above. Prostatic Adenocarcinoma was less commonly present (11.9%) with Gleason scoring of 6 and below in the age group of 60 and above years.

Key words: Adenocarcinoma, Gleason Score, Hyperplasia, Histopathological, Lesion, Prostate.

INTRODUCTION

Anatomically prostate is a retroperitoneal organ and an exocrine gland which is located below the urinary bladder encircling the bladder's neck and urethra without any capsule. Its function is production and secretion of prostatic fluid, which forms the main component of semen, hence plays a vital role in protecting sperms. The prostatic parenchyma is divided into four anatomical zones; peripheral, transitional and anterior fibromuscular stroma.[1]

Most of the prostatic diseases can be grouped into Benign Prostatic Hyperplasia (BPH) and Prostatic Carcinoma, while the miscellaneous group consists of inflammation, infarction etc. These disorders cause frequent lower urinary tract symptoms such as urgency, increase in frequency, poor flow and nocturia in the aging male population.[2] These symptoms hence cause deterioration in quality of life with decreased sexual activity.[3]

Inflammation of prostatic gland is called Prostatitis. It is the third most commonly diagnosed urinary tract disease in men, first and second being BPH and Prostatic Carcinoma[4] It may present as acute bacterial prostatitis, chronic bacterial prostatitis, chronic pelvic syndrome or even asymptomatic prostatitis.[5]

In aging population of men, BPH is a very common histopathological diagnosis. It is a non neoplastic excessive growth of prostatic glands which results in forming large nodules mostly involving the peri-urethral region of prostate.[6] These nodules encroach the lateral walls of urethra thus causing lower urinary tract symptoms.

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Prostatic Cancer has become the second most commonly diagnosed malignancy in men after malignancy of lung. Now worldwide it is the fourth leading cause of mortality in males. The incidence rate of mortality is highest in developed countries such as Northern Europe (85.7%) and North America (73.7%).[7] Owing to the fast adoption of western lifestyles and excessive fatty diet, the incidence rate of Prostatic carcinoma has increased which was used to be much lower in the past.[8,9]

Recently it is the sixth most common malignant tumor among male population in Asia with the average mortality rate of 3.8 per 100,000. The number of cases in Pakistan has also increased exponentially as it is now the most common malignancy diagnosed among males according to the Cancer registry of Shaukat Khanum memorial Cancer hospital[10] and second most common malignant tumor in males according to Punjab Cancer registry report of 2018.[11]

This study was aimed to identify frequency of prostatic diseases at a tertiary care hospital in Bahawalpur.

MATERIAL & METHODS

This retrospective study was done at the Department of Histopathology, Quaid-e-Azam Medical College/Bahawal Victoria Hospital, Bahawalpur for a period of six months i.e. from 2nd June, 2021 till 31st December, 2021. After the approval from institutional Ethical review committee (2101/DME/QAMC), the data was collected from the available records of patients. The data was taken for the said duration from already diagnosed cases of prostatitis, benign prostatic hyperplasia and carcinoma of prostate. Biopsy specimens had been acquired in 10% neutral buffer formalin. After noting the gross features, paraffin blocks were prepared. Tissue sections of approx. 3-4 micrometers were cut from tissue blocks and stained with Hematoxylin and eosin (H&E). Microscopic examination was done and recorded.

The relevant data including patients' age, presenting complaints, serum PSA values, histological diagnosis and Gleason scoring for grading of carcinoma prostate was also taken according to Gleason system and recorded. Cases with insufficient data were excluded from the study.

After collection, data was entered and analysed statistically using SPSS version 20. Frequencies and percentages were given for categorical data whereas mean and standard deviation for continuous data. A p value of ≤ 0.05 or equivalent was considered as statistically significant.

RESULTS

During the period of six months from 2nd June 2021 to 31st December 2021, 126 prostatic specimens were received. The patients's ages were in the range of 22 and 91 years and mean age of presentation was 64.3 ± 12.8 years. Majority of the cases were in the age group 60 and above years (69.8%) (Table-I).

The prostatic lesions were categorized as Benign Prostatic Hyperplasia (BPH), Prostatitis, Prostatic intraepithelial neoplasia (PIN) and Prostatic Adenocarcinoma. Out of 126 patients, 92 (73%) were of BPH (Figure-1), 12 (9.5%) were of Prostatitis, 7 (5.6%) were of PIN and 15 (11.9%) were of Prostatic Adenocarcinoma (Figure-2).

All the prostatic lesions were more prevalent in the age group of 60 and above years, with total of 88 (69.8%) patients in this age group. Out of these 88 patients, 64 (72.72%) had BPH, 9 (10.23%) had Prostatitis, 5 (5.68%) had PIN and 10 (11.36%) had Prostatic Adenocarcinoma. 6 patients of Prostatic adenocarcinomas were diagnosed with Gleason scoring of 6 and below, 5 with score of 7 and 4 with high scores of 8–10.

DISCUSSION

The diseases of prostate can markedly decrease the quality of life. They may lead to poor prognosis and early deaths in case of carcinomas if diagnosed late.

The most common occurring prostatic lesions include BPH, Prostatitis, PIN and Prostatic Adenocarcinoma.

Age Groups					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	40 and less	6	4.8	4.8	4.8
	41-50	11	8.7	8.7	13.5
	51-59	21	16.7	16.7	30.2
	60 and above	88	69.8	69.8	100.0
	Total	126	100.0	100.0	

Table-I

Diagnosis					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	benign prostatic hyperplasia	92	73.0	73.0	73.0
	PIN	7	5.6	5.6	78.6
	Prostatic Adenocarcinoma	15	11.9	11.9	90.5
	Prostatitis	12	9.5	9.5	100.0
	Total	126	100.0	100.0	

Table-II

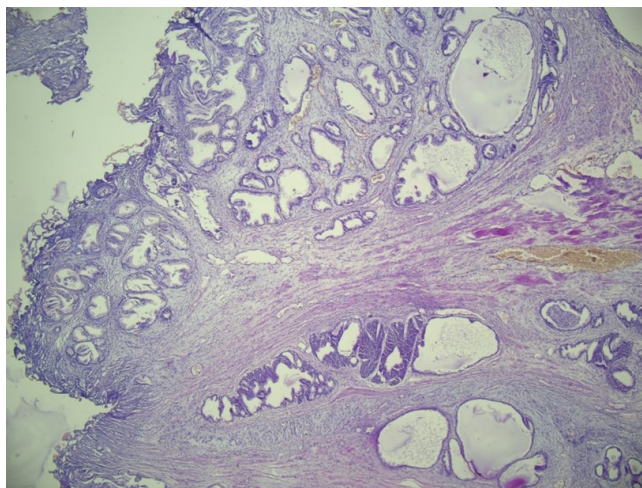| Crosstab						
Count						
		Diagnosis				Total
		benign prostatic hyperplasia	PIN	Prostatic Adenocarcinoma	Prostatitis	
Age Groups	40 and less	5	0	0	1	6
	41-50	9	1	1	0	11
	51-59	14	1	4	2	21
	60 and above	64	5	10	9	88
Total		92	7	15	12	126

Figure-1. Benign Prostatic Hyperplasia (H&E, 10X). Proliferating glands are seen with fibromuscular stroma and corpora amylacea
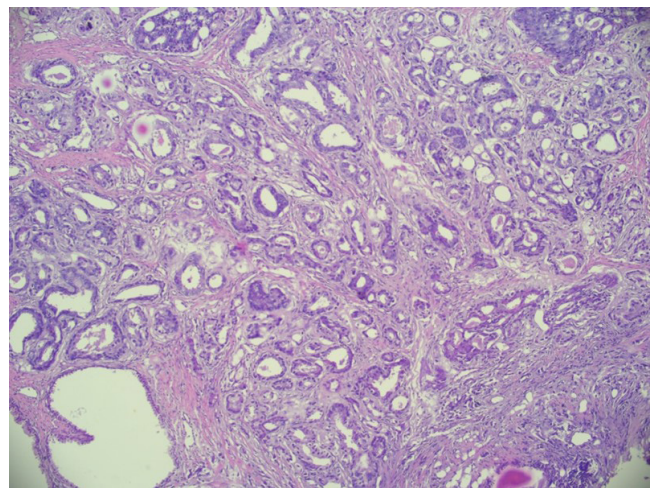

Figure-2. Prostatic Adenocarcinoma having Gleason Score 7 (H&E, 40x). Fused glands and sheets forming psudoacinar spaces with lesser component of well formed glands seen.

These cause a significant level of morbidity especially in the older age group worldwide, of which BPH is the most common cause of lower urinary tract symptoms causing urinary outflow obstruction and nocturia. In western countries, Prostatic carcinoma is the most commonly diagnosed lesion.[12]

The results of our study have shown that BPH is the most commonly occurring lesion of prostate gland (73%), occurring frequently in the 60 and above years of age group. Its similar to the study

conducted at King Edward Medical University, Lahore, which reported the frequency to be 77.0% in the same age group of 61-70 years. A study conducted at Jinnah Postgraduate Medical Centre (JPMC) Karachi in 2018 reported the frequency to be 88.9% whereas another study done at Dow University of Health Sciences, Karachi reported the frequency of BPH to be 87.5%.[13] Many western studies have also shown similarity with these results and explaining that BPH has strong association with increasing age.[14]

In our study, in some cases BPH was seen in association with inflammation (Prostatitis) (9.5%) whereas in the other study done at JPMC it was higher (26.4%). The continuous increase in the incidence of BPH may be directly related to changes in lifestyle and with advancement in healthcare system, regular screening processes especially in high risk individuals has lead to early diagnosis.

In the current study, prostatic cancer was seen to be 11.9% which was similar to the study done at JPMC in 2018 i.e. 10.4%.[13] There are also few other same single centre studies done at Lahore, Faisalabad and Karachi which have reported their frequencies to be 13%, 13.5% and 12.5% respectively.[12,15,16]

In the recent years, there is an increase in incidence of prostatic cancer in developed countries owing to the rapid modernization and changes in lifestyle.[8,17] In Pakistan as well, same trend has been seen as reported by Shaukat Khanum Memorial Cancer Hospital and Pakistan Cancer Registry which has increased from 7.2% to 8.3% in 2018.[18]

According to our study, more than half of the cases with prostate cancer were seen to be diagnosed at the age of 60 years and older. It is similar to the study conducted at Peshawar which has reported their mean ages to be 65 years and older.[19] But on the contrary, the study done at JPMC Karachi in 2018 showed that prostatic cancer was diagnosed in age group of less than 60 years.[13]

Gleason scoring has also been found to have association with age of patients at the time of diagnosis. According to our study, Gleason score of 6 and below were most common in the age group of 60 years and above. But the studies done at Agha Khan University Hospital and JPMC Karachi showed that the Gleason scores of 7 and 8-10 were most common at the time of diagnosis in the age group of 51-60 years, respectively.[13,19] Unfortunately no recent data available for more comparison and know about reasons behind diagnosis of very high scores in the later age groups. Most possible reasons behind this may be modification in lifestyles, rapid speed of urbanization and carcinogenic exposures may lead to cause the disease process at an earlier age but by the time of diagnosis it may be present at higher stage.[20]

CONCLUSION

In our study, there was a higher prevalence of Benign Prostatic diseases (73%) as compared to the other prostatic lesions and most commonly occurring in the age group of 60 years and above. Prostatic Adenocarcinoma was less commonly present (11.9%) with Gleason scoring of 6 and below in the age group of 60 and above years. **Copyright© 19 June, 2023.**

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1	Sadaf Shafique	Collection of data, Conception and design.	
2	Syed Saad Gardezi	Manuscript writing.	
3	Raees Abbas Lail	Editing and review of manuscript.	
4	Muhammad Sami Ullah	Drafting and critical reviewing.	
5	Raheel Khan	Analysis of data.	