

Frequencies of Several Histopathological Varieties of Prostatic Diseases in a Tertiary Care Hospital at Larkana

Muhammad Wasif Saleem¹, Shazia Hashmat², Taqia Fauzia³, Maryam Zulfiqar⁴, Bushra Anam Ali⁵ and Muhammad Ali Memon⁶

ABSTRACT

Objective: To evaluate the frequencies of various histopathological patterns of prostatic diseases in a tertiary care hospital in Larkana.

Study Design: Cross-Sectional Observational study

Place and Duration of Study: This study was conducted at the Pathology Department, Chandka Medical College, Larkana from April 2021 to April 2023.

Materials and Methods: This study consisted of prostate tissue samples received in the Department of Pathology either by TURP or prostatic resection. Histopathology was evaluated by an experienced pathologist either as benign or malignant diseases and malignant diseases were subsequently graded as per Gleason Score.

Results: There were a total of 147 cases of prostate specimens received during the study duration. The median age range of patients with both benign and malignant disease was 56-60 years. Among these cases, n=116 (78.9%) were benign majorly diagnosed as benign prostatic diseases among these 11 cases had additional histopathological changes and n=31 (21.0%) was malignant with most patients with malignant disease having a Gleason Score of 7.

Conclusion: Prostate disease prevalence in Pakistan is on the rise, particularly in relatively younger populations, requiring future research and treatment efforts.

Key Words: Benign Prostate Hyperplasia (BPH), Transurethral Resection of Prostate (TURP), Prostate Cancer

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INTRODUCTION

The prostate is an important gland in the male reproductive system that plays a crucial role in the production of semen and transport of sperm. However, with the advances in age like any other organ in the human body, the prostate is also susceptible to various diseases, both benign and malignant.

Benign diseases of the prostate refer to non-cancerous lesions that affect the gland, whereas malignant diseases involve the presence of cancerous cells within

the prostate. Benign prostatic hyperplasia (BPH) is the most common benign disease of the prostate. BPH is age-related and characterized by the enlargement of the gland, leading to urinary symptoms such as frequent urination, weak urine flow, and difficulty starting or stopping urination which can significantly impact the quality of life for affected individuals.^{1,2} On the other hand, prostate cancer is the second most common cancer in men globally and the most frequently diagnosed cancer among men in many countries.³ The exact causes of prostate cancer are not yet fully understood, but certain risk factors such as age, family history, race, and lifestyle choices can contribute to its development. Therefore, understanding the pathophysiology, risk factors, and prevalence of these diseases is crucial for effective prevention, early detection, and appropriate management, so that the quality of life for affected individuals is timely improved.

Globally, prostate cancer incidence and mortality rates vary across regions. According to the Global Cancer Statistics, an estimated 1.4 million cases of prostate cancer were diagnosed worldwide in 2020. Prostate cancer has a higher prevalence in developed countries, such as North America and Europe, compared to developing regions.⁴ However, the rates are gradually increasing in many parts of Asia and Africa, including Pakistan.

¹. Department of Pathology, Chandka Medical College, SMBBMC, Larkana.

². Ziauddin University, Karachi.

³. Shaheed Mohtarma Benazir Bhutto Medical College, Lyari.

⁴. HBS Medical & Dental College, Islamabad.

⁵. Fazaia Medical College, Islamabad

⁶. Indus Medical College, Tando Muhammad Khan.

Correspondence: Muhammad Wasif Saleem, Assistant Professor, Chandka Medical College, Shaheed Mohtarma Benazir Bhutto Medical College, Larkana.

Contact No: 0335-3505853

Email: drwasifsaleem@outlook.com

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In Pakistan, prostate cancer is becoming a significant public health concern. It is now the second most common cancer among Pakistani men, following lung cancer.³ The incidence of prostate cancer has been rising steadily over the past few decades. However, due to a deficiency of proper cancer registries, there is a lack of data for prostatic diseases and cancer frequencies in the Pakistani population. We, therefore, aim to study the frequencies of histopathological patterns of prostatic diseases in the Pathology Department, Chandka Medical College, Larkana.

MATERIALS AND METHODS

This was a cross-sectional study carried out in the Pathology Department, Chandka Medical College, Larkana from April 2021 to April 2023. Samples were recruited via non-probability convenience sampling. Specimens obtained from the surgical procedures were fixed in 10% buffered formalin and were processed in an automatic tissue processor. The samples were embedded in paraffin blocks and then the sections obtained were stained with hematoxylin and eosin. The slides were then subsequently diagnosed as either benign or malignant. The malignant cases were further graded accordingly by an experienced histopathologist. The data was entered and analyzed using SPSS v 24.

RESULTS

There was a total of 147 cases of prostatic specimens received at the hospital. The majority of these samples were acquired via Trans Urethral Resection of Prostate (TURP) whereas the remaining samples were acquired by radical prostatectomies as shown in Table No. 1.

Table No. 1: Distribution of cases according to the type of specimen. (n = 147)

Type of specimen	Benign (%)	Malignant (%)	Total Number (%)
TURP	105 (84.67)	19 (15.32)	124 (84.35)
Radical Prostatectomies	11 (47.82)	12 (52.17)	23 (15.64)

Table No. 2: Histopathological distribution of benign and malignant cases according to age.

Age Group	No. of Cases	Benign n	Malignant t
46-50 years	11	10	1
51-55 years	24	21	3
56-60 years	40	30	10
61-65 years	34	25	9
66-70 years	16	10	6
71-75 years	12	11	1
76 above years	10	9	1

Among these cases n=116 (78.9%) were benign and n=31 (21.0%) were malignant. The median age range of patients with both benign and malignant disease was 56-60 years as shown in Table No. 2 along with the distribution of benign and malignant diseases with age ranges.

All the cases as benign diseases had the underlying diagnosis of as benign prostatic hyperplasia. However, n=14 cases had additional pathologies along with BPH. The majority of these additional cases were diagnosed as Acute/Chronic Prostatitis in n=9 cases, Granulomatous prostatitis in n=3, and Eosinophilic Prostatitis in n=2 cases as shown in Table No. 3.

Table No.3: Frequency of histological types of benign prostatic lesions. (n = 116)

Benign prostate hyperplasia (BPH)	102 (87.93)
Benign prostate hyperplasia + Acute/Chronic prostatitis	9 (7.75)
Benign prostate hyperplasia + Granulomatous prostatitis	3 (2.58)
Benign prostate hyperplasia + Eosinophilic prostatitis	2 (1.72)
Benign prostate hyperplasia (BPH)	102 (87.93)
Benign prostate hyperplasia + Acute/Chronic prostatitis	9 (7.75)
Benign prostate hyperplasia + Granulomatous prostatitis	3 (2.58)
Benign prostate hyperplasia + Eosinophilic prostatitis	2 (1.72)

All the n=31 cases that were diagnosed as malignant were graded according to the modified Gleason Score. The majority of malignant cases n=8 (25%) was graded as 4+3 followed by 3+4 in n=7 cases (22.58%) and only 1 case was graded as 5+5 as shown in Table 4.

Table No.4: Distribution of malignant cases according to Gleason’s score. (n = 31)

Gleason’s Score	Frequency (%)
3+3	5 (16.12)
3+4	7 (22.58)
4+3	8 (25.80)
4+4	3 (9.67)
4+5	4 (12.90)
5+4	3 (9.67)
5+5	1 (3.22)

DISCUSSION

Diseases of the prostate, particularly benign prostatic hyperplasia (BPH) and prostate cancer have become a significant healthcare concern in Pakistan. The prevalence of these diseases has been increasing steadily, presenting challenges in terms of diagnosis, treatment, and overall management.

The benign prostatic hyperplasia (BPH) is a common condition affecting the prostate gland, characterized by its enlargement. The prevalence of BPH in Pakistan is relatively high, affecting a large proportion of older men. Males of older age experience the symptoms of BPH. In a study done in 2013 about 40% of Patients with BPH were between ages 61-70.⁶ Similarly, another study done in Karachi showed most patients with benign prostatic diseases present between 61-65 years.⁶ However, in our study, we see that most patients with BPH were 60 years or less of age with most patients between 55-60 years. This is suggesting that presenting age of BPH is decreasing may also be because of low-income location and other environmental factors.⁷

Prostate cancer has emerged as a major concern in Pakistan. Globally it is now the second most common cancer among men accounting for 1,276,106 new cases and causing 358,989 deaths (3.8% of all deaths caused by cancer in men) in 2018, following lung cancer³. With over 80% of the cases being elder than 65 years of age⁸. The incidence of prostate cancer in Pakistan has been on the rise over the past few decades. The frequency of prostate cancer in our study was found to be 21.08% which is higher than other reported incidences in various regions of Pakistan such as Karachi and Faisalabad which reported their prostate cancer frequencies to be 12.5% and 13.2% respectively^{9,10}. This high incidence of prostatic cancer in our study is very alarming and this could be attributed to multiple factors that should be thoroughly researched and studied.

Firstly, the aging population plays a role as prostate cancer is more commonly diagnosed in older individuals. The incidence of prostatic cancer was found to be highest in men aged between 70-74 years in the USA.¹¹ In our study, most patients with Prostate cancer were found to be between 56-60 years of age followed by patients presenting between 61-65 years of age. This is concerning as other studies mentioned previously from Karachi and Faisalabad showed most patients with prostatic cancer presented between 60-70 years of age.^{9,10} This alarming finding could be attributed to, changes in location, environmental factors, lifestyle, and dietary habits, such as a shift towards a Westernized diet and sedentary lifestyles, which may contribute to the rising incidence.

With this rising incidence it is also essential in determining the prognosis of patients with prostate cancer. In this regard, the Gleason Score is the primary histological assessment used to grade histological malignancies and is of great prognostic value. The Gleason score ranges from 1-5 where 1 represents normal appearing cells and 5 appears abnormal cells. It is always reported as an equation as a sum of two numbers as shown in Table 4. Most of our patients were

reported to have a Gleason Score of 7. However, the frequencies of Gleason Scores were found to varied as in similar region one study showed similar findings to our study⁶ whereas as another study reported majority (40%) of patients with Gleason score of 9.¹²

CONCLUSION

The prevalence of prostate diseases, specifically benign prostatic hyperplasia (BPH) and prostate cancer, is increasing in our region in Pakistan and it is alarming that the incidence of these tumors is now occurring in relatively younger populations compared to other regions and countries. Future studies and endeavors that are essential to address the challenges associated with diagnosis and treatment should be carried out so that the impact of prostate diseases on the population's health in Pakistan may be improved..

Author's Contribution:

Concept & Design of Study:	Muhammad Wasif Saleem
Drafting:	Shazia Hashmat, Taqia Fauzia
Data Analysis:	Maryam Zulfiqar, Bushra Anam Ali, Muhammad Ali Memon
Revisiting Critically:	Muhammad Wasif Saleem, Shazia Hashmat
Final Approval of version:	Muhammad Wasif Saleem

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Chughtai B, Forde JC, Thomas DDM, Laor L, Hossack T, Woo HH, et al. Benign prostatic hyperplasia. *Nat Rev Dis Primers* 2016;2(1):1-15.
2. Roehrborn CG. Benign prostatic hyperplasia: an overview. *Rev Urol* 2005;7(Suppl 9):S3.
3. Rawla P. Epidemiology of prostate cancer. *World J Oncol* 2019;10(2):63.
4. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2021;71(3):209-49.
5. Arshad H, Ahmad Z. Overview of benign and malignant prostatic disease in Pakistani patients: A clinical and histopathological perspective. *Asian Pacific J Cancer Prevention* 2013;14(5):3005-10.
6. Nomani BH, Alamgir M, Qayyum M, Raza SN, Faisal H, Nadeem S. Frequency of various histopathological types of prostatic diseases in a

- Tertiary Care Hospital at Karachi. The Profess Med J 2022;29(08):1147–51.
7. Sayegh N, Gross K. Benign prostatic hyperplasia: a global challenge of the ageing population. *Lancet Healthy Longev* 2022;3(11):e725–6.
 8. Daniyal M, Siddiqui ZA, Akram M, Asif HM, Sultana S, Khan A. Epidemiology, etiology, diagnosis and treatment of prostate cancer. *Asian Pacific J Cancer Prevention* 2014;15(22):9575–8.
 9. Hameed S, Malik A, Bilal S, Dogar SR, Aslam S. Pattern of prostatic disease; a histopathological survey. *Profess Med J* 2010;17(4):573–7.
 10. Aslam HM, Shahid N, Shaikh NA, Shaikh HA, Saleem S, Mughal A. Spectrum of prostatic lesions. *Int Arch Med* 2013;6(1):1.
 11. Siegel DA, O'Neil ME, Richards TB, Dowling NF, Weir HK. Prostate Cancer Incidence and Survival, by Stage and Race/Ethnicity — United States, 2001–2017. *MMWR Morb Mortal Wkly Rep* 2020;69(41):1473–80.
 12. Bukhari U, George A, Shafique Y. Prostatic Carcinoma : Frequency , Pattern and Evaluation of Gleason Grading in Prostate Biopsies. *Pak J Med Res* 2020;59(2):55–9